The Clinical Operating Guidelines are effective until revised and/or November 06, 2023.

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Introductory Letter to the System

Dear Colleagues:

These Policies and Procedures supersede all prior system Policies and Procedures and are written to create a clinical EMS medical practice that provides consistent quality care to all of the communities served regardless of race, creed, religion, national origin or ability to pay. These Policies and Procedures are guidelines for our Emergency Medical Services (EMS) System. They are intended to be the framework of decisions for our EMS System. It is understood that variations from the Policies and Procedures may be necessary in the interest of assuring that a patient receives appropriate care and/or is transported to an appropriate medical facility.

These guidelines indicate Provider Levels not currently filled as well as medications and procedures not currently approved for System distribution or implementation. These are included for future System clinical care expansion. The System's guidelines and equipment lists will be updated as new equipment, medications and procedures are approved for use and/or distribution.

All System Credentialed Providers/Responders are responsible for the provisions contained in the City of Austin – Travis County EMS System Clinical Operating Guidelines, as well as associated EMS Rules and Regulations promulgated by the Texas Department of State Health Services.

Thank you for all you do.

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Chief Medical Officer
EMS System Medical Director
City of Austin

System Clinical Guidelines

Atypical Clinical Guideline Utilization and Online Medical Direction

Standard:

Provide direction on managing patients and circumstances whose needs are outside the guidelines.

Purpose:

Give direction for providers who encounter complicated, unusual, and atypical patient encounters and to establish an orderly method by which these clinical issues can be rapidly addressed.

Application:

1) Clinical encounters requiring use of this guideline may be divided into two types:
   a) Those whose clinical situation is covered by an existing guideline but are presenting a clinical/administrative challenge and require non-medical control guidance
   Examples: clarification of a COG, patient destination, other healthcare provider issues, etc. and require non-medical control guidance
   b) Those whose clinical situation is not covered by existing guideline and thus require medical control orders via online medical consultation.
   Examples: modification of drug dosage, patient medication not addressed in guideline or unfamiliar to a provider, termination of resuscitation not covered in current policy.
2) Patients requiring online medical consultation (1b) shall contact medical control as described in steps 4 and 5 below. The provider requesting online medical control must be on the scene with the patient.
3) The first call for operational/clinical issues related to an individual patient or patients will be placed to an organization's designated clinical supervisory personnel (e.g., DMO).The call should be placed via a recorded line through Communications. If the clinical supervisory personnel are not available the call should be directed to the On-Call System Medical Director via Communications on a recorded line.
4) If online medical control consultation is required or desired the request should be made to the On-Call System Medical Directors.
   a) If a System Medical Director is unable to be contacted then; a physician at the intended receiving hospital may be used via recorded telephone line through Communications or radio. If calling a hospital for online medical control; only physicians at receiving hospitals can provide medical direction; other staff, including nurses, may not provide online medical direction.
5) The name of the individual providing online medical control or administrative direction shall be clearly documented in the narrative section of the PCR. This documentation shall include times, names, and details of consultations made by the EMS provider.

Cancellation or Alteration of Response

Standard:

Establish direction for cancelling or altering an initial response to a request for service.

Purpose:

To give all providers in the ATCEMS System guidance on when they may be able to alter or cancel an initial response based on patient or scene presentation.

Application:

1. Resources will be initially dispatched to a 9-1-1 request for service based on the currently approved Medical Priority Dispatch (MPD) standards.
2. After assessing the patient(s) and making a determination of needed resources any on-scene Credentialed Provider may modify or cancel the response mode of any other System Provider not already on-scene.
    a. Prior to scene arrival, EMS specialty units staffed with at least one provider at the ≥PL5 level or Office of the Chief Medical Officer (≥PL7) providers may, at their discretion, replace an assigned ambulance on priority 4 or 5 calls, except PSYC4F, to respond and initiate patient assessment/care then determine the need for a transport unit or disposition options.
        i. If the call priority changes to 1-3, then an ambulance will be assigned to respond.
    b. A credentialed Integrated Services – Collaborative Care Communications Center (C4) provider may navigate the incident and cancel responding units on calls dispatched to the C4 following appropriate MPDS triage.
3. If cancelled, responders may, at their discretion, reduce their response to non-lights and sirens ("Code 1") and continue to provide other assistance deemed appropriate by their organization or department. This does not apply to responses for responsibilities other than patient care (scene safety, fluids, etc).
4. At the discretion of the Integrated Services Medical Director and the Integrated Services Division Chief, responses may be modified for ongoing incidents of inappropriate 9-1-1 use.

Cardiac Arrest Documentation

Standard:

To establish guidelines for narrating and documenting cardiac arrest care for quality improvement use.

Purpose:

The resuscitation audio recording and documentation provides a means of improving our methods, protocols, and training in order to improve the care we provide to cardiac arrest patients. The recording should describe what is happening at the scene with respect to clinical care. Providers should think of this process as equivalent to what you would say if the Medical Director were on the phone with you during the resuscitation efforts and you were describing to them what is going on at the scene.

Application:

For each cardiac arrest documentation, attempt to include as many of these elements as is possible:

1. Team leader name and Unit #
2. Witnessed arrest or not
3. Circumstances prior to arrest
4. Briefly describe the patient (age, gender)
5. Bystander CPR? If so, who?
6. Briefly describe any unusual findings
7. Patient response(s), or lack thereof, to interventions

Interventions and actions should be verbalized for the recording and documented in the ePCR:

1. Moving patient to a larger or different space
2. Compressions started/stopped, and use of metronome/feedback device
3. Switched compressors
4. AED's activation/decision to shock or not to shock, same for use of cardiac monitor
5. CPR feedback puck placed
6. Ventilation with BVM and timing light
7. $EtCO_2$ values and waveform
8. Placement and confirmation of BIAD
9. Pulse present/absent during AED or ECG analysis
10. Medications administered and interventions performed by providers
11. Patient has ROSC/pulses

Cardiac Arrest Documentation

Crime scene management where no resuscitation is initiated:

1. Any Responder, who is not credentialed to seek a TOR of an obvious Dead on Scene (DOS), should immediately leave the area via the path of entry without touching anything.
2. When TOR is required, only one properly Credentialed Provider should make entry to the area.

Crime scene management with unsuccessful resuscitation:

1. Once resuscitation efforts have ceased and a TOR has been obtained providers should immediately vacate the area.
2. The Medical Examiner must be able to differentiate between punctures originating from resuscitation efforts and those present prior to arrival. All unsuccessful IV/IO or pleural decompression attempts should be marked on the body by circling with a marker or pen.

Crime scene management with patient transport:

1. Clothing, jewelry or other objects removed from the patient should be left on-scene. Clearly document any items left and inform on-scene Law Enforcement of the items original and current locations.
2. When cutting clothing for the purpose of assessment and/or treatment avoid cutting through existing defects in the clothing (tears, entry or exit points) whenever possible.
3. If the patient has been placed on a sheet, notify the receiving facility that the sheet and all personal effects may be considered evidence.
4. If law enforcement is not on-scene prior to transport, the first response agency is to remain on scene, out of the crime scene perimeter, until arrival of law enforcement. An effort should be made to keep all individuals out of the area.

Crime scene management with "exigent" circumstances:

1. Code of Criminal Procedure Title 1 Chapter 49.25 Removal of Bodies Section 8: "When any death under circumstances set out in Section 6 (below) shall have occurred, the body shall not be disturbed or removed from the position in which it is found by any person without authorization from the medical examiner or authorized deputy, except for the purpose of preserving such body from loss or destruction or maintaining the flow of traffic on a highway, railroad or airport."
2. In the case of these exceptions providers may be requested by law enforcement to assist with the movement/removal of the body. When possible evidence blankets should be used for patient movement and every effort should be made to preserve evidence where possible.

Addition Information Texas Code of Criminal Procedure, Title 1. Code of Criminal Procedure, Chapter 49. Inquests Upon Dead Bodies.

Child Abuse (< 18 years old) Recognition and Reporting

Standard:

Assessment of an abused child is based upon the following principles:

- **Protect** the child from harm.
- **Suspect** that the child may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
- **Respect** the privacy of the child and family.
- **Collect** and document as much information as possible.

Purpose:

Children are at risk of abuse due to physical, sexual, emotional maltreatment or neglect. All are harmful to their physical and emotional development and all require intervention. Under the Child Abuse Prevention and Treatment Act (CAPTA), child abuse and neglect means, at a minimum, *"Any recent act, or failure to act, on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm."* By Texas State law, all healthcare providers are obligated to report cases of suspected child abuse or neglect to either the local law enforcement agency **or** the Texas Department of Family and Protective Services (TDFPS) hotline 800-252-5400.

Application:

1. Stabilize and treat all injuries.
2. Immediately request law enforcement assistance.
3. Do not initiate a report to law enforcement or social services in front of the patient, parent, or caregiver.
4. If sexual abuse is suspected, discourage the patient from washing or going to the bathroom.
5. If patient, parent, or caregivers are hostile, or refuse access/transport protect your safety and immediately request law enforcement assistance if not already requested.
6. Do not confront or become hostile to the parent or caregiver.
7. Document:
   - In their own words using quotation marks all statements by the patient, parent, or caregiver, including statements made about the manner of the injuries
   - Describe any abnormal behavior of the patient, parent, or caregiver
   - The condition of the environment and other residents present
   - Who received the report of suspected abuse or neglect
   - If reporting is done after PCR completion, an addendum should be written and attached with reporting date, time, who reported to, etc. This will serve to protect the Provider
8. Healthcare Providers are required to immediately report any suspicious findings to the Texas Department of Family and Protective Services (TDFPS) hot line 800-252-5400. This phone is answered 24 hours everyday. This should occur as soon as reasonably possible at the hospital after patient transfer is completed. Providers may need to request a **brief** "out of service time" for this process to be completed. Other than the phone interview, there are no other immediate written documentation reporting requirements by the State.
9. When the patient is transported the hospital; the RN/MD receiving report should be advised of the conditions/situation the patient was found in. Law Enforcement may also be notified if available. Notification of Law Enforcement does meet the "minimum requirement" of the State. However, notification of Hospital Staff only does not meet the State reporting requirements for abuse of people < 18 years old. For people ≥18 years old Refer to Clinical Standard on Domestic Violence and Abuse.

Controlled Substance Tracking

Standard:

To establish minimum requirements for controlled substance ordering, storage, handling, supplying, accounting, and documentation.

Purpose:

The purpose of this standard is to ensure accurate, timely, and complete reporting of the use, expiration, and custody of controlled substances carried by credentialed providers in the EMS system.

Application:
Each system agency that utilizes controlled substances must implement a tracking system that is approved by the Chief Medical Officer. This system must be able to be audited on a regular basis, as required by law, or more, at the request of the Chief Medical Officer.

Receipt of Shipment

Receipt of controlled substances from a shipper will require verification of the shipment by two individuals prior to adding to that agencies stock. Once the shipment is verified, it should be added to the tracking system.

Storage

Controlled substances will be stored in an area with a minimum of two locking mechanisms, at least one of which may be a combination lock and one of which may be keyed (this may include a vehicle lock). While on a shift, in the "pouch," controlled substances must be stored either in an area behind two locking mechanisms or on the person of a provider credentialed at the PL-5 level or higher.

Verification

Master Inventory Safe

The safe must be audited at the beginning of each week by to approved individuals and documented within the narcotics tracking system. No controlled substances may be issued while the tracking system is being audited. Any time the safe is opened, existing counts must be verified as well. If the count cannot be reconciled, the OCMO must be notified.

Custody change:

At shift change, or at other times, narcotics may need to change hands. Both providers must acknowledge which specific narcotics are changing hands by referencing vial numbers. Providers must document the date and time of this transaction in the narcotics tracking system. In the event of a discrepancy, the OCMO must be notified.

Self-Audits:

Providers not subject to shift change must audit their narcotics with a witness every two weeks. This must be logged in the tracker. In the event of a discrepancy, the OCMO must be notified.

Administration:

Whenever narcotics are administered, they must be documented both on the patient care report and in the narcotics tracker. The narcotics tracker must reference the incident or run number. An indication must be documented, the amount administered, and the amount wasted, if any, must be written in the tracker. The amount administered must match on both the tracker and the patient care report. If any narcotics are wasted, a witness must witness the waste and sign. In

order of preference, witnesses to waste should be: another credentialed system provider, a receiving nurse or physician, a TCOLE-certified law enforcement officer.

Crime Scene

Standard:

To establish guidelines for conducting patient related activities on a potential crime scene.

Purpose:

When all resuscitative efforts have ceased it is every provider's responsibility to assist law enforcement by preserving evidence at potential crime scene. Any scene involving a patient that is pulseless and apneic is to be considered a crime scene and treated accordingly. In such situations provider's should also maintain a heightened awareness for the presence of weapons.

Application:

General principles of crime scene management:

1. The existence of a possible crime scene should not influence the decision to initiate resuscitative efforts. The first arriving Credentialed Provider on-scene must make patient access to determine whether resuscitative efforts are indicated. If law enforcement prevents entry, additional responding units should be reduced to "Code 1" response. All law enforcement refusal of access to patients by Providers will be retrospectively reviewed with law enforcement.
2. A provider should not handle weapons unless necessary to ensure a safe patient care environment. If weapons must be handled, the Provider must wear gloves, clearly document the items original and new location, and inform on-scene Law Enforcement.
3. Never use anything (phones, sink, bathroom, towels, sheets, blankets, pillows, etc.) from an incident scene.
4. Victims of suspected assault should be strongly discouraged against "cleaning up," washing or showering prior to arrival of Law Enforcement or transport.
5. Providers should not touch anything in the crime scene unless required for patient care activities. Patient demographic information should be obtained from law enforcement when possible.
6. Any ligature(s) involved should be left as intact as possible and should be cut rather than untied. All cuts made should be in an area well away from any knots.
7. Containers of any substance, which may have been ingested by the patient/victim, should be left in the position found unless needed for ongoing patient care. If the container must be touched, use gloved hands and limit handling to a minimum in order to preserve any fingerprints that may be present.
8. Disposable items used during resuscitation efforts are to be left in place on the body. Sharps used during the resuscitation should be stored in an appropriate container and taken away by EMS personnel. Any extraneous trash should be taken away as well.
9. Intravenous/IO lines, airways and all other disposable equipment used, that are successfully placed, are to remain in place on the body.
10. Termination of Resuscitation (TOR) should be made in accordance with the Criteria for Death or Withholding Resuscitation and Discontinuation of Resuscitation.
11. If requested to do so by Law Enforcement; providers may cover a body with a trace evidence blanket (when available), clean sheet or sterile drape. All efforts should be made to protect the dignity of the patient and block the public view of the body.
12. Once a TOR is obtained, the body falls under the jurisdiction of the Medical Examiner. It may not be touched or altered in any way without authorization from the Medical Examiner's Office.
13. It is acceptable to share patient care information with appropriate on-scene law enforcement once the TOR has been completed

Crime Scene

Crime scene management where no resuscitation is initiated:

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2. When TOR is required, only one properly Credentialed Provider should make entry to the area.

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2. The Medical Examiner must be able to differentiate between punctures originating from resuscitation efforts and those present prior to arrival. All unsuccessful IV/IO or pleural decompression attempts should be marked on the body by circling with a marker or pen.

Crime scene management with patient transport:

1. Clothing, jewelry or other objects removed from the patient should be left on-scene. Clearly document any items left and inform on-scene Law Enforcement of the items original and current locations.
2. When cutting clothing for the purpose of assessment and/or treatment avoid cutting through existing defects in the clothing (tears, entry or exit points) whenever possible.
3. If the patient has been placed on a sheet, notify the receiving facility that the sheet and all personal effects may be considered evidence.
4. If law enforcement is not on-scene prior to transport, the first response agency is to remain on scene, out of the crime scene perimeter, until arrival of law enforcement. An effort should be made to keep all individuals out of the area.

Crime scene management with "exigent" circumstances:

1. Code of Criminal Procedure Title 1 Chapter 49.25 Removal of Bodies Section 8: "When any death under circumstances set out in Section 6 (below) shall have occurred, the body shall not be disturbed or removed from the position in which it is found by any person without authorization from the medical examiner or authorized deputy, except for the purpose of preserving such body from loss or destruction or maintaining the flow of traffic on a highway, railroad or airport."
2. In the case of these exceptions providers may be requested by law enforcement to assist with the movement/removal of the body. When possible evidence blankets should be used for patient movement and every effort should be made to preserve evidence where possible.

Addition Information Texas Code of Criminal Procedure, Title 1. Code of Criminal Procedure, Chapter 49. Inquests Upon Dead Bodies.

Criteria for Death or Withholding Resuscitation

Standard:

Define the parameters in which providers in the ATCEMS System may withhold resuscitative efforts.

Purpose:

Resuscitation, including CPR, is to be withheld only if the patient is obviously dead per the criteria below or has a valid OOH DNR.

<u>If you are unsure whether the patient meets the criteria, resuscitate.</u>

Application:
Resuscitation efforts should not be initiated or continued by an ATCEMS System Provider if the patient is pulseless and apneic and one or more of the following is present. Document in the ePCR the specific indications for withholding or terminating resuscitation.

1. If the patient meets any of the below criteria, any resuscitative care was not continued or initiated by System Credentialed Providers, a ≥PL2 may contact communications for a time of death:
    1. **Decomposition or Putrefaction** – skin bloated or ruptured, with or without soft tissue sloughed off.
    2. **Decapitation** – the complete severing of the head from the remainder of the patient's body.
    3. **Incineration** – 90% or more of body surface area burned with full thickness burns as exhibited by ash rather than clothing and complete absence of body hair with charred skin
    4. **Obviously mortal wounds –** such as massive crush injury, complete exsanguination, severe displacement of brain matter, or complete transection of the torso.
    5. **Patient submersion** – greater than 20 minutes from the time the patient was witnessed going underwater, from the 9-1-1 call, or from the arrival of the first public safety entity until the patient is in a position for effective resuscitative efforts to begin.

2. If the patient meets any of the below criteria and resuscitative care was not continued or initiated by System Credentialed Providers:

    1. Patient with blunt or penetrating trauma is apneic and pulseless without other signs of life upon EMS arrival
    2. Nontraumatic arrest with dependent lividity
    3. Nontraumatic arrest with rigor mortis involving major joints such as the shoulders, elbows, hips, or knees.

    A **BLS** provider may contact communications for a time of death after ensuring:
        a) Pupils are fixed and dilated **and**
        b) Carotid or femoral pulselessness for 30 seconds **and**
        c) Absence of apical heart sounds for 30 seconds

    An **ALS** provider may contact communications for a time of death after ensuring:
        a) All requirements under "BLS provider" are fulfilled **or**
        b) Asystole for no less than 6 seconds in 2 or more leads **or**
        c) Cardiac standstill via ultrasound

Criteria for Death or Withholding Resuscitation

Fetal death with a fetus < 20 weeks by best age determination available at the scene is considered products of conception and does not require time of death. Fetal death < 20 weeks may be documented on the mother's ePCR. If ≥ 20 weeks, then create a separate ePCR.

If resuscitation efforts have been initiated or continued by a System Credentialed Provider/Responder, then discontinuation is at the discretion of the arriving ≥ PL5 provider. In this case, continue resuscitation, and OLMC must be contacted for Termination of Resuscitation (TOR).

If a valid out-of-hospital Do Not Resuscitate (DNR) order is presented or found anytime during ongoing resuscitative attempts, the providers/responders may immediately stop the resuscitation efforts, and a time of TOR may be obtained from communications.

References: Texas Health and Safety Code Sec 773.016; DSHS Rule 157.25 Out-of-Hospital Do Not Resuscitate (DNR) Order

Definition of a Patient

Standard:

To establish guidelines for who meets the criteria to be considered a patient in the ATCEMS System.

Purpose:

The definition of a patient is any individual person or third party who calls about an individual person that:

- Has a complaint suggestive of potential illness or injury
- Requests evaluation for potential illness or injury
- Has obvious evidence of illness or injury
- Has experienced an acute event that could reasonably lead to illness or injury
- Is in a circumstance or situation that could reasonably lead to illness or injury

All individuals meeting any of the above criteria are considered "patients" in the ATCEMS System. These criteria are intended to be considered in the broadest sense. The determination of an individual's status as a patient requires the input of both the individual and the Provider as well as an assessment of the circumstances that led to the 9-1-1 call.

Clarification: A person of any age involved in an incident where there is minimal to no evidence of injury potential (i.e. motor vehicle collision with minor damage) **and,** the person has no complaints of injury or pain **and,** does not request a medical assessment **and/or,** did not request an EMS response; may not be considered a patient as indicated in the definitions above. Thus, not subject to requiring any further evaluation, assessment or PCR.

Application:

1) Anyone that fits the definition of a patient must be properly evaluated by a System credentialed provider and appropriate treatment and transportation offered.
   a) If a patient wishes to refuse offered treatment and/or transport Against Medical Advice (AMA) refer to Refusal of Treatment or Transportation Standard and the Determination of Capacity Standard.
2) Any adult that does not fit the definition of a patient as defined above does not require an evaluation or, completion of a Patient Care Record and, may be designated as "no patient"(s). Minors with an appropriate consenter on scene (defined in Clinical Standard on Refusal of Treatment and/or Transport) or, who have the ability to consent as provided below may be designated as "no patient (s)". Minors, as defined below and **without** an appropriate "consenter on scene"; must have refusal documentation completed on a PCR/ePCR and, may not be designated as "no patient (s)." If there is any doubt; an individual should be deemed a patient and an appropriate evaluation should be provided and documented in the PCR/ePCR. If an individual meets the definition of a patient the following apply:
   a) The definition of an adult is a person who is 18 years of age or older
      i) Adults have the right to consent to or refuse medical treatment
   b) The definition of a minor is:
      i) A person under the age of 18 who is not and has never been married or who has not had the disabilities of minority (emancipation) removed for general purposes by a court
         (1) Generally, minors can neither consent to, nor refuse, medical treatment. Some minors however, are considered to be emancipated and have the rights of consent/refusal afforded an adult
      ii) A minor is considered emancipated if he or she has obtained a court order of emancipation from a Texas court. Minors may petition the court for emancipation if he is:

(1) (i)A resident of Texas;(ii) 17 years of age or at least 16 years of age and living separate from his parents, managing conservator or guardian;(iii) Is self-supporting and managing his own financial affairs

c) In certain situations, a minor may consent to medical treatment without involvement of a parent or legal guardian. A minor may consent to treatment if the minor:
   i) Is on active duty with the US armed services;
   ii) Is 16 years or older residing separately from his parents or guardian and is managing his own financial affairs (regardless of the source of income);
   iii) Consents to diagnosis and treatment of any infectious/communicable disease with a reporting requirement;
   iv) Is unmarried and pregnant and consents to care related to the pregnancy, other than abortion;
   v) Consents to examination and treatment relating to drug or alcohol dependency;
   vi) Is unmarried and has custody of their biological child, they may consent to treatment for the child

d) Pediatric guideline on the definition of a patient is:

   i) For the purpose of determining transport destination, any patient younger than 18 years of age unless expressly stated in another guideline, standard or procedure. (e.g. Trauma Transport Guidelines where it is defined as age <15 years)
   ii) For the purpose of selecting appropriate treatment guideline, any patient < 37 kg or who can be measured using a PEDIA Tape.

Discontinuation of Prehospital Resuscitation

Standard:

Unsuccessful cardiopulmonary resuscitation (CPR) and other advanced life support (≥ PL4) interventions may be discontinued prior to transport when this standard is followed as well as utilization of the Discontinuation of Prehospital Resuscitation checklist.

Purpose:

The purpose of this standard is to allow for the discontinuation of prehospital resuscitation after the delivery of adequate and appropriate ≥ PL4 therapy.

Application:

1. For cardiac arrest with ongoing resuscitation efforts > 30 minutes:
   a. Inclusion Criteria:
      i. Adequate CPR has been administered.
      ii. Airway has been successfully managed with verification of device placement. Acceptable management techniques include endotracheal intubation, BIAD, or cricothyrotomy.
      iii. IV/IO access has been achieved.
      iv. Rhythm-appropriate medications and defibrillations have been administered according to appropriate clinical guidelines.
      v. Ultrasound use, when available, to determine any cardiac motion.
      vi. Credentialed providers on scene are in agreement with the decision to cease efforts.
      vii. If all of the above are met, then the ≥ PL5 provider will contact OLMC
      viii. If you are presented with a valid DNR, see Exception Criteria below.

2. The ≥ PL5 provider may contact OLMC for termination of Resuscitation (TOR) within <30 minutes of resuscitation based upon patient presentation, clinical circumstances, and their clinical judgment, see Criteria for Death or Withholding Resuscitation.
   a. Providers should continue to resuscitate the following and transport after treatment sensitive interventions have been performed on scene due to a higher likelihood of resuscitation:
      i. Cause of arrest is due to suspected hypothermia
      ii. Sustained ROSC at any time during the resuscitation
      iii. Persistently recurring or refractory ventricular fibrillation and/or pulseless tachycardia or any continued neurologic activity – eye-opening or motor response.
      iv. Ultrasound, when available, determines cardiac motion.

3. When OLMC is involved in the decision to terminate, then resuscitative efforts must continue while:
   a. The family is counseled on the patient's unchanged condition and impending discontinuation of efforts. If termination of efforts is anticipated, then Victim Services should be requested as early as possible.
   b. The ≥ PL5 is requesting a TOR from OLMC.

4. Document all patient care and interactions with the patient's family, personal physician, medical examiner, law enforcement, and OLMC in the ePCR.

5. Providers should include external factors such as inability to secure the scene, cardiac arrests in a public place, etc. when making the decision whether to terminate efforts or transport. This decision should be made in conjunction with law enforcement partners as well as OLMC.

Exception Criteria:
If a valid out-of-hospital DNR is presented or found anytime during ongoing resuscitative attempts, the Providers/Responders may immediately stop the resuscitation efforts, and a time of TOR may be obtained from communications; see DNR and Advanced Directives for further information.

DNR and Advanced Directives

Standard:

In the event any provider of the EMS System is presented with a completed Out of Hospital Do Not Resuscitate (OOH-DNR) form and/or OOH-DNR ID device, the provider shall withhold CPR and the listed therapies in the event of cardiac arrest. The form and device may be from any (US) State. Refer to DSHS Rule 157.25, and/or DSHS Rule 166 if applicable for Advanced Directives.

Purpose:

To honor the terminal wishes of the patient and to prevent the initiation of unwanted resuscitation.

If you are unsure whether the patient meets criteria, then resuscitate.

Exceptions:

1. The provider shall begin resuscitation efforts until such time as a physician or OLMC directs otherwise when:
   a. The patient is known to be pregnant.
   b. If there are any indications of unnatural or suspicious circumstances.
   c. If the Provider is unsure of the existence or validity of the DNR.
   d. An advanced directive does not imply that a patient refused supportive or palliative care.

Application:

1. When confronted with a cardiac arrest patient, the following conditions must be present in order to honor the DNR request and withhold CPR and ALS therapy:
   a. Out-of-Hospital Do Not Resuscitate (OOH-DNR) or OOH-DNR ID device; original or copy.
   b. Valid original or copy of OOH-DNR written order or OOH-DNR ID device from any US state.
   c. A licensed physician on scene or in contact by telephone orders that no resuscitation efforts are to take place.
2. A DNR request may be overridden by:
   a. The patient or person who executed the order destroying or directing someone in their presence to destroy the form and/or remove the identification device.
   b. The patient or person who executed the order telling EMS providers or attending physician that it is their intent to revoke the order.
   c. The attending physician or physician's designee if present at the time of revocation records in the patient's medical rector the time, date, and place of the revocation and enters "VOID" on each page of the OOH-DNR.
3. In the event here is a question regarding whether to honor or not honor an OOH-DNR or Advanced Directive, then initiate resuscitation and contact OLMC.

Documentation of Patient Care Report

Standard:

Establish the minimum documentation requirements for every patient contact.

Purpose:

To provide consistent and accurate documentation of the events of a patient encounter, the ATCEMS System Medical Director is responsible for designating the minimum data required for patient care reporting. The following are the minimum requirements for documentation on all patient encounters.

Application:

If the definition of a patient is met on an encounter and a patient-provider relationship is established, all care must be documented. A separate patient care report must be completed for each patient on a scene.

For every patient contact, the following documentation requirements apply and must:

a) Be truthful, accurate, objective, pertinent, legible, and complete with appropriate spelling, abbreviations, and grammar.
b) Use only approved medical abbreviations. Refer to *"Approved Medical Abbreviations" (Appendix A-01).*
c) Reflect the patient's chief complaint and a complete history or sequence of events that led to their current request or need for care.
d) Contain a detailed assessment of the nature of the patient's complaints and the rationale for that assessment.
e) Reflect the initial physical findings, a complete set of initial vital signs, all abnormal findings considered important to an accurate assessment and significant changes important to patient care. Reflect on ongoing monitoring of abnormal findings and the patient.
f) Summarize all assessments and interventions in chronological order and the results of the interventions with appropriate detail so that the reader may fully understand and recreate the events.
g) For medication administrations, include the name, dose administered, route, administration time, indication, and patient response.
h) For patients with extremity injury, note neurovascular status before and after immobilization.
i) For IV administration, document the catheter size, site, any failed attempts, type of fluid, and amount of fluid administered.
j) Include a lead II strip for all patients placed on the cardiac monitor. All 12-leads should also be included. Any significant rhythm changes should be documented. For cardiac arrests, the initial strip, ending strip, pre and post-defibrillation, pacing attempts, etc. should be attached. Or, electronically captured, uploaded and combined with the ePCR record.
k) Document clearly any requested orders, whether approved or denied, with physician's name.
l) Document any waste of narcotics including the quantity wasted, where wasted, and must have the name of the person who witnessed the waste in appropriate software.
m) Include an explanation for why an indicated and appropriate assessment, intervention, or action prescribed by the Clinical Operating Guidelines did **NOT** occur.
n) Be completed within 24 hours of transported patient's arrival at hospital in accordance with Tex. Admin Code Rule § 157.11. Patient encounters resulting non-transport dispositions, including refusals, must be completed within 24 hours call completion.
o) Remain confidential and be shared only with legally acceptable entities.
p) If multiple System Organizations are on the scene, at least one System Provider/Responder making patient contact from each response organization is responsible for documenting ALL interactions, assessments and treatments their response organization provided to the

patient on a ePCR for their organization. All system credentialed providers involved in patient care must be documented in the ePCR(s).

q)

1. Any unit that responds to an incident and establishes a patient-provider relationship, must complete at-least an ePCR addendum documenting rendered care and pertinent findings prior to the arrival of the transport asset or provider that care is then transferred to.
2. If any clinical interventions are performed by a system credentialed provider prior to the arrival of the transporting asset, completed patient notes (or substantially similar) are to be provided to the transporting asset. These clinical notes are to be transported with the patient to the receiving facility. This should include, at a minimum: patient name, treatments rendered, and the times that such treatments were rendered.

r) Once the ePCR is completed, the original record will not be modified for any reason. Any changes required to correct a documentation error or to add clarification shall be recorded in an addendum.

Documentation of Vital Signs

Standard:

Vital signs are a required element of any patient evaluation. Complete sets of vital signs are to be documented for any patient who receives an assessment; or, documentation should describe why vitals could not be obtained. At minimum, the standard is to obtain an initial set of vital signs and at-least another set prior to patient disposition; be it a refusal of care, discharge by EMS, or arrival at a healthcare facility.

Purpose:

To insure that evaluation of every patient's volume, cardiovascular and mental status are documented with a complete set of vital signs.

Application:

1. Initial vital signs will be obtained manually with subsequent vital signs obtained electronically as long as they correlate with the manual vital signs. If there is a discrepancy, manual vital signs should be continued. Initial vital signs may be deferred until transport in severe trauma when other treatments and packaging may take priority and vital signs may interfere with the timely execution of these priorities.
2. An initial complete set of vital signs includes:
   - Peripheral or central pulse rate
   - Systolic AND diastolic blood pressure
   - Respiratory rate
   - Pain / severity (pain scale used & score), how pain was treated and response to treatments with pain scale.
   - Cumulative GCS score with individual sub scores.
   - Body temperature
3. Palpated blood pressures may be acceptable for **repeat** vital signs for patients not requiring medication administration or perfusion monitoring
4. Based on patient condition and complaint, vital signs may also include:
   - Pulse Oximetry
   - End Tidal CO2
   - Electrical heart rate from cardiac monitoring
5. If the patient refuses vital signs, document the refusal in the PCR in accordance with the Refusal of Treatment or Transportation Standard (Clinical Standard on Refusal of Treatment and/or Transport).
6. When any components of vital signs were obtained using the cardiac monitor, the data should be exported electronically to the electronic patient care report. Where values are inconsistent with manually obtained values, values may be appropriately edited to reflect the manually obtained values and accounted for in the narrative.
7. The mechanical pulse rate should be obtained through palpation.
8. Record the time all vital signs were obtained.
9. Any abnormal vital sign should be repeated and monitored closely.
10. Vital signs should be obtained approximately every 10 minutes. The provider should change the frequency as need to appropriately care for the patient.
11. An initial set of vital signs is obtained once the patient consents to treatment and can be accessed.

Domestic Violence (≥ 18 years old)
(Partner and/or Elder Abuse)
Recognition and Reporting

Standard:

Domestic violence is physical, sexual, emotional, coercive, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. This includes suspected individuals being trafficked. Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a senior citizen by another person. Abuse may be at the hands of a caregiver, spouse, neighbor, or adult child of the patient. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety , providing quality health care, and preventing further abuse. For individuals < 18 years old Refer to Clinical Standard on Child Abuse Recognition and Reporting.

Purpose:

Assessment of an abuse case is based upon the following principles:

- **Protect** the patient from harm.
- **Suspect** that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
- **Respect** the privacy of the patient and family.
- **Collect** and document as much information as possible.

Application:

1. Assess all patients for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess all patients for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
4. System Credentialed Providers are required to immediately report any suspicious findings to the Texas Department of Family and Protective Services (DFPS) hotline: 800-252-5400. This phone is answered 24 hours every day. If the patient refuses, this should occur as soon as reasonably possible after leaving the scene. If the patient is transported, then at the hospital after patient transfer is completed. Providers may need to request a brief "out of service time" for this process to be completed. Other than the phone interview, there are no other immediate written documentation reporting requirements by the State.
5. If the patient is transported the hospital; the RN/MD receiving report should be advised of the conditions/situation the patient was found in. Law Enforcement may also be notified if available. These must be reported to the "Department" (DFPS). Reporting options are additionally discussed including criterion for on-line reporting vs. hotline call; including, creating an account and login to make the on-line report : https://www.txabusehotline.org/Login/Default.aspx
6. All patient encounters with DFPS reporting must be documented in your PCR/ePCR with the DFPS intake/case number included.

Reference: Human Resources Code Title 2, Subtitle D, Chapter 48, Sec. 48.002 and 48.051.

Emergency Medical Dispatch

Standard:

- This standard establishes a uniform level of response for the EMS System and provide for the safest and most appropriate level of response to the patient(s)

Purpose:

- EMS Units and First Responders will be dispatched in accordance to the standards developed by the Medical Director and the Medical Priority Dispatch (MPD) Guidelines
- EMS Units and First Responders will respond Code 1 or Code 3 in accordance to MPD standards. As more information from EMS Communications or on scene medical responders becomes available, the response may be upgraded to Code 3 or downgraded to Code 1

Application:

1. EMS Units and First Responders dispatched for Code 1 response, will not upgrade to a Code 3 response unless:
   - The EMS Communications personnel determine that the patient's condition has changed and upgrades the incident to a Code 3 response
   - Public Safety personnel on-scene requests a Code 3 response
2. EMS Units and First Responders may be diverted from a lower priority incident (e.g., Priority 3, 4, or 5) to a higher priority incident (e.g., Priority 1 or 2) based on MPD Guideline, if the diversion provides a significant time savings.
3. The EMS unit or First Responder may divert their response if they come upon what appears to be a higher priority incident (e.g., en route to a Priority 3, 4 or 5 incident and comes upon an MVC with high potential for patients in need of trauma activation).
4. EMS Units and First Responders may by-pass what appears to be a lower priority incident and continue to the originally assigned incident. EMS Communications should be notified so that another EMS resource may be assigned to the lower priority incident.

Hospital Diversion

Standard:

This standard establishes the conditions under which a System hospital may go on diversion and the process by which this should be implemented and discontinued.

Purpose:

- This standard was developed in cooperation with the hospital networks, the medical community and the Travis County Medical Society ED/EMS committee
- The ATCEMS System employs a general no diversion policy for the transport destination of EMS patients with few exceptions discussed below.

Application:

1. All hospitals are to remain open to EMS patients at all times except in the conditions described herein or in extraordinary circumstances with approval of the Medical Director.

2. Black-Internal Disaster:
    a. If a hospital with a specialized designation such as a "Stroke Center" experiences failure of critical equipment needed to meet that requirement (i.e., CT Scanner) then they may close to EMS transports for that particular patient category
    b. If a hospital experiences an "Internal Disaster" such as Fire, Utility Failure or other significant infrastructure failure they may close to EMS transports(and all other services)

3. Hospitals which need to close due to Internal Disaster as described above will contact ATCEMS Emergency Communications Supervisor at 512-978-0410. They will advise the supervisor of the Internal Disaster and/or the critical equipment failure that has led to the closure

4. Any attempt to divert patients due to reasons other than those listed above should result in notification of the on-call Division Chief and the on-call Medical Director.

5. In each case listed above Transport units, Commanders, Medical Director(s) and other individuals will be notified of the change in hospital status via AWACS page to the "EMS-Hospital Closure" group indicating that, *Hospital XX has an Internal Disaster and is diverting the corresponding EMS traffic until further notice*. The page will indicate the affected hospital, the reason for the diversion and that the facility is on diversion until further notice.

6. The patient should be informed of the need and reason the hospital is diverting EMS patients and; in the absence of a time critical or unstable patient condition the EMS provider(s) should recommend that a patient be transported to another network hospital where possible. When a time critical or unstable patient condition exists the closest appropriate facility should be recommended that is not on diversion.
    a. If the patient refuses the recommended destination the EMS unit should transport the patient to a facility (not on diversion) of their choosing.

7. If a patient insists on being transported to a facility on diversion providers should explain the reason for the diversion status and that transport to that facility may result in significant delays in their care, worsening of their condition, or even death. Providers should attempt to convince the patient of the need to go to an alternate facility. This includes, but is not limited to, contacting a supervisor or on line medical control at the diversion facility. If a patient insists on transport to that facility and the only alternative is refusal of transport the EMS provider(s) should have the patient sign a refusal acknowledging the explained risks of transport to that facility and transport the patient to their destination of choice. If that

hospital is unable to care for the patient due to a lack of equipment or expertise (e.g. STEMI to non-PCI facility, Stroke to facility without CT capabilities, etc) the EMS providers should advise their Supervisor of the situation and upon arrival at the destination remain immediately available for transfer of the patient. The length of this availability is to be determined in consultation with the EMS Supervisor. The provider should thoroughly document their description of the risks and their efforts to convince the patient to go elsewhere.

8. If a hospital has closed to all patient traffic including walk-ins due to catastrophic loss of capabilities or potential threat to the safety of both providers and patients then the hospital is no longer considered an approved receiving hospital until the condition is removed. Patients should be informed that the hospital is closed and that they will be denied access to the facility. The patient should be transported to another appropriate facility in accordance with #5 above. If a patient still wishes to refuse transport they should be informed of the risks and a refusal obtained in accordance with the Refusal of Treatment/Transportation Standard.

9. If an EMS Supervisor encounters a condition/situation at a hospital that may place providers at risk (i.e. riot, gang violence, hostage situation etc.) the Supervisor may close the hospital to EMS traffic pending resolution. The Supervisor should contact communications to advise all transport providers of the hazardous condition. Communications should immediately notify the on call Medical Director and Division Chief.

Identification Badges

Standard:

Credential Badges are the property of the Office of the Chief Medical Officer and are valid only if they are issued and maintained as designated by Clinical Standard(s) and as such, badges will not be modified. It is the responsibility of System Provider Organizations to immediately collect and return to the OCMO the badges of those individuals whose credentials have been revoked, or who are no longer affiliated with the organization. In addition, any student, observer, or cadet must visibly wear at all times a badge affixed to their upper torso that clearly identifies their role.

Purpose:

Due to the variety of providers with different levels of training an ID badge system is required to ensure that everyone on scene, including the patient, knows the System-credential capabilities of each Provider.

Application:

1. Proper identification of System Providers is required by the Texas Department of State Health Services (TDSHS).
2. System identification badges serve as the primary identifier for System Credentialed individuals as well as his/her Credential level. This however does not replace verbally identifying self and team members along with credentials and role to each patient or persons.
3. These badges are not intended for use as organization or department identification.
4. Proper identification of Providers will facilitate the exchange of patient information within the guidelines established by Health Insurance Portability and Accountability Act (HIPAA).
5. Badges should be visibly worn by any responder providing any level of patient care. The exception would be when circumstances require the responder to utilize personal protective outerwear (i.e. bunker gear, rain gear, etc.).
6. Badges are valid throughout the System and are not limited to specific venues or defined response areas.
7. The OCMO ID badges include:
   - Provider's Picture
   - Name
   - Credential Level
   - TDSHS Certification or Licensure Level
   - TDSHS Certification or Licensure number
   - Color coding denoting the appropriate credential level
8. Below is the color coding used to aid in identifying System Credential Level:

White	Responder with no System Medical Credentials
Yellow	Provider Level 1 (PL 1)
Blue	Provider Level 2 (PL 2)
Green	Provider Level 3 (PL 3)
Orange	Provider Level 4 (PL 4)
Red	Provider Level 5 (PL 5)
Black	Provider Level 6 (PL 6)
Purple	Physician

   Candidates that are transitioning to a higher credential level will wear the color badge for the desired level of credential with the words "CANDIDATE" within the color coding and above the OCMO LOGO

9. A system responder that is currently system credentialed, but without a badge, is at that point functioning as a First Aid Provider. In cases where an individual is recognized and known to be a currently credentialed provider in the System, the provider in charge of patient care may, at their discretion, allow the individual to participate in patient care. The

lead transport medic and the provider in question are responsible for assuring badge compliance, but all Providers on scene are charged with pointing out any on-scene discrepancies.

10. A Provider who provides care in which they are not credentialed to perform is functioning outside the scope of his/her practice. The Provider performing the procedure in question and the provider in charge of the scene should both immediately report the occurrence using your Organization's defined Clinical Error Reporting Process. *Failure to do so may be considered an integrity violation and may result in action against the providers credential and/or State Certification/License.* This does not apply to candidates or students in an approved training program operating under appropriate supervision.

Infant Abandonment

Standard:

Texas law provides a responsible alternative to mothers who might otherwise abandon or harm a newborn child. It states that a parent may leave an unharmed infant, up to 60 days old, at any hospital, fire station or EMS station with "no questions asked."

> *Sec.262.302 of the Texas Family Code, states…(a) A designated emergency infant care provider shall, without a court order, take possession of a child who appears to be 60 days old or younger if the child is voluntarily delivered to the provider by the child's parent and the parent did not express an intent to return for the child. (b) A designated emergency infant care provider who takes possession of a child under this section has no legal duty to detain or pursue the parent and may not do so unless the child appears to have been abused or neglected. The designated emergency infant care provider has no legal duty to ascertain the parent's identity and the parent may remain anonymous. However, the parent may be given a form for voluntary disclosure of the child's medical facts and history. (c) A designated emergency infant care provider who takes possession of a child under this section shall perform any act necessary to protect the physical health or safety of the child. The designated emergency infant care provider is not liable for damages related to the provider's taking possession of, examining, or treating the child, except for damages related to the provider's negligence.*

Purpose:

To Provide:

- Protection to infants that are placed into the custody of an EMS provider under this law.
- Protection to EMS systems and personnel when confronted with this issue.

Application:

1. Initiate patient assessment/care with appropriate Guideline(s) as needed.
2. If the event occurs at a (AFD or ESD) Fire Station, immediately contact EMS Communications for assistance.
3. Advise Supervisor of event.
4. Transport to an appropriate medical facility.
5. Communications should notify Department of Social Services of the event and transport destination.
6. An infant/child's age that is known or estimated at over 60 days old or, has been abused or neglected; must also include early notification of Law Enforcement.
7. Documentation of the event and any medical information provided for the infant/child by the parent must be included in the PCR/ePCR.

Inter-facility Transfers

Standard:

Establish guidance on Emergent inter-facility transfers (ETRAN).

Purpose:

To transport an emergent patient requiring Advanced Life Support care and continuous monitoring during their transport from one medical facility to another.

Application:

1. The transporting paramedic should ensure that all appropriate documentation accompanies the patient. Known STEMI or time dependent Stroke or Trauma patients are exceptions to this rule. A memorandum of transfer (MOT) must be obtained (location/facility exceptions noted in CS – 19) but all other records may be faxed to the receiving facility if not presented at time of transfer.
2. In the event a Transport Provider arrives at the transferring facility and; the patient is on a pump, vent, receiving medication (s) not in the System COGs, or on a medical device not used in the System; the Transport Provider **must** contact the on call System Medical Director.
3. When transporting hospital staff, both the transport crew and accompanying staff are responsible for management of the patient.
4. All EMS rendered treatments must comply with the ATCEMS System Clinical Operating Guidelines.
5. An ATCEMS patient care record will be completed in accordance with the Documentation of the Patient Care Report Standard (Clinical Standard on Documentation of Vital Signs).
6. The following items are required system approved equipment for all transfers.
    - Cardiac monitor/defibrillator
    - Standard response bag
    - Obstetrics kit (OB/GYN transfers only)
7. All patients that fall within the intent of this Standard should, at a minimum receive:
    - Continuous ECG and oxygen saturation monitoring
    - Non-invasive hemodynamic monitoring (auscultated blood pressure, palpated pulse rate)
8. If the patient deteriorates, the transferring facility should be notified via radio or cellular phone. Additional orders if needed should be obtained from OLMC.

Medication Administration Safety

Standard:

This standard establishes safe practices and uniform system procedures for the administration of medications

Purpose:

To standardize the appropriate medication administration methods necessary to improve patient safety and patient outcomes. The intention is to establish processes that will mitigate the likelihood and impact of errors associated with medication administration by preventing the error from occurring or preventing the error from reaching the patient.

Application:

1. All medications must be administered in accordance with this Clinical Standard using the most current System Clinical Guidelines, References, and Procedures.
    a. This standard applies to all system credentialed providers.
    b. This standard applies to the administration of all medications unless specifically exempted in other System Clinical Guidelines or Procedures.
2. Each response agency must ensure all System approved medication administration safety tools are available to providers.
    a. Individual providers must have immediate access to the medication safety tools.
    b. A hard copy is preferred with additional access through other means including electronic access. As a redundancy, an alternate method for accessing the safety tool is required.
3. The Medication information in the Drug Formulary and the Medication Administration Safety Procedure and Medication Safety Checklist contained in Clinical Procedure CP-02 must be used each time a medication is administered to a patient.
    a. The Medication Administration Safety procedure defines the methods designed to ensure safe medication administration.
    b. The Medication Administration Safety Checklist is used independently by a second credentialed provider to verify critical information to minimize the likelihood of a medication administration error.
    c. The Medication Reference Tool is used to provide the critical information required prior to medication administration. It does not replace the need for provider knowledge of medications or the need for the medication information defined in the Clinical Operating Guidelines.
    d. The PediaTape device must be used to determine the estimated weight for all pediatric patients, if a current and accurate weight is not available.
4. All details of medication administration and medication safety procedures must be accurately and completely documented in the patient care record.

Memorandum of Transfer (MOT)

Standard:

To establish the expectations that ATCEMS transporting crews will review the Memorandum of Transfers (MOT) in order to transfer the patient to the appropriate receiving facility as ordered in the MOT.

Purpose:

A Memorandum of Transfer (MOT) is a medical order written for the transfer of care of a patient between one hospital to another hospital. The transport providers will honor the MOT unless there is a deterioration in patient condition that necessitates transport to a closer facility for the purpose of stabilization.

Application:

1) Ensure that there is an MOT for every patient that is being transferred from one hospital to another that must include the name and signature of the sending physician, the name of a receiving physician, and a destination that is an approved transport destination as outlined in the COG's. If the transport providers perceive a conflict with the existing ATCEMS destination policy and the indicated destination this must be clarified with the sending physician or his designee before transport is initiated.
2) Review the MOT to ensure the intended destination is listed on the MOT. If it is not indicated or there is a change in destination this must be modified by the sending facility prior to transport. The transport providers shall not modify or document on the MOT.
3) The patient is to be transported to the intended destination unless there is a change in the patient status that can not be managed through existing ATCEMS treatment guidelines or through contact with the sending/receiving physician. In such cases the provider may divert to a closer appropriate facility for immediate stabilization. The reasons for diversion should be thoroughly documented in the PCR.
4) Treat the patient in accordance with the COGs or medical orders provided by the transferring physician. Providers must ensure that the orders from the transferring physician are within their defined scope of practice according to the COGs.
5) Location/Facility exceptions to MOT Requirement are transfers from:
    a) St David's Bee Cave Satellite Emergency Department (SED) to St David's South Austin Medical Center
    b) St David's Pflugerville Satellite Emergency Department (SED) to St David's North Austin Medical Center
    c) St David's Cedar Park Satellite Emergency Department (SED) to St David's Round Rock Medical Center
    d) Private Physicians Offices
    e) Urgent Care Facilities
6) A patient with present mental capacity who has not had this capacity removed by physician or court order and who is not in custody retains the rights of consent and refusal outlined in the Refusal of Treatment/Transport Standard. If the patient wishes to refuse care or alter the prescribed destination this should be discussed with the sending physician.

Minimum Equipment to Patient's Side

Standard:

To establish a minimum list of equipment that will be taken to the patient's side on every call.

Purpose:

ATCEMS System providers are often faced with patient conditions that require immediate intervention in order to decrease morbidity or prevent mortality. Time dependent interventions are those that must be performed immediately or within seconds/minutes to be effective.

Application:

ATCEMS System providers will ensure that the following equipment will be immediately available for use at the patient's side:

All PL Levels***

Appropriate PPE	Defibrillator	Stethoscopes
BVM with appropriate masks	Suction	B/P cuffs
O2 with delivery devices	OPA & NPA	Naloxone (IN)
Oral glucose	Tape	4x4 dressings
Kerlix	Mucosal Atomization Device	Clinical Operating Guidelines

PL2 and Higher

CPAP	Appropriate iGel airway	EPI (1mg/mL) & IM Supplies
Albuterol & nebulizer kit		

PL3 and Higher

Saline lock equipment	250mL D10W for Infusion	Naloxone (IM/IV)

PL4 and Higher

Laryngoscope & blades for FBAO	Magill forceps for FBAO	

PL5 and Higher

Thoracostomy needles	Kelly forceps for thoracostomy	Scalpels

The above interventions are most commonly associated with the following clinical conditions:

- Obstructed or compromised airway
- Ineffective ventilation
- Ineffective circulation
- Removal from impending, active or ongoing physical harm

****Be observant for of the level of Disease Isolation Precautions in effect, if any, for the patient situation. Should there be no immediate need for equipment to intervene to decrease morbidity or prevent mortality, stage the equipment outside the potentially contaminated environment for immediate access if the patient condition changes.*

National Registry Renewal

Standard:

To establish a process for System Credentialed Providers to maintain National Registry (NR) at their current level regardless of System Credential level.

Purpose:

The purpose of this standard is to provide a pathway for System Credentialed providers to maintain their current National Registry certification level independent of System Credential.

Application:

1. Only credentialed providers in good standing with a registered System Organization may participate in this renewal program

2. The provider must complete all National Registry requirements

3. The provider must complete all OCMO-required CE at their current National Registry level

4. The provider must complete all OCMO-required yearly skills competencies for their current National Registry level (regardless of System Credential level). ALS skills testing opportunities are currently offered through the Austin/Travis County EMS department. ESDs with ALS capabilities may also skills test internally at the ALS level. ESDs/organizations with Advanced EMT capabilities may skills test internally at the Advanced EMT level. Skills testing sheets may be acquired through the System Education and Professional Development Coordinator.

5. Each organization is responsible for certifying that all national Registry requirements are met for each provider. A signed statement from the organization stating that the provider has met the national Registry requirements should be transmitted to the System Education and Professional Development Coordinator at the Office of the Chief Medical Officer and copied to the System Clinical Operations, Practices, and Standards Coordinator.

6. Upon successful completion of the entire process/program, and receipt of the certifying e-mail, the Medical Director, at his discretion, will electronically approve the National Registry renewal

7. Providers that are Nationally Registered and System Credentialed at the PL1 or PL2 levels will continue to process applications with their organization's training staff.

Office of the Chief Medical Officer Credential Audit

Standard:

To establish a standardized process for the Office of the Office of the Chief Medical Officer (OCMO) to conduct an audit(s) of all registered Credentialed Providers.

Purpose:

The purpose of the audit is to accurately maintain the official Credentialing database of all providers for System Medical Direction. All Organizations are required to report additions and separations of any Credentialed Provider(s) to the OCMO as soon as they occur.

Application:

1. The OCMO will periodically audit the System for currently credentialed providers by producing rosters developed from the Records Management System (RMS) data base.
2. Each Organization receiving one of these is required to review and report any discrepancies to the OCMO.
3. The Organization and the OCMO will work together to resolve any roster discrepancy.
4. The OCMO may provide rosters to individual Organizations or, all System Organizations as needed.
5. The OCMO may audit the System on an as needed basis without notice.
6. The OCMO may include additional required information in conjunction with an audit including, but not limited to, confirmation(s) of education, and/or skill competency compliance.

OCMO Modification or Revocation of Credential to Practice

Standard:

To define the revocation or modifications of a providers credential to any status other than that of a full and unrestricted credential to practice.

Purpose:

A certified/licensed provider's privilege to provide care in the ATCEMS System is granted at the discretion of the Medical Director upon completion of a defined credentialing process. The granting of this privilege assumes the provider accepts the responsibility to safeguard the patients cared for under the Medical Directors license through prudent action and competent clinical care. The Medical Director has a duty to supervise that clinical care and as a result may find it necessary to temporarily or permanently modify the providers credential to practice within the ATCEMS System.

Credential Status Definitions/Applications:

Unrestricted Status- Provider credentials to practice have been granted by the Medical Director after completing the prescribed credentialing process. This allows providers to practice unsupervised at their credential level in accordance with the Office of the Chief Medical Officer Clinical Operating Guidelines. This status is simply referred to as "credentialed."

OCMO Administrative Hold – Providers Credentials are deactivated for a period of time while non-clinical administrative issues are reviewed and resolved. The OCMO Administrative Hold is independent of but may be utilized in conjunction with an administrative action undertaken by the providers sponsor organization or other administrative authority. Based on the nature of the administrative action an independent OCMO review may be conducted simultaneously or subsequent to any investigation or action by another agency. Reactivation is at the discretion of the Medical Director or their designee. Credential Badges must not be worn and patient care is prohibited.

Suspended – Providers Credentials are suspended by a System Medical Director pending a review of a clinical concern. After the OCMO clinical review process is completed the provider may be returned to an unrestricted status, modified status or revoked by the Medical Director. Credential Badges must not be worn and patient care is prohibited.

Modified Credential Status – A Providers credential to practice are restricted or modified as part of the initial credentialing process or as the result of the performance improvement and education process. This may include, but is not limited to, increased call review, additional education/training, or supervised practice. The duration of the modification is at the discretion of the Medical Director and is dependent upon the terms/objectives of the modified practice period. Credential badges may be worn but patient care is limited to the terms defined by the OCMO.

Voluntary Surrender- A provider with an unrestricted credential voluntarily surrenders their credential or is no longer affiliated with a System organization. The providers credential to practice is removed and the provider is no longer eligible to provide patient care within the System. Reintegration is at the discretion of the Medical Director and is subject to completion of the defined credentialing process. Credential badges must be returned to the OCMO.

Revocation – Providers credential to practice is permanently removed by the Medical Director and the provider is no longer eligible to provide patient care within the System. Credential badges must be returned to the OCMO.

OCMO Administrative Hold:

The OCMO Administrative Hold is applied in circumstances where non-clinical performance/behavior concerns or an administrative issue is raised by an agency other than the OCMO. In all cases patient care is prohibited and credential badges must not be worn. These non-clinical issues may include, but are not limited to, the following:

1. **Lapse, Loss, or Suspension of applicable Certification or Licensure (International Academies of Emergency Dispatch (IAED) or Texas Department of State Health Service (TDSHS) –** *At the time a providers applicable certification/licensure is allowed to lapse, the following process will apply:*

    a. Upon expiration of a provider's certification, an "OCMO Administrative Hold" is automatically placed on the provider's Credentials for a period not to exceed three (3) months from the date of certification/licensure expiration. During this time providers may submit a written request for an extension by the OCMO based on compelling extenuating circumstances. Approval of such extension is at the discretion of the OCMO. Without documented proof of renewal, upgrade or extension the provider's credentials will be considered voluntarily surrendered at the conclusion of the 3 month period. The provider must return all credential badges to the OCMO within five (5) business days.

    b. Upon proof of the renewal of certification/license the removal of the OCMO Administrative Hold is subject to the successful completion of the Reintegration Credentialing Requirements (OCMOR – 20).

2. **Separation from All System Registered Responder Organizations**- *To be credentialed in the System a provider must be associated with a Registered System Organization. The following outlines the process for providers who separate from a Registered System Organization:*

    a. At the time a provider is no longer affiliated with any Registered Responder Organization their credential to practice is automatically placed in an OCMO Administrative Hold with or without official notification of the OCMO. A provider is required to notify the Office of the Chief Medical Officer within one (1) business day of when he/she is no longer affiliated with a Registered System Organization. The Administrative Hold shall remain in place until the provider affiliates with another Registered Responder Organization or a period of 30 days has passed. During this time providers may submit a written request for an extension by the OCMO based on compelling or extenuating circumstances. Approval of such extension is at the discretion of the OCMO. Without documented proof of affiliation or extension the provider's credentials will be considered voluntarily surrendered at the conclusion of the 30 day period. The provider's System Credentialing Badges must be returned to the Office of the Chief Medical Officer.

    b. In addition PL3 – PL6 credentialed providers must continue affiliation with a "Tier 2 Organization" as defined by the Office of the Chief Medical Officer in order to maintain their credentials. If a provider should separate from a Tier 2 Organization the conditions cited in (a) above apply. The provider may affiliate with a Tier 1 Organization but will be credentialed at the PL1 or PL2 level.

3. **Action Taken By IAED and/or TDSHS** - *Any action taken against the provider's certification/license by the certifying/licensing body (administrative review, suspension, etc.)*

    a. Any such action by either IAED or TDSHS and any related documentation must be reported to the OCMO on the first business day after the notification is received. Failure to do so may result in suspension/revocation of credentials.

    b. The provider's credentials may be placed on an immediate "OCMO Administrative Hold" pending the completion of the IAED or TDSHS process. The OCMO reserves the right to conduct its own evaluation concurrent or subsequent to the IAED or TDSHS action. If a separate evaluation is conducted by the OCMO the Administrative Hold may be extended pending conclusion of the OCMO review.

    c. The Chief Officer, Director, or Program Manager of the Responder's Organization will be advised of the Administrative Hold. If deemed appropriate, the leadership of other organizations within the System and/or IAED/TDSHS may be notified.

4. **Arrest for a crime that meets the reporting requirements** - Providers and their sponsoring organization are required to report to the OCMO and TDSHS any arrests of a provider involving alcohol or drugs, or a felony arrest. If the organization takes employment action on a provider, the provider's credentials will be reviewed for OCMO Hold based on the circumstances of the event. Individual providers and their respective organizations are responsible to report any arrests of the provider involving alcohol, drugs or a felony directly to the OCMO on or before two (2) business days after the arrest is made. Failure to do so may be considered an integrity violation resulting in immediate suspension and possible revocation. Reporting the event to the TDSHS is the responsibility of the individual provider and must be made in accordance with TDSHS requirements.

5. **FMLA/Military or other voluntary leave:** In the event a provider requests leave from their sponsoring organization that will exceed the minimum period described in the reintegration process (*OCMOR - 20*) their credential will be placed on OCMO Administrative Hold pending their return and successful completion of all elements of the reintegration process.

Process: The process for applying and removing the OCMO Administrative Hold may vary based on the cause of the hold. The process is described for the specific circumstances described above but may be modified at the discretion of the OCMO to accommodate the circumstances.

Notification: Notification of any of the above five (5) items from an Organization to the OCMO should be made via e-mail. Appropriate details and circumstances of the event should be included in or attached to the electronic communication. The e-mail must be addressed to the Medical Director, Deputy Medical Director, OCMO Chief of Staff and the Clinical Operations, Practices and Standards Coordinator.

Suspension*:*

A provider's credential to practice may be suspended if a System Medical Director believes that a provider's behavior or actions suggest a potential risk to the safety of the public or to future patients. These actions may include, but are not limited to, the following:

1. Clinical error
2. Action that may lead to revocation

Process: When a Medical Director becomes aware of behavior or actions that warrant suspension the Medical Director or their designee will notify the providers of their suspension as soon as possible. The Chief Officer, Director, or Program Manager of the responder's organization will be also be advised of the suspension. *The provider is no longer authorized to provide patient care for <u>any</u> organization that receives medical direction from the Austin-Travis County Office of the Chief Medical Officer.* The provider will be scheduled to discuss the events leading to the suspension but shall remain suspended pending additional investigation of the event. The length of the suspension will be determined by the Medical Director. Subsequent to the Medical Directors review of the investigation the Medical Director may return the providers credential to unrestricted status, modify the providers credential to practice, or permanently revoke the providers credential to practice.

Modified Credential Status:

At times it may be necessary to restrict or modify a provider's credential to practice for the purposes of initial or ongoing training or subsequent to an evaluation of a clinical concern. The Medical Director may modify a provider's credential as needed including but not limited to:

1. **Candidate Status:** A provider who is new, progressing in the System, or returning after a sustained absence as described in the reintegration process (*OCMOR - 20*) will be granted a provisional credential to facilitate their completion of the OCMO approved credentialing process. At the conclusion of the credentialing/re-credentialing process the provider may be granted an unrestricted credential or an additionally modified credential as necessary.
2. **Increased call review:** Providers may be subjected to increased call review when a Medical Director needs to more closely monitor a provider's clinical practice. This may include all aspects of clinical care including but not limited to direct observation or documentation review, and may include all responses or may be directed at a specific call or patient type. When increased call review is utilized the provider will be informed of the nature and duration of the increased call review. At the conclusion of the prescribed observation period the provider will be returned to unrestricted status or advised of any additional action required by the Medical Director.
3. **Temporary assignment:** A provider may be temporarily reassigned or asked to complete an educational process in an effort to address a behavioral or knowledge deficiency.

Process: When it is necessary to modify a provider's credential to practice the Medical Director or their designee will notify the provider of the cause, the objective(s) and the duration of any modification of the providers credential. Where the modification of the providers credential is defined as part of the initial or re-credentialing process the published process shall be considered sufficient notice of the modification. Practice outside of the prescribed modification may result in permanent revocation of the providers credential to practice.

Voluntary Surrender:

A provider may wish or need to leave the System for an undefined period of time. If the provider's credential is in good standing with the OCMO the provider may voluntarily surrender their credential to practice. Providers who have surrendered their credential and wish to return to the System are required to complete the re-credentialing process.

Process: The provider who wishes to surrender their credential to practice shall notify the OCMO in writing of their desire to surrender their credential to practice and return their credentialing badges to the OCMO.

Revocation:

The Medical Director may remove the credential to practice of any provider who they believe poses a potential risk to the patients cared for under the Medical Directors license. The decision to revoke a provider's credential to practice will be based on an investigation conducted by the Office of the Chief Medical Officer independently or in conjunction with the provider's organization(s) or other appropriate authority. Actions that may result in revocation include, but are not limited to, the following:

1. **Integrity violation:** The Medical Director has the ability to delegate the privilege to practice under their medical license. In order to do so the Medical Director must trust that the provider will safeguard the Medical Directors license by delivering care consistent with the moral, ethical and clinical expectations outlined by the Medical Director. This trust is a fundamental element of the Medical Director's willingness to delegate their practice and once lost cannot be effectively restored. Any suspected integrity violation will result in immediate suspension pending further investigation. Integrity violations include but are not limited to knowingly providing, verbally or in writing, false or incomplete information to a patient, other healthcare provider, Medical Director or their designee. In addition any falsification or alteration of a medical record, incident reports or documents relating to a clinical event or departmental investigation is considered an integrity violation.
2. **Intentionally withholding care:** this may include but is not limited to the willful failure to assess a patient seeking evaluation, the withholding of care for an identified condition, or the failure to make an unconditional offer of transport.
3. **Intentionally harming a patient**: this may include but is not limited to the use of physical force, a medical procedure or device, or excessive noxious stimulus with malicious intent to cause harm or pain. This does not apply to circumstances where it may be clinically appropriate to restrain a patient or when a provider uses physical force in defense against a threat of violence against themselves or others.
4. **Impairment by drugs/alcohol while on duty**: impairment by alcohol or other drugs or willfully reporting for a shift while taking medication known by the provider to cause impairment that may affect their ability to safely care for a patient. If a concern is identified a System Medical Director should be notified immediately and the provider suspended pending further investigation. The failure to submit to any subsequent drug or alcohol testing is grounds for permanent revocation of their credential to practice.
5. **Failure to remediate**: is considered a failure by the provider to modify their behavior and actions after being redirected through a performance improvement process, education, supervised practice or counseling by a Medical Director or their designee. In addition the failure to comply with or submit to any prescribed education (e.g. continuing education, competencies, etc.) or remediation process is considered a failure to remediate.

Process: The Medical Director will review the available information from the investigation process. If the Medical Director no longer wishes to credential the provider to practice under his/her license the following will occur:

a. The OCMO will provide verbal notification to the provider and his/her provider agency(ies) within three (3) business days of the decision. The provider must return all Credential badges to the OCMO within five (5) business days.

b. The OCMO will provide written notification to the provider and his/her provider agency(ies) within three (3) business days of the decision.

c. At the discretion of the Medical Director, unless otherwise defined by rule, written notification to the Texas Department of State Health Services and/or International Association of Emergency Dispatchers will occur within five (5) business days.

Appeal:

A provider may wish to appeal the decision of the Medical Director or their designee. The following appeals process has been created in order to allow providers this opportunity.

1. Determination made during initial review by the Deputy Medical Director, Associate Medical Director for Performance Improvement, or Medical Director Designee for revocation / permanent modification of credentials
2. Written notification is sent to the provider and his/her provider agency within 3 business days following determination of revocation / permanent modification of credentials
3. Provider may request an appeal to the Medical Director through a Medical Director Credentialing Conference (MDCC) within 3 business days of delivery of the notification of revocation
4. Provider meeting is scheduled in coordination with provider's agency and OCMO
5. Written notification of the date and time for the MDCC is given to the provider at least 48 hours prior to the meeting unless all parties agree to waive this requirement
6. The provider may request to review the electronic patient care report through their agency prior to the meeting
7. The provider may request that either an attorney or a labor representative be present at the MDCC. If the provider wishes to have such representation, the provider shall give written notice to the OCMO at least 24 hours prior to the scheduled meeting
8. MDCC held
9. Final determination of disposition is made by the Medical Director
10. Written notification is made to the provider and agency within 3 business days of the outcome determination

Additional Reference Documents:

Clinical Standards:

System Performance Improvement and Performance Management
Provider Credentialing

OCMO Reference Documents:

Credentialing Requirements
System Credentialing Reintegration

On-scene Authority for Patient Care

Standard:

Establish the clinical hierarchy of authority for on-scene patient care.

Purpose:

Credentialed Providers within the ATCEMS System are responsible for providing patient care in accordance with the prescribed protocols, standards and procedures. However there may be times when providers disagree about the care being delivered. Patient safety is the responsibility of every provider and any concerns should be immediately brought to the attention of other caregivers at the scene. In ANY disagreement regarding circumstances relating to patient care a professional demeanor and focus on the best interest of the patient is paramount. In order to maintain an orderly scene and allow rapid resolution of conflict a hierarchy of clinical responsibility must be established.

Application:

1) In the event of conflicting approaches to providing patient care, extraction, or transport, it is the responsibility of the on-scene credentialed providers to reach consensus as to the most appropriate care for the patient(s). In the event of unresolved conflict, the senior credentialed provider on-scene has final authority and responsibility for decisions regarding patient care. If there is a conflict involving a supervised provider (Cadet/Student/Candidate) the assigned training officer has authority (at their level of credential) and should be consulted.
2) Seniority of Credentials (in descending order) is:
    a) EMS System Medical Director or designee
    b) On-Line Medical Consultation Physician
    c) On-scene Physician (In accordance with Physician on Scene Clinical Standard)
    d) Paramedic Practitioner Credentialed PL-7
    e) Credentialed PL 6
    f) DMO or Training Captain PL 5 on Transporting Unit
    g) Credentialed PL 5
    h) Credentialed PL 4
    i) Credentialed PL 3
    j) Credentialed PL 2
    k) Credentialed PL 1
3) All significant or unresolved conflicts regarding on-scene management of patients should be reported via the appropriate clinical event review process (Medical Officer) and will be retrospectively reviewed in accordance to each organization's review process.
4) If any provider, regardless of credential, feels the conflict negatively impacted patient care, the incident should be reported to the Office of the Chief Medical Officer as soon as practical without causing an additional impediment to care.

Patient Referral to ATU, MCOT, Psychiatric ED

Standard:

To establish guidelines for referring individuals to the ATU, MCOT, Psychiatric ED.

Purpose:

To establish criteria for ATCEMS referral of persons to an approved alternate mental health resource in order to facilitate more appropriate evaluation and care.

Application:

General Applicability:
1. Does not require stretcher for safe and comfortable transport.
2. Does not require special precautions for infectious diseases.
3. Patient does not meet any alert criteria.
4. Will not require monitoring, re-evaluation of treatment or ongoing treatment during transport.

Immediate Exclusion Criteria:
If the patient meets any exclusion criterion, then the patient must be transported to an Adult or Pediatric ED per COG transport requirements.
1. Cannot sit, stand, walk, and pivot.
2. Suicide attempt within previous 24 hours
3. Any patient with ongoing bleeding, wounds requiring repair, or suspected head injury.
4. Any acute neuro-focal changes.
5. GCS < 14, Seizure within < 24 hours
6. Acute hypotensive syncope, or near syncope event(s)
7. Hypoxic-like event
8. Complaint of chest pain or shortness of breath
9. Has been and/or is expected to be violent
10. Evidence of GI bleeding
11. Female of childbearing age with any of the following:
    a. Localized abdominal pain
    b. LMP $\geq$ 12 weeks ago
    c. Unusual or unexpected vaginal bleeding or discharge
12. Patient ingested medication, prescription or over the counter, outside of normal dosing range within the last 48 hours.

Vital Sign Requirements:
1. Pulse: 60 – 110 bpm
2. Systolic BP: 90 – 200 mmHg
3. Respirations: 12 – 30 bpm
4. Blood Glucose: 70 – 300 mg/dL; no signs of DKA
5. SPO_2 ≥ 93% on room air or prescribed supplemental oxygen

Circumstantial Evaluation, and all of these must apply:
1. Patient understands and follows commands.
2. Patient does not require physical restraint(s).
3. Patient is not in the custody of a peace officer.
4. A physician has not specifically requested ambulance transport.

Regardless of known history of hypertension, if SBP > 160 and/or DBP > 100 then the patient should be advised to seek follow up evaluation for their hypertension by community physician.

Minor superficial abrasions may be evaluated for underlying injury and dressed as needed by EMS.

If the individual meets General Applicability, Vital Sign Requirements and Circumstantial Evaluation, but none of the Immediate Exclusion Criteria, then the patient may be referred to ATU, MCOT, or transported to psychiatric ED

If tele-psych services are used, tele-psych provider will speak with EMS personnel and inform them of the plan that has been developed with and for the patient as well as tele-psych disposition. If patient ends the call, field providers should expect tele-psych provider to contact them. As with all telehealth interactions, field providers must document this in addition to standard patient care and narrative.

Patient Referral to Franchise Provider (Integrated Services)

Standard:

To establish guidelines for referring individuals to franchise providers without OLMC consult.

Purpose:

To establish criteria for C4 referral to franchise provider without the requirement for OLMC consult due to routine procedure after MPDS triage and Integrated Services provider evaluation for efficient use of 9-1-1 resources. If a patient does not meet these criteria but a franchise provider may still be appropriate, OLMC should be consulted.

Application:

General Applicability:
1. Patient is coming from a skilled nursing facility
2. Franchise provider has an ETA of ≤3 hours **AND** time is within next critical medication administration
3. Request for patient to be transported to ER is for a non-emergent intervention such as a previously inserted gastric tube or Foley catheter

Immediate Exclusion Criteria:
If the patient meets any exclusion criterion, then the patient should be transported via ATCEMS ambulance and treated per applicable COGs.
1. Trauma or bleeding from stoma on a peg tube
2. Pain in the area of the stoma on the peg tube or Foley catheter
3. Obvious infection in the area surrounding the peg tube or Foley catheter

Vital Sign Requirements:
1. Pulse: 60 – 110 bpm
2. Systolic BP: 90 – 200 mmHg
3. Respirations: 12 – 30 bpm
4. Blood Glucose: 70 – 300 mg/dL; no signs of DKA
5. SPO_2 ≥ 93% on room air or prescribed supplemental oxygen

Circumstantial Evaluation, and all of these must apply:
1. Uncomplicated change of peg tube or Foley catheter is required
2. Peg tube or Foley catheter has been in place for more than 3 months

Patient Referral to Sobering Center

Standard:

To establish guidelines for referring individuals to the Sobering Center.

Purpose:

To establish criteria for ATCEMS referral of persons via an approved alternative transport and/or to specialized healthcare resource(s) in order to facilitate more appropriate evaluation and care.

Application:

General Applicability:

1. Age ≥ 18 years of age.
2. Under the influence of alcohol/drugs **or** experiencing withdrawal symptoms from alcohol/drugs
3. Does not require special precautions for infectious diseases.
4. Patient does not meet any alert criteria.
5. Will not require monitoring, re-evaluation of treatment, or ongoing treatment during transport.
6. No attempted overdose using an illicit drug or medication, prescription or over the counter.

Immediate Exclusion Criterion:

If the patient meets any exclusion criterion, then the patient must be transported to an Adult or Pediatric ED per COG transport requirements.

1. Any patient with ongoing bleeding, wounds requiring repair, or suspected head injury.
2. Any acute neuro-focal changes.
3. Seizure < 24 hours
4. Complaint of chest pain or shortness of breath
5. Has been and/or is expected to be violent
6. Evidence of GI bleeding
7. Evidence of suicidal/homicidal ideation
8. Suicide attempt within last 48 hours
9. Female of childbearing age with any of the following:
    a. Localized abdominal pain
    b. LMP ≥ 12 weeks ago
    c. Unusual or unexpected vaginal bleeding or discharge

Vital Sign Requirements:

a. Pulse: 60 – 110 bpm
b. Systolic BP: 90 – 200 mmHg
c. Respirations: 12 – 30 bpm
d. Blood Glucose: 70 – 300 mg/dL; no signs of DKA
e. SPO_2 ≥ 93% on room air or prescribed supplemental oxygen

Minor superficial abrasions may be evaluated for underlying injury and dressed as needed by EMS.

If the individual meets General Applicability and Vital Sign Requirements, and none of the Immediate Exclusion Criterion, then the patient may be referred to the Sobering Center.

Patient Safety

Standard:

Provide general direction on equipment, clinical practices, and supplies that potentially impact patient safety prior to or after patient care.

Purpose:

To minimize the likelihood of errors and patient harm as well as direction when encountering issues concerning immediate supply shortages, equipment failures, and clinical issues.

Application:

1. For all Medication Administration refer to the medication dosing charts provided in the Drug Formulary to determine and verify drug dosages.
2. For all Medication Administration perform and document a visual verification and Medication Administration Cross Check.
3. Ensure that OCMO credentials are on your person and visible as required by DSHS.
4. At the beginning of each shift verify and document the presence of all required equipment, medications, PPE and supplies.
5. If supplies fall below required levels, restock at the nearest appropriate location. If dispatched to a call that may require depleted supplies, contact communications or your Command Staff.
6. If massive depletion of supplies (e.g., post-cardiac arrest) and/or contamination, remain out-of-service until re-supplied and clean and contact communications or your Command Staff.
7. Medical Equipment that is System designated for multi-patient use, is "cleaned & disinfected' according to manufacturer's recommendations with an EPA approved product after each use.
8. Any patient care equipment (including single patient use disposables) that fails to function as it was intended <u>while managing a patient</u> (equipment that fails while on a call, either preventing its use on the patient or fails while attached to the patient) will be safely secured, removed from service, and reported to the Office of the Chief Medical Officer (Clinical Procedure CP – 67) and the Agency's designated contact. This does not include medications or equipment failures due to operator error.
9. Agencies maintain all medical equipment in accordance with manufacturer's recommendations including: periodic testing, calibrations and/or recertifying.
10. If a near miss, clinical error, or adverse patient event occurs, contact your Agency's designated performance improvement person or their designee as indicated below once the error or adverse event is identified.
    a) **<u>Notification Sequence:</u>**
        i) For clinical discussion or concerns related to the error or adverse event, contact the on call System Medical Director immediately.
        ii) For all other clinical errors, adverse events and near misses, notify the Agency's designated performance improvement person (DMO, FMO, etc.) as soon as possible via email and/or cell phone. Mistakes happen during patient care and; it is important to report those mistakes AS SOON AS POSSIBLE. Self-reporting is the cornerstone of our Performance Improvement Program.
11. Transport Patients in accordance with Patient Transport Standards, Clinical Standard Safe Transport of Patients, Clinical Standard Transport Destination Decision, Appendix Hospital Transport Guidelines, and Clinical Reference Transport Grid.

Patients with Special Healthcare Needs

Standard:

This standard is established to provide quality patient care and EMS services to patients with special health care needs. It is also important for EMS providers to understand the need to communicate with the patients, family and caregivers regarding health care needs and devices that EMS may not have experience with.

Purpose

Medical technology, changes in the health care industry, and increased home health capabilities have created an increasing special population of patients that interface with the EMS system. It is important for EMS to understand and provide quality care to patients with special health care needs.

Application:

1. Emergencies involving special needs patients may involve equipment (e.g. LVAD or vagus nerve stimulation device, etc.) that is unfamiliar to the provider. To familiarize themselves with the equipment providers may:
    - ask the family, caregiver or patient for any documentation or specific information regarding the condition and/or device;
    - utilize Just in Time Training aides/information regarding devices where available;
    - contact the patient's primary care physician or OLMC for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport specific to the patients condition.
2. Transportation will be to the hospital appropriate for the specific condition of the patient. In some cases this may involve bypassing the closest facility for a more distant yet more medically appropriate destination.

Physician on Scene

Standard:

The medical direction of patient care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. All care should be provided within the rules and regulations of the Texas Medical Board of the State of Texas.

Purpose:

This standard is established to identify a chain of command for system providers when encountering physicians on scene and to ensure the patient receives the maximum benefit of appropriate physician resources.

Application:

The TMB has specific rules pertaining to the authority of a physician to order specific patient care interventions on the scene of a medical call. There are two different types of situations regarding on-scene physicians. One is when the patient's own physician is on-scene ("**Patient's Personal Physician**"). The other is when a physician that does not have an established relationship with the patient is on-scene ("**Intervener Physician**").

1. **Physician On-Scene/General Guidelines:**
   a) The Credentialed Provider on-scene is responsible for management of the patient(s) and acts as the agent of the Medical Director or OLMC
   b) In order to participate in care, the patient's personal physician or intervener must present a valid Texas Medical Board License (all physicians are issued a wallet card) or be recognized as a physician by the Provider
2. **Patient's Personal Physician On-Scene:**
   a) If the patient's personal physician is present and assumes care, the Credentialed Provider should defer to the orders of the patient's personal physician if the directed practice is within the scope and training of the credentialed provider
   b) The patient's personal physician must document his or her interventions and/or orders and it must be retained with the EMS Patient Care Record
   c) OLMC should be notified of the participation of the patient's personal physician either from the scene or on arrival at the emergency department
      i) If there is a disagreement between the patient's personal physician and the System COGs, the physician shall be placed in direct communication with OLMC. If the patient's personal physician and the on-line physician disagree on treatment, the patient's personal physician must either continue to provide direct patient care and accompany the patient to the hospital, or must defer all remaining care to the on-line physician
3. **Intervener Physician On-Scene:**
   a) If an intervener physician is present at the scene, has been satisfactorily identified as a licensed physician and has expressed willingness to assume responsibility for care of the patient, OLMC should be contacted. The on-line physician has the option to:
      i) manage the case exclusively
      ii) work with the intervener physician
      iii) allow the intervener physician to assume complete responsibility for the patient
      (1) If there is a disagreement between the intervener physician and OLMC, the Provider will take direction from the on-line physician and place the intervener physician in contact with the on-line physician
   b) The intervener physician must document his or her interventions and/or orders on the EMS Patient Care Record

c) The decision of the intervener physician not to accompany the patient to the hospital shall be made with the approval of the on-line physician
d) Medical orders are not accepted from any non-physician health care providers unless specifically approved by OLMC

Provider Credentialing

Standard:

Define credentialing and the credential levels of providers within the ATCEMS System.

Definitions:

Certification or Licensure: an individual who is certified or licensed by a regulatory body as minimally proficient to perform emergency prehospital care at a particular level that is defined by a regulatory body (e.g., ECA, EMT, AEMT, EMT-P or LP).

Credential to Practice: a process that is defined by the Medical Director that requires a certified or licensed individual to demonstrate competency to practice at a specified level of prehospital care. The credential to practice may be at or below the individual's level of certification or license.

Purpose:

Every Provider that delivers medical care within the ATCEMS System must be "Credentialed to Practice" in addition to holding a current State of Texas Certification or Licensure. All Credentialed Providers within the ATCEMS System are allowed to provide care under the delegated authority of the Medical Director in accordance with the rules of the Texas Department of State Health Services and the Texas Medical Board. Credentialing is the final approval by the System Medical Director that ensures an individual's competency to care for patients as part of the Emergency Medical Services System. An individual is "Credentialed to Practice" when he or she successfully meets and maintains the defined Credentialing requirements. The levels of Credentialing are:

- Emergency Medical Dispatch (EMD)
- PL 1
- PL 2
- PL 3
- PL 4
- PL 5
- PL 6

"Credentialing Requirements" (OMD Reference) defines what is required to obtain and maintain credentials to practice within the ATCEMS System and can be found at: http://www.austintexas.gov/page/clinical-operating-guidelines

"Authorized Skills by Credential Level" (OMD Reference) defines the interventions available to credentialed providers: http://www.austintexas.gov/page/clinical-operating-guidelines

"System Clinical Reintegration" (OMD Reference) is necessary for a Responder or Provider that has been absent from direct patient care for an extended period of time: http://www.austintexas.gov/page/clinical-operating-guidelines

During the time of absence, the responder/provider Credential will be placed on an **"OMD Administrative Hold"** (Clinical Standard OMD Modification or Revocation of Credential to Practice). Examples of absences that this process applies to are: leave of absence, OJI, FMLA, Departmental/Organizational reassignments, military deployments or similar. Each organization is responsible for notifying the OMD of these type circumstances as soon as they are aware of them. The purpose of this process is to ensure that the System Credentialed responder/provider has a smooth transition back into patient care. Upon their return, a time of review, competency assessments and/or preception during direct patient care insures clinical knowledge and skills are commensurate with System expectations. The exact steps and competencies required will be determined based upon the circumstance of the absence, length of time away and meeting all DSHS requirements. Each Organization will advise the OMD of the need for this process and; propose an individualized plan for each person involved in it. The OMD will review the proposal and provide approval and/or feedback.

Refusal of Treatment and/or Transport

Standard:

To establish guidelines for all System Credentialed participants and providers when addressing issues of patient consent or patients refusing treatment and/or transport..

Purpose:

Adult patients with present mental capacity retain the right to refuse care and/or transport against medical advice.

Definitions:

Informed Consent/Refusal

In Texas the general rule of law is that before a person may receive medical treatment they must give informed consent for that treatment. Without consent the medical treatment is unlawful. This is true regardless of whether the person receiving the treatment is a minor or has reached the age of majority (18 years of age).

Informed consent is based on an individual's appreciation and understanding of the facts, implications and future consequences of an action. In order to provide informed consent or refusal a patient must have adequate reasoning faculties(capacity) and be provided with information (risks/benefits) relevant to the decision making process. They should also be aware of the options available to them if they choose not to accept evaluation and/or treatment.

Implied Consent

In potentially life-threatening emergency situations where a patient is unable to give informed consent the law presumes that the patient would give consent if able. In potentially life-threatening emergency situations, consent for emergency care is implied if the individual is:

1) Unable to communicate because of an injury, accident, illness, or unconsciousness and suffering from what reasonably appears to be a life-threatening injury or illness
   OR
2) Suffering from impaired present mental capacity
   OR
3) A minor who is suffering from what reasonably appears to be a life-threatening injury or illness and whose parents, managing or possessory conservator, or guardian is not present

Substituted (Surrogate) Consent

An individual with legal standing may give consent for a patient when the patient does not have the ability to do so because they are a minor, incarcerated or have been determined by courts to be legally incompetent. Parents or guardians are entitled to provide permission because they have the legal responsibility, and in the absence of abuse or neglect, are assumed to act in the best interests of the child.

The following person(s) may consent to or refuse the evaluation, treatment, and/or transportation of a minor:

1. Parent
2. Grandparent
3. Adult (18 or greater) sibling
4. Adult (18 or greater) aunt or uncle
5. Educational institution in which the child is enrolled that has received written authorization to consent/refuse from a person having the right to consent/refuse.
6. Adult who has actual care, control, and possession of the child **and** has written authorization to consent/refuse from a person with the power to consent /refuse (i.e., daycare camps, carpools, youth sports, etc.)
7. Adult who has actual care, control, and possession of a child under the jurisdiction of a juvenile court
8. A court having jurisdiction over a lawsuit affecting the parent-child relationship of which the child is the subject
9. A peace officer who has lawfully taken custody of minor, if the peace officer has reasonable grounds to believe the minor is in need of immediate medical treatment.
10. A managing or possessory conservator or guardian.

Application:

1. All patients refusing treatment and/or transport must :
   a) Be at least 18 years of age or an Emancipated Minor;
   b) Be able to demonstrate present mental capacity in accordance with the Determination of Capacity Procedure.
   c) NOT have been declared legally incompetent by a court of law. (If a patient has been declared legally incompetent, his/her court appointed guardian has the right to consent to or refuse evaluation, treatment, and/or transportation for the patient.)
   d) NOT be suicidal or homicidal. (A law enforcement officer may arrest a patient who threatens or attempts suicide under Texas Health and Safety Code Section 573.001. The statute also covers other mentally ill patients and a similar statute allows an arrest for chemical dependency. Only a law enforcement officer can make these arrests.)
2. Patients meeting the above criteria who demonstrate present mental capacity retain the right to refuse any or all treatment and/or transportation. All patients should be encouraged to seek care. Additional resources may be employed including but not limited to involving the patients physician, additional providers such as a Commander, DMO, or On-line Medical Control.
3. Under no circumstances will ATCEMS System providers refuse or deny treatment or EMS transportation to any patient (or legal patient representative) who requests medical assistance from the provider or agency. The initiation of treatment should not be dependent on the patient's willingness to accept transport. (e.g. hypoglycemia, asthma, etc.) This does not include the administration of narcotic pain medications or sedative agents.
4. ATCEMS System providers shall not discourage any patient (or legal patient representative) from seeking medical care from a physician or from accepting EMS transport to a hospital.
5. When a patient with present mental capacity wishes to refuse care:
   a) The patient will be instructed that the evaluation and/or treatment is incomplete due to the limitations of the pre-hospital care environment;
   b) The providers will attempt to identify any patient perceived obstacles to treatment/transport and make reasonable efforts to address these obstacles. This

includes but is not limited to the offer of transportation without treatment, or the offer of transportation to a facility not recommended by guideline. These should be offered only for the purpose of facilitating additional evaluation and/or treatment which would otherwise be refused.

c) The provider will inform the patient of the risks of refusal and benefits of treatment/transport in accordance with their presenting complaint. It should be explained that the risks described are not comprehensive due to the diagnostic limitations of the pre-hospital environment and that their refusal may result in worsening of their condition, serious disability or death.

d) The patient will be advised that they should seek immediate medical care at an Emergency Department or with their own physician and that they may call 911 again at any time if they wish to be transported to the hospital or if their condition changes or worsens.

Documentation:

1) The provider must document facts sufficient to demonstrate the patient's present mental capacity and understanding of his/her condition and the consequences of refusing treatment and/or transport to include those mentioned above.
2) If a patient wishes to refuse assessment, treatment and/or transport, have the patient sign (Against Medical Advice-AMA) relating to the refusal of specific assessment, treatment, destination recommendation, or transport and have a third party witness the signature.
3) If the patient refuses to sign the refusal form, the provider will document the circumstances under which the patient refused to sign.
4) Vitals and any assessment or diagnostic findings the patient allowed provider(s) to obtain.
5) Include direct quoted statements made by the patient related to their reasoning for refusing care or transport.
6) The strategies used by the provider(s) to inform the patient of the risks and benefits of care/transport to refusing need to be clearly documented.
7) How information was provided to the patient to seek immediate medical care or to call 911 again at any time if EMS is needed or if their condition changes or worsens, and how patient acknowledged understanding of this information.
8) Witnesses to the interactions between provider(s) and patient need to be documented, when applicable these witnesses include:
   a) Fellow first responders on scene, this includes their name, credential or agency, and employee or badge number.
   b) Patient family members, this includes their name and their legal relationship to the patient.
   c) Care Attendants, Friends or Co-workers, this includes their name and relationship to the patient.

On-Line Verbal Consent / Refusal

For verbal consent or refusals obtained via phone call, the provider must document the same as above, however, obtaining physical signatures will not be possible. The following option is available to providers needing to obtain consent or document such refusals of care, treatment, and/or transport.

1) Field provider obtains appropriate phone number and calls using unit cell phone, advising the person able to give consent / reuse (responsible party) of the situation and that they will soon receive another call on a recorded line.
2) Field provider calls appropriate communications center and asks for a recorded line, providing communications center with phone number.
3) Communications center connects field provider and responsible party, with communications medic listening as witness.

4) Field provider provides all standard and necessary information, as stated above, for responsible party to make an informed decision as to the patient's care and/or refusal of assessment/treatment/transport.
5) Disposition is decided upon by responsible party and documented as above by field provider.
6) If a refusal is being obtained, field providers must also obtain the responsible party's consent to release the patient to a party on scene (see below).

Releasing minors / Patients unable to give consent

When releasing a minor or other patient unable to give consent, the field provider must take several factors into account in order to properly advocate for the patient and ensure their safety. The relationship between the patient and the party they are being released to. The provider must have the consent of the responsible party and the person taking custody of the patient. The provider must also be reasonably assured that the person the patient is being released to does not put the patient in danger.

Request for Service by Individuals at a Hospital

Purpose:

To provide a standardized response to individuals who are at a hospital facility capable of evaluating and treating them who contact 911 for EMS transport to another hospital.

Application:

This clinical standard applies to individuals (not hospital staff) who are:

1. Calling from a Hospital facility, Psychiatric hospital, or Rehabilitation facility (waiting room, emergency department, floor, physical building/grounds, or parking facility) **– AND-**
2. Are currently registered to be evaluated **-OR-** have already been evaluated or treated by the Emergency Department **-OR-** currently under the care of a hospital.

Process:

1. When a request for service is received by 911, EMS Communications Medics will process the call in accordance with MPDS guidelines until it's determined that the patient meets INPT5 criteria.
2. If it is determined that the caller meets any of the criteria described above, the call type should be changed to Priority In-Patient Evaluation (INPT5) and the nearest EMS Commander should be assigned to the call without a transport unit.
3. EMS Communications will then contact the Hospital Department Charge Nurse to advise that a 911 call has been received from their facility and that an "EMS Commander" will be enroute.
4. Upon arrival the Commander will locate, assess the patient, and confer with hospital staff.
5. If the patient meets the criteria above and, does not have a new or unaddressed complaint the Commander should advise the patient to seek re-evaluation at the current Hospital or Emergency Department. If the patient does not wish to do so the Commander may, at their discretion, decline EMS transportation of the patient.
6. If the patient meets criteria above and, the Commander feels the patient would benefit from EMS transport to a different hospital they may request a transport unit.
7. In all cases where patient contact is made by EMS personnel the assessment shall be documented in the ePCR in accordance with prescribed standards.

Provider Initiated No-Transport or Individual Patient Modified Response

Standard:

Establish guidelines for responding units to assess patients under an OCMO-designated Provider Initiated No-Transport (PINT) or Modified Response

Purpose:

To ensure patient safety by establishing uniform criteria for responding providers to assess and document patients under an OCMO-designated PINT or modified response. To achieve better patient outcomes by navigating high-utilizers to appropriate resources. To ensure adequate resource utilization by modifying behaviors that lead to misuse of limited 9-1-1 resources.

Application:

Vital Sign Requirements:

1. Pulse: 60 – 110 bpm
2. Systolic BP: 90 – 200 mmHg
3. Respirations: 12 – 30 bpm
4. Blood Glucose: 70 – 300 mg/dL; no signs of DKA
5. $SPO_2 \geq 93\%$ on room air or prescribed supplemental oxygen

Documentation Requirements:

1. ESO Disposition – Patient evaluated, no treatment/transport required
2. Complete set of vital signs
3. Provider signatures
4. Complete assessment
5. All documentation requirements for patients

Care Requirements:

1. No lights or sirens response if Priority 3 or lower
2. Assess for and treat any life-threats
    a. If life threats are found, transport as appropriate
3. Complete any requirements of the PINT/modified response order
4. Offer services as needed and available
5. Refer to appropriate resources
6. If deviating from a PINT, call OLMC unless alert criteria are met

If the individual does not meet the above requirements but a provider feels that a PINT may be appropriate for a patient, the C4 should be contacted and an Integrated Services provider should contact OLMC for consult if appropriate.

Safe Transport of Patients

Standard:

To provide a safe method of transporting patients within an ambulance and protect the EMS system and personnel from potential harm and liability associated with the transportation of patients.

Purpose:

Without special considerations patients are at risk of injury when transported by EMS. Providers must provide appropriate stabilization and protection to all patients during EMS transport.

Application:

1. Drive with due regard at safe speeds observing traffic laws unless patient condition requires emergent transport in accordance with operational standards on emergency response/transport.
2. Tightly secure all monitoring devices and other equipment.
3. Ensure that all pediatric patients weighing less than 80 lbs are restrained with an approved child restraint device secured per manufacturer's instructions if not secured by other means as part of patient care.
4. Patients are not to be transported laying on long spine boards.
5. Do not transport the pediatric patient who meets trauma activation criteria in a child seat that was involved in the collision.
6. Ensure that all EMS personnel use the available provider restraint systems during transport when not otherwise engaged in patient care activities.
7. Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
8. Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
9. Do not hold or allow the parents or caregivers to hold pediatric patients during transport.
10. For patients with medical conditions that may be aggravated by stress, make every attempt to optimize safety.

STEMI Alert

Standard:

To establish guidelines for declaring a STEMI Alert and initiating patient transport to an appropriate receiving facility based on COG transport guideline.

Purpose:

In order to more consistently assess and apply the notification for a STEMI Alert the following criteria have been developed in conjunction with Regional Mission Lifeline initiative.

Application:

STEMI Alert Criteria:

1. A *STEMI Alert* should be called when a patient is currently symptomatic for an acute coronary syndrome event, *and*
2. Has new or presumably new ST segment elevation > 1 mm in two anatomically contiguous leads, *and*
3. Does not have exclusion criterion listed below.
4. If a patient meets *STEMI Alert* criteria and none of the exclusion and ACS consult criteria, then a *STEMI Alert* should 1st be declared to communications. As soon as possible a 12-lead ECG should be transmitted and whenever possible the patient's name should accompany the 12-lead ECG.
5. The transport hospital should be notified of the *STEMI Alert* as soon as practical and the alert must include the transport radio report to the hospital with the patient condition information.

STEMI Alert Exclusions & ACS Consult Criteria:

1. Patients that are currently asymptomatic for an acute coronary syndrome event however have ECG readings consistent with the above *STEMI Alert* criteria, or
2. Patients who are symptomatic for an acute coronary syndrome event and have evidence of isolated V1 and V2 elevation only, LBBB or LVH, Early repolarization, Ventricular/Ventricular Paced, Diffuse ST elevation, or Non-specific ST changes or other abnormal ECG findings including poor ECG tracing.

The provider should not declare a *STEMI Alert* and should consult with the anticipated receiving hospital prior to transport and transmit a 12 lead ECG with *ACS Consult - Facility Name* in the patient ID field.

The declaration of the *STEMI Alert* or use of the ACS Consult option should be based upon the patient's current condition and the provider's judgement.

Stroke / LVO Alert

Standard:

To establish guidelines for declaring a Stroke or Large Vessel Occlusion (LVO) Alert and initiating patient transport to an appropriate receiving facility based on COG transport guideline.

Purpose:

To outline the assessment of a patient currently exhibiting signs and/or symptoms associated with stroke.

Application:

1. Initiate assessment and treatment of suspected stroke patients in accordance with most appropriate clinical guideline(s).
2. Utilize Stroke Screening checklist.
3. Ascertain the last time the patient was seen normal to establish the time of *last known well*.
4. Obtain a blood glucose level according to the blood glucose procedure.
5. Perform the Cincinnati Prehospital Stroke Screen (CPSS).
   a. All portions of CPSS must be completed. Any abnormality in the screening is positive for stroke.
6. If the has a positive CPSS, then assess for weakness and perform the Visual Disturbance, Aphasia, and Neglect (VAN) Score.
   a. If any portion of the VAN assessment is positive, then the patient is VAN positive. A positive VAN Score & positive CPSS screening along with weakness is positive for a LVO.
7. Declare the appropriate alert and identify the appropriate destination:

LVO Alert	**Stroke Alert**
Patient is positive for CPSS, also has weakness, and positive VAN Score	Patient is positive for CPSS but negative VAN Score
Onset of symptoms or last known well time is ≤ 23 hours & blood glucose > 50	
Transport to Thrombectomy Capable Stroke Center	Transport to Primary or Thrombectomy Capable Stroke Centers
May transport to Primary Stroke Center (PSC) **only** if distance to Thrombectomy Capable Stroke Center (TCSC) is > 15 minutes further. For example: Scene to PSC is 5 minutes or 20 minutes to TCSC, then transport to TCSC. Scene to PSC is 5 minutes or 21 minutes to TCSC, then transport to PSC.	
Any patient with stroke-like symptoms with onset > 23 hours should be transported to the closest Stroke Center	
Refer to Transport Guideline and Matrix As Needed	

8. Whenever possible, identify a family member or historian to accompany the patient to the hospital.
9. Tool to aid in capturing patient information for the receiving facility - #FILM
   a. # - Unit **Number**
   b. F – **F**amily contact info
   c. I – Recent **I**nterventions (Surgeries, cardiac cath, etc.)
   d. L – **L**ast known well
   e. M – **M**edication (specifically antiplatelet and anti-coagulant)

System Design

Standard:

Define the design of the system and how the organizations integrate to form one System of Care.

Purpose:

The ATCEMS System is comprised of multiple agencies that include a diverse group of healthcare professionals including Communications Specialists, First Responders, Transport Providers, Hospital Networks (including specialty receiving centers) and Physicians with varying specialties in the community. Together, this "System" provides the basis for seamless delivery of care to acutely ill or injured patients in our community.

Application:

The ATCEMS System maximizes the opportunity to deliver appropriate care to patients as defined by the Guidelines, Procedures and Standards established by the OCMO (Collectively the Clinical Operating Guidelines). The goal of these documents is to provide safe consistent and sophisticated care to the citizens and visitors of the City of Austin and Travis County.

Medical Direction for all EMS Providers and First Responders flows from the Office of the Chief Medical Officer to each Texas Department of State Health Services (DSHS) Licensed System Organization, via Provider and First Responder Organization Agreements. In order for Medical Direction to flow from the Licensed Organization to the System Credentialed Providers they must respond and provide patient care with the approval of their Licensed Organization (s) within the State of Texas only.

Should they provide COG level patient care at preplanned events not approved by their System Licensed Organization and/or outside the State of Texas; System Medical Direction does not apply. This provision does not preclude Providers from "stopping to render first aid".

1. All medical care within the EMS System should be provided in accordance with the current Clinical Operating Guidelines; by individuals currently certified/licensed by the Texas DSHS and credentialed by the OCMO.
2. Individuals holding current Qualifications may deliver specialty care as defined by the COGs when appropriate equipment and conditions exist.
3. All organizations providing medical care as part of the EMS System will comply with Texas Department of State Health Services requirements for Provider or First Responder Organization Licensure.
4. All 9-1-1 requests for care will be managed by EMS Communications according to the requirements of the currently adopted Medical Priority Dispatch System. This includes call triage, pre-arrival instructions and response determinants.
5. All Tier 2 First Response Organizations will be capable of delivering, at a minimum, Basic Life Support care (PL2) as defined by the OCMO.
6. First Response PL3 – PL5 level of care is supplemental to the System minimum requirements.
7. All System First Response Organizations must maintain the BLS supplies identified on the Minimal Equipment List. If a System Registered Organization chooses to equip a PL3 – PL5 Credentialed Provider, the equipment must be supplied and maintained according to the appropriate Minimal Equipment List for that level of care.
8. Standby and on-site Special Event Providers Minimal Equipment will be determined based on the need of the specific event.

9. Treatment of patients with prescription or non-prescription medications that are not included in the COG or not approved by OLMC is considered practicing outside the provider's scope of practice.
10. The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level. Refer to OCMO References and current Transport Unit MELs
11. During unusual or extreme conditions or circumstances, the above criteria may be modified by the Medical Director to best meet the needs of the patients of the EMS System.

System Performance Improvement

Standard:

In accordance with the Texas Health and Safety Code section 773 and Texas Medical Board requirements for EMS Medical Directors section 197; the System Performance Improvement program was established and implemented.

System response agencies (transport providers and FROs) and the Office of the Chief Medical Officer shall work together to continuously evaluate and improve behaviors, performance, and processes critical to maintaining a high standard of patient care and a high degree of patient safety. The performance improvement program requires active participation in each of the following performance improvement functions:

1. performance measures to drive safe and patient-centered behaviors,
2. preplanning and post-implementation evaluation to identify potential clinical improvements,
3. clinical errors & concerns to identify individual and systemic improvements, and
4. participation in external data registries and systems of care programs targeting clinical system improvements.

All organizations have agreed to participate in a system-wide performance improvement program including the execution of all necessary Memoranda of Understanding for the exchange of Health Insurance Portability and Accountability Act (HIPAA) protected information. All organizations further agreed to participate in the System error reporting guidelines included in the performance improvement program. Failure (Individually or Organizationally) to participate in the performance improvement program may result in suspension of credentials to practice and/or FRO Agreement.

Process management documents to administer this System Program are located at: http://www.austintexas.gov/page/performance-improvement

All process management documents may be modified as necessary for ongoing program improvement.

Telemedicine Consult Guidelines & Process

Standard:

To establish guidelines and process for all System Credentialed participants and providers when utilizing telemedicine as part of patient care.

Purpose:

Primary goal is to provide expanded service to our underserved and vulnerable populations, relieving pressure on field crews, and keeping more ambulances available for higher acuity calls.

Patient Selection:

1. Patient age $\geq$ 6 months old; and
2. No history of coronary artery disease (ie. Heart attack, coronary artery bypass); and
3. No acute hypotensive, syncope, or near syncope event(s); and
4. No episodes of hypoxia while in EMS care
5. Can ambulate, function, and perform Activities of Daily Living (ADLs) at baseline; and
6. Adult vital signs are within the following parameters (Pediatric vital signs within normal ranges):
    a. Pulse: 60 – 110 bpm
    b. Systolic BP: 90 – 200 mmHg
    c. Respirations: 12 – 30 bpm
    d. Blood Glucose: 70 – 300 mg/dL; no signs of DKA
    e. SPO_2 ≥ 93% on room air or prescribed supplemental oxygen

    If patient does not meet above criteria but provider believes that patient would benefit from telemedicine, provider may contact OLMC

Field Providers:

1. Review Patient Selection criteria.
2. Determine the most appropriate clinical guideline(s) based on patient complaint and presentation.
3. Perform complete patient assessment, physical exam, and diagnostics as informed by applicable clinical guideline(s).
4. Obtain complete vital signs, including $EtCO_2$ when indicated by patient complaint, presentation, or applicable clinical guideline(s).
5. Use Pulsara, goal is to include a picture.
6. Lead provider contacts telemedicine and use standardized reporting format.
7. Assign the telehealth provider to your EHR.
8. Document telehealth interaction in addition to standard patient care and narrative.

C4:

1. Screen for Patient Selection criteria.
2. Determine the most appropriate clinical guideline(s) based on patient complaint then review the indicated assessment, exam, and diagnostics with field providers.
3. All telemedicine calls are made using Pulsara.
4. Use standard format with brief intro to telemedicine provider, majority of findings and patient information needs to be communicated from the lead field provider to the telehealth provider.
5. Document interaction and consult.
6. Send discharge instructions to patients when able.
7. Follow up / Call back as directed.

Telemedicine Consult Guidelines & Process

Telehealth Provider:

1. Complete telemedicine consult using video and Pulsara.
2. Document telemedicine consult in EHR(s).

Transfer of Care to Provider From Another Agency

Standard:

To define circumstances and establish a process for receiving and transferring patients from one agency to another.

Purpose:

Providers may be presented with multiple patients, limited resources, or patient conditions requiring transfer of care to a provider from another agency, such as: transferring care to an aeromedical provider, a different transporting agency, another agency that will obtain a patient refusal, etc.

The ultimate decision of whether or not to transfer care to a provider from another agency shall be made following all established norms, Texas laws, and the Clinical Standard regarding On-Scene Authority of Patient Care. During Mass and Multi-casualty incident situations, decisions will be made by the on-scene command structure.

Application:

When transferring care to a provider of a different agency:

- This decision must, above all, be patient-centered. Transferring care to another agency must benefit the patient and, if possible, the EMS system.

- Patient care officially transfers from one provider to the other after an in-person report, which should, at minimum, consist of the following, in MIST format:
  - **Differential Diagnosis**
  - Age/Sex
  - Mechanism of Injury / Medical Complaint
  - Injuries / Inspections – time of onset, brief medical exam & findings
  - Vital Signs – First set & significant changes
  - Treatments and times

- Providers are encouraged and expected to continue to assist in patient care within their scope of practice as needed by other agencies. This can include providing care during transport, should the transporting agency express the need. The transporting agency's lead provider has authority over patient care and other providers should assist them in their plan of care. If a significant disagreement arises, OLMC should be contacted.

- Complete all documentation following the Documentation of Patient Care Report Clinical Standard.

- When a system-credentialed physician (PL-8) or advanced provider (PL-7) is on-scene, providers should make allowances for them to inform clinical care across agencies.

Transfer of Care to Provider of Lesser Credentials

Standard:

To define circumstances and establish a process for transferring patient care from a higher credentialed provider to one of lesser credentials.

Purpose:

Providers may be presented with multiple patients, limited resources, or patient conditions requiring early rapid transport in order to maximize potential outcome (for example one critically injured patient and multiple non-injured occupants in a motor-vehicle collision). These situations may require that patients be left in the care of a lesser credentialed provider. The ultimate decision of whether or not to initiate transport of a critically ill or injured patient while awaiting additional resources rests with the on-scene Provider with the most advanced level of system Credentials as defined in Authority for Patient Care.

Application:

When transferring care to a provider of lesser credentials the following applies:

1. Leaving patients on-scene should not be a routine procedure. It is to be considered only when a patient requires immediate transport in order to maximize potential outcome.
2. The transport Provider may transfer patient care to a Provider of lesser Credentialing when transfer of established care is **not** beyond the scope and/or training of the Provider(s) assuming care (i.e., an intubated patient may not be left with a System PL 1, PL 2, PL 3, or PL 4 Credentialed Provider).
3. All patients should be accounted for, assessed and triaged, and appropriate additional resources requested prior to transport of the critically injured patient.
4. No patient requiring immediate advanced stabilization (i.e., pleural decompression, intubation, defibrillation etc.) is to be left on-scene awaiting additional resources unless an appropriately credentialed and equipped Provider is present and able to perform such care.
5. Mass and Multi-casualty incident transport decisions will be made by the on-scene command structure.

Transport Decision Process

Purpose:

To define patients that cannot be transferred to a provider other than a credentialed ≥ PL5.

Application:
For the purpose of this standard, a ≥ PL5 refers to an ATCEMS credentialed ≥ PL5 with no current restrictions on their credential to practice.

All providers on scene are expected to participate in patient care. Both providers are responsible for conducting an initial evaluation to determine a chief complaint, level of distress, and initial treatment plan. Stable patients not in need of ≥ PL5 level care may be attended by another provider. The Lead Transport ≥ PL5 is responsible for making the decision for which patients can be safely transported by a provider with lower level of credentials. Any "High Risk" patient as defined in this standard must be assessed by a ≥ PL5.

The care of the following patients cannot be transferred to a lower level of credential:

1. Any patient who requires additional or ongoing medications, intervention and/or monitoring beyond the scope of the system credential provider as defined by the clinical operating guidelines.
2. Any patient that receives medications beyond the scope of practice of the system credentialed provider.
3. Postictal seizure patients who have not returned to baseline mental status.
4. Any patient to whom any of the following apply:
    a. Trauma Alert
    b. Stroke Alert
    c. LVO Alert
    d. STEMI Alert
    e. Syncope
5. Any patient whom the transporting providers do not agree can be safely transported without a ≥ PL5 attending in the back of the ambulance.

Exceptions to the above listed items:

1. Patients listed as "High Risk" may be transported by a ≥ PL2 if the ≥ PL5 provider completes an assessment and the patient does not require any care and monitoring beyond the scope of practice of the ≥ PL2 provider.
2. Patients who received a single dose of IN narcotic for the purpose of pain control in a traumatic injury not involving the patient's head, chest, or abdomen.
3. Patients who have a syncopal episode who are < 50 years of age, have a normal blood sugar, and a normal ECG.
4. Monitored IV saline lock.
5. Monitored administered PO route medications.
6. Any hypoglycemic patient that returns to a baseline mental status after treatment.
7. A ≥ PL2 transport provider may call and obtain a Termination of Resuscitation (TOR) on behalf of a ≥ PL5 transport provider post ≥ PL5 assessment for patients that meet the criteria for death or withholding resuscitation.
    a. Patients who fall under the Discontinuation of Prehospital Resuscitation, the decision for TOR must be discussed between the ≥ PL5 and OLMC.

Any "High Risk" patient as defined above must be assessed by a ≥ PL-5 provider or responder, if available. However, If a BLS unit has been dispatched to the scene and providers determine that, although the patient meets criteria for PL-5 evaluation/care, the patient would receive significant clinical benefit from rapid transport to the nearest appropriate facility and/or the patient would be

significantly harmed by waiting on scene for a ≥PL-5, the BLS unit may transport the patient to the nearest appropriate facility.

If a ≥ PL5 provider or responder has not been dispatched to the scene and the primary complaint is ambulatory dysfunction/ lift assist only, there must be an offer for a ≥ PL5 evaluation. If the patient refuses a ≥ PL5 evaluation, then OLMC must be contacted, after consulting with OLMC the ≥ PL1 provider may complete the refusal based on OLMC direction.

Even when a ≥ PL5 provider or responder completes a full evaluation, consultation with OLMC is recommended for "High Risk" refusals.

The ePCR should reflect the decision-making process to determine which provider attends to the patient. As with all documentation, both providers are responsible for the content of the ePCR.

Transport Destination Decision

Standard:

Define how a transport destination decision is reached, taking into consideration the specialized care needs of specific conditions and the needs and preferences of our patients.

Purpose

Patients treated by the ATCEMS System may have complex clinical conditions that require care at facilities with specialized capabilities or expertise in treating these conditions. In the absence of the need for specialized care patients may want to be transported to facilities based on their personal preference or the location of their physician and records. Whenever possible the providers of the ATCEMS System will provide patients with transport to a prescribed medical facility of their preference.

Application:

1. The following assumes the patient or the patient's legal guardian has decision making capacity in accordance with the Refusal of Treatment/Transportation Standard and the Determination of Capacity Procedure. In the absence of decision making capacity or in cases where consent is implied the patient should be transported to the closest appropriate facility. If a patient wishes to refuse treatment/transport but has been determined to lack the capacity to do so providers should consult their supervisor and online medical control in accordance with the Refusal of Treatment/Transportation Standard.
2. When a patient presents with a clinical condition requiring specialized care the transporting providers will transport the patient to the closest facility that offers the specialized care for that patient's condition. (STEMI, Stroke, Trauma, Resuscitation Center, Pediatric care, etc).
3. If a patient refuses to go to the recommended facility, transport providers will then explain the benefit of transport to the recommended facility and the risk of transport to another facility. If the patient still refuses transport to the recommended facility, transport providers will then recommend transport to the next closest appropriate facility for their condition.
4. If a patient continues to refuse transport to the alternative specialty care facility or requests transport to a facility that lacks the ability to care for the patient condition, the transport provider will make every effort to explain the need for the specialty care facility. These efforts may include but are not limited to contacting the patient's physician, a supervisor, on-call Medical Director or OLMC at the facility the patient wishes to be transported to.
5. If after the efforts described above the patient continues to request transport to a facility not recommended for the patient's condition the transport providers will transport the patient to the facility of the patient's choosing. They should notify their supervisor and the receiving facility of their transport. On arrival at the facility the crew should consult with the attending physician to determine if the patient will be transferred. If such a transfer is imminent the provider should contact their supervisor and remain immediately available to transfer the patient after the required screening examination by the receiving facility. The duration of this availability is to be determined by the supervisor based on the patient's condition and the anticipated time to transfer.
6. If a patient does not have a condition that requires transport to a specialized facility as prescribed by guideline, the providers will transport the patient to an approved system facility of the patient's choosing. When a patient requests transport to a facility other than an approved system facility, the transport decision should be made in consultation with a supervisor. If in the provider's opinion the patient's condition warrants transport to a closer facility for rapid stabilization the need for this destination should be explained to the patient and every effort made to deliver the patient to the closest appropriate facility. These efforts may include but are not limited to contacting a supervisor or online medical control. If the

patient continues to refuse the recommended destination the patient will be advised of the associated risks and transported to the destination of their choosing.

7. If the patient has a memorandum of transfer or if transport has been arranged by another healthcare provider the transport provider should transport the patient to the destination indicated by the memorandum of transfer or sending healthcare provider in accordance with the memorandum Standard.
8. If the patient does not have a condition that requires specialty care as prescribed by guideline and does not have an expressed preference the transport provider may transport the patient to the closest appropriate facility.
9. In the event multiple patients from the same event are to be transported in one unit the patient with higher acuity determines the transport destination. Where the need for different facilities can be anticipated reasonable efforts should be made to split the patients at the scene as long as doing so does not place either patient in danger.
10. Any refusal of treatment or recommended transport destination should be performed and documented in accordance with the Refusal of Treatment/Transport Standard and Determination of Capacity Procedure.

Abdominal Pain

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- DKA often presents with abdominal pain, nausea, and vomiting.

Signs & Symptoms:
- Pain
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding / discharge
- Pregnancy
- Fever

Differential:
- Pneumonia or P.E.
- Hepatitis or Pancreatitis
- Gastroenteritis
- Peptic Ulcer Disease
- Myocardial Infarction or CHF
- Kidney Stone
- Aortic Aneurysms
- Appendicitis
- Bladder/Prostate Disorder
- Pelvic – Pregnancy, Ectopic, STI, PID, Ovarian Cyst
- Diverticulitis
- Bowel Obstruction

Clinical Management Options

PL 1	PL 2	PL 3	PL 4	PL 5	PL 6
• Oxygen, target SpO_2 92% – 96% • Nausea and Vomiting Guideline as needed					
• 3 & 12-lead ECG placement					
• IV / IO access as appropriate for patient condition • IV fluid with isotonic crystalloid as needed for dehydration					
• ECG Assessment • Pain Management Guideline as needed					

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Abdominal pain in women of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- The diagnosis of abdominal aneurysm should be considered with abdominal pain in patients over 50 Y/O.
- Mesenteric ischemia presents with severe pain and limited exam findings. Risk factors include age > 60, atrial fibrillation, CHF and atherosclerosis.
- For all female patients ask about last menstrual period.
- Ultrasound to determine free fluid in abdominal cavity
- Ultrasound to determine possible pregnancy.

Airway Management & Ventilation

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Avoid intubation of the pediatric patient when possible. OPA/NPA is preferred.
- Children compensate well initially but decompensate quickly with little warning.
- Most pediatric cardiac arrests are due to respiratory compromise.

Signs & Symptoms:

- Percentage of Glottic Opening
- Neck mobility
- Beard, may prevent mask seal
- Facial trauma/instability
- Foreign material in airway
- Swelling/Edema
- Respiratory effort
- Thyromental distance

Differential:

- Airway obstruction
- Pulmonary edema
- COPD/Asthma
- Stroke
- Drug overdose
- Cardiac arrest
- Head injury
- Anaphylaxis

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- BLS Foreign Body Airway Obstruction evaluation / removal
- Place NPA and/or OPA and ventilate with BVM
- Oxygen, including passive apneic oxygenation 25 lpm with NC
- SpO_2 monitor

PL2 PL3 PL4 PL5

- BIAD
- $ETCO_2$ monitor
- 12-lead ECG placement and acquisition

PL4 PL5

- IV / IO access as appropriate for patient condition

PL5

- Direct laryngoscopy Foreign Body Airway Obstruction evaluation / removal.
- Evaluate ECG
- Gastric tube as needed
- All advanced airway procedures will include passive apneic oxygenation when possible
- Continuous $ETCO_2$ is mandatory for all intubations
- Push dose Epinephrine or Norepinephrine prior to intubation
- Video laryngoscopy for intubation (King Vision)
- Direct laryngoscopy intubation with Gum Bougie
- Nasotracheal intubation
- Post intubation medications:
  - Ketamine
  - Midazolam
  - Rocuronium
- Surgical cricothyroidotomy if patient ≥ 10 years of age
- Needle cricothyroidotomy for pediatric patients

PL6

- Rocuronium for Rapid Sequence Induction
- Use Airway Management Checklist for all Rapid Sequence Inductions

Consult Online Medical Control As Needed

Airway Management & Ventilation

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Ask yourself if the patient needs the airway right now and, if you are the right person to secure it. Expect failure so you can prepare for it.
- Patients showing fatigue, increasing ETCO2, slowing respirations, altered mental status, increased ventricular ectopy, and hypoxia may have impending respiratory failure. Manage aggressively and preemptively.
- Passive oxygen: High Flow Nasal Cannula (HFNC) at 25 LPM may be used with BVM, CPAP, or during BIAD and Intubation insertion attempts. Once BIAD or Intubation confirmed discontinue HFNC.
- Create a PACE plan (Primary, Alternate, Contingency, Emergency) and brief other members of the EMS crew before performing airway interventions. Have the tools available for your backup plans before the first intubation attempt.
- Positive pressure ventilation may worsen hypotension in the hemodynamically unstable patient, avoid in trauma patients and **consider push dose Epinephrine or Norepinephrine in any potentially hemodynamically unstable patient** getting intubated.
- Positive pressure ventilation may induce tension pneumothorax in the patient with simple pneumothorax. Difficulty ventilating or high airway pressures should lead you to suspect this.
- Elevating the head of the stretcher 15-30° may improve intubation success and limit desaturation, particularly in obese patients.
- For Direct Laryngoscopy remove cervical collar prior to attempting intubation, as the collar limits jaw movement.
- Manual inline cervical stabilization may decrease likelihood of airway management success. If necessary for intubation success, move the neck.
- No patient is to receive paralytics without receiving sedation first.
- Limit of 2 total intubation attempts in most patients, subsequently a BIAD must be placed or a BVM with OPA/NPA used. A third attempt may be undertaken in extraordinary circumstances but is strongly discouraged. Multiple intubation attempts maybe harmful.
- If the first attempt was unsuccessful, evaluate the reason for failure. Change technique or person attempting as indicated to increase the chance of success. Do not repeatedly try the same technique.
- Remember to try to match patient's respiration rate if tachypnea prior to intubation for (respiratory acidosis/buffering).

Allergic Reaction / Anaphylaxis

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Fluids and medications titrated to maintain SBP > 70 + (age x 2) mmHg

Signs & Symptoms:
- Edema / Voice Changes
- Itching or Hives
- Coughing / Wheezing or Respiratory Distress
- Chest or Throat Constriction / Tightness
- Difficulty Swallowing
- Hypotension or Shock
- Vomiting / Diarrhea

Differential:
- Urticaria (rash only)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug induced)
- Aspiration / Airway Obstruction
- Vasovagal event
- CHF
- Asthma or COPD
- Anxiety

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Assist with Patient's Epinephrine delivery device for severe respiratory distress and/or anaphylaxis.
- If the patient does not have Epinephrine, then Epinephrine
- Oxygen, target SpO_2 92 – 96%
- Cold pack to insect bite or sting site and remove bee stinger if present
- Basic airway management as needed

- Albuterol
- Diphenhydramine – Adult PO only
- CPAP, if refractory to albuterol
- Monitor $ETCO_2$

- IV / IO access as appropriate for patient condition
- IV fluid therapy with isotonic crystalloid, titrated to Adult SBP ≥ 90 mmHg or MAP >65 mmHg
- Diphenhydramine
- Dystonic Reaction: Diphenhydramine

- Epinephrine, up to 3 additional doses
- Methylprednisolone or Dexamethasone
- Assess ECG
- Push dose Epinephrine for hypotension
- Epinephrine infusion until the patient stabilizes
- Advanced Airway Management as needed

- Rocuronium for Rapid Sequence Induction
- Use Airway Management Checklist for all Rapid Sequence Inductions

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Continuous reassessment for rebound reaction with need for additional epinephrine.
- Lung sounds should be assessed between each dose of Albuterol prior to additional nebulizers.
- Any patient with respiratory symptoms or extensive reaction should receive IV/IO or IM diphenhydramine.
- The shorter the onset from exposure to symptoms, the worse the reaction.
- Epinephrine is the single most important intervention in this setting and has small risk for high benefit.
- Anaphylaxis is extremely undertreated in pediatric patients and aggressive anaphylaxis treatment is encouraged.
- Anaphylaxis is defined as acute multiorgan (≥2) system reaction. Common systems involved include: respiratory, cardiovascular, cutaneous, and gastrointestinal (GI).

Altered Mental Status

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Use volume control device (IV Burette) for Dextrose Infusions.
- Upper limit BGL is 200

Signs & Symptoms:
- Decrease mental status
- Change in baseline mental status.
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm & dry skin, fruity breath, Kussmaul respirations, signs of dehydration)

Differential:
- Hypoxia
- Brain trauma
- CNS (Stroke, Tumor, Seizure, Infection)
- Cardiac (MI, CHF)
- Infection
- Thyroid (hyper or hypo)
- Shock (septic, metabolic, traumatic)
- Toxicological / Carbon Monoxide / Cyanide
- Acidosis / Alkalosis
- Heat Stroke or Hypothermia
- Electrolyte abnormality

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 92 – 96%
- BGL Assessment, if BGL < 50 and intact gag reflex then Oral Glucose &
  - Consider turning off insulin pump if present
- Basic Airway Management as needed

- Assess for a Stroke and follow Stroke COG accordingly
- Monitor $ETCO_2$

- Vascular access as appropriate for patient condition
- If BGL < 50 then Dextrose Infusion titrated to patient condition and response
- If BGL < 50 and no IV access, then Glucagon
- If BGL > 300 in adults or > 200 in pediatrics or signs of dehydration, then infusion of isotonic crystalloid

- Cardiac monitor and 12 ECG
- Advanced Airway Management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Be aware of AMS as presenting sign of an environmental toxin or Haz-Mat exposure and protect personal safety.
- It is safer to assume hypoglycemia than hyperglycemia if doubt exists. Recheck blood glucose after Dextrose or Glucagon.
- Do not let alcohol confuse your clinical practice as alcoholics frequently develop hypoglycemia.
- Hyperglycemia is treated with fluids since these patients are volume depleted.
- Patients on oral hypoglycemics or long-acting insulin are at risk for repeat episodes of hypoglycemia; monitor closely and encourage transport.
- If a hypoglycemic patient has returned to baseline and wishes to refuse care, ensure that the patient eats and that there is someone to observe them for repeat hypoglycemic episodes.
- Blood samples for performing glucose analysis should be obtained through a finger-stick (heel for infants). Venous blood samples may produce artificially high blood glucose values and should be avoided.

Behavioral & Hyperactive Delirium with Severe Agitation

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.

Signs & Symptoms:

- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Expression of suicidal homicidal thoughts
- Tachycardia, diaphoresis, tachypnea
- Struggles violently despite appropriate restraint
- Combative / violent
- Very "hot" to touch

Differential:

- Refer to Altered Mental Status
- Hypoxia
- Alcohol intoxication
- Medication effect / overdose
- Withdrawal syndromes
- Bipolar (manic-depressive)
- Schizophrenia, anxiety disorders, etc.
- Hypertensive emergency
- Seizure / Postictal
- Domestic Violence or Abuse

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 92 – 96%
- BGL Assessment
- Basic Airway Management as needed
- Physical restraint if needed and use Restraint Checklist
- Cooling measures if needed

- Vascular access as appropriate for patient condition
- Fluid therapy as needed with isotonic crystalloid, preferred cold if Hyperactive Delirium

- Cardiac monitor and 12 ECG
- If the patient is suspected of Hyperactive Delirium with severe agitation and suffers cardiac arrest, then consider a fluid bolus and Sodium Bicarbonate early
- RASS +4 (Hyperactive Delirium with Severe Agitation) Ketamine or Droperidol and Midazolam
- RASS +2 or +3 (aggressive behaviors requiring sedation) Midazolam and/or Droperidol
- Use Restraint Checklist with all sedation or physical restraint
- RASS +1 or +2 (uncontrolled anxiety) Midazolam
- If sedated, continuous cardiac, ETCO2, and SpO2 monitoring is required
- Advanced Airway Management as needed

CHPR

- RASS +1 or +2, uncontrolled anxiety or agitation, Olanzapine and connect to mental health resources within 24 hours

Consult Online Medical Control As Needed

Richmond Agitation / Sedation Score (RASS)

+4	Combative: Overly combative or violent and an immediate danger to provider
+3	Very Agitated: Aggressive, non-combative or pulls on or removes tube(s) or catheter(s)
+2	Agitated: Frequent, non-purposeful movement or patient/ventilation desynchrony
+1	Restless: Anxious or apprehensive, movements not aggressive or vigorous
0	Alert and Calm: Spontaneously pays attention to provider
-1	Drowsy: Not fully alert but sustains more than 10 seconds wake, with eye opening in response to verbal command
-2	Light sedation: Awakens briefly for less than 10 seconds with eye contact or verbal command
-3	Moderate sedation: Any movement, except eye contact, in response to command
-4	Deep sedation: No response to voice, but any movement to physical stimulation

Behavioral & Hyperactive Delirium with Severe Agitation

-5 Unarousable: No response to voice or physical stimulation

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Consider your safety first. Physical restraint should be performed / assisted by Law Enforcement when available.
- SAVE Mnemonic for De-Escalation:
  - Support - "Let's work together…"
  - Acknowledge - "I see this has been hard for you…"
  - Validate - "I would probably be reacting the same way if I was in your shoes…"
  - Emotion naming - "You seem upset…"
- Hyperactive Delirium with Severe Agitation refers to a condition where the patient continues to struggle violently despite appropriate restraint that results from a combination of delirium, psychomotor agitation, anxiety, hallucinations, speech disturbances, disorientation, violent and bizarre behavior, insensitivity to pain, elevated body temperature, and superhuman strength. Therefore, underlying etiologies must be considered:
  - Metabolic / Endocrine - hypoxia, electrolyte abnormalities, hepatic encephalopathy, hypercarbia, hyper/hypoglycemia, thyrotoxicosis, uremia
  - Neurologic - dementia, head injury, encephalitis, post-ictal state/seizure
  - Psychiatric - acute psychosis, mania, medication stoppage, personality disorder, schizophrenia
  - Infectious/Inflammatory - autoimmune encephalitis, herpes encephalitis, meningitis, sepsis
  - Toxicologic - alcohol, amphetamines, cocaine, neuroleptic malignant syndrome, PCP, polypharmacy, serotonin syndrome, synthetic cannabinoids, synthetic cathinones
- All patients who receive either physical or sedation must be continuously monitored by ALS personnel on scene or immediately upon their arrival. Monitoring must include: Cardiac, pulse oximetry, and $ETCO_2$ monitoring. This does not apply if the patient is restrained for law enforcement purposes and law enforcement is immediately available e.g. the transport of a prisoner in law enforcement custody who is not a behavioral/HDSA patient.
- Any transported patient who is handcuffed or restrained by Law Enforcement should be accompanied by an officer whenever possible and if not, then law enforcement must be immediately available.
- Be sure to consider all possible medical and/or trauma causes for behavior.
- Restrained patients must never be maintained or transported in a prone position.
- Cold isotonic crystalloid boluses 30 ml/kg with temperature $\geq$ 104F up to 2 liters in adults.
- Blood samples for performing glucose analysis should be obtained through a finger-stick (heel for infants). Venous blood samples may produce artificially high blood glucose values and should be avoided.

Bites and Envenomation

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.

Signs & Symptoms:
- Rash, skin break, wound pain, soft tissue swelling, redness
- Blood oozing from the bite wound
- Evidence of infection
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension or shock

Differential:
- Animal bite
- Human bite
- Snake bite (poisonous)
- Spider bite (poisonous)
- Insect sting / bite (bee, wasp, ant, tick)
- Infection risk
- Rabies risk
- Tetanus risk

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- If Insect Bite:
  - Remove stinger, if appropriate
  - Apply ice pack
  - Minimize movement and remove constricting items
- If Snake Bite
  - Splint limb, bandage
    - If pit viper – elevate affected limb 60 degrees
    - If coral snake – maintain at level of the heart
  - Minimize movement and remove constricting items
- Pain Management Guideline as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Human bites have a very high risk of infection due to oral bacteria.
- Carnivore bites are much more likely to become infected and all have risk of Rabies exposure.
- Cat bites may rapidly progress to infection due to a specific bacteria (Pasteurella multocida).
- Venomous snakes in this area are generally of the pit viper family: rattlesnake, copperhead, and water moccasin – Less than 10-15% of pit viper bites are "dry bites," envenomation can present as swelling, bruising, duskiness, or skin stretching. May not always seen fang marks.
  - Coral snake bites are rare: Very little pain but very toxic.
  - It is **NOT** necessary to take the snake to the ED with the patient. Take Picture if possible.
- Black Widow spider bites have minimal pain initially but may develop muscular pain and severe abdominal pain (spider is black with red hourglass on belly). Bite often develops local diaphoresis.
- Brown Recluse spider bites are minimally painful to painless. Little reaction is noted initially but tissue necrosis at the site of the bite develops over the next few days (brown spider with fiddle shape on back). OK to use ice pack for this bite. Most are uncomplicated.
- Evidence of infection: swelling, redness, drainage, fever, red streaks proximal to wound.
- Immunocompromised patients are at an increased risk for infection.(diabetes, chemotherapy, transplant patients)
- May use soap and water to clean wounds if time and patient condition allows.
- Consider contacting the US/Texas Poison Control Center for guidance. 1-800-222-1222
- Bats, skunks, foxes, and raccoons are the most common rabies vectors. Dogs have been eliminated as reservoirs of rabies unless; known contact with a high-risk animal.

Burns

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Pediatric hypotension is defined as:

SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:

- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension / shock
- Airway compromise / distress, singed facial or nasal hair, hoarseness / wheezing / stridor

Differential:

- Superficial 1° – red and painful
- Partial thickness 2° - blistering
- Full thickness 3° - painless and charred or leathery skin
- Chemical
- Thermal
- Electrical
- Radiation

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 92 – 96%
- Basic Airway Management as needed
- Remove rings, bracelets, or other constricting items
- If thermal burn: < 10% body surface area then cool down the wound with isotonic crystalloid or sterile water
- If thermal burn: After cooling cover burn with a dry sheet or dressings
- *If chemical burn*: Remove clothing or expose area, brush off any dry chemicals or powder, then flush area with large amount of water or isotonic crystalloid
- Establish BSA, location(s), and type of burn

PL2 PL3 PL4 PL5 PL6

- If airway burn: Nebulized Epinephrine for Respiratory Distress

PL4 PL5 PL6

- Vascular access as appropriate for patient condition
- 2nd or 3 degree burn area > 10% BSA then:
  - Adult: Isotonic Crystalloid per Rule of 10s formula
  - Children ≥ 14 years old: 2 mL LR x Kg x %TBSA with ½ infused in first 8 hours
  - Children ≤ 13 years old: 3 mL LR x Kg x % TBSA with ½ infused in first 8 hours
  - See Page 3 & 4 of this COG for infusion references
- Pain Management Guideline

PL5 PL6

- Continuous $ETCO_2$ and ECG monitoring
- Calcium Chloride for hydrofluoric acid burns with unstable vital signs, such as hypotension, tachy/bradycardia, ectopic beats, and/or ECG changes
- Advanced Airway Management as needed

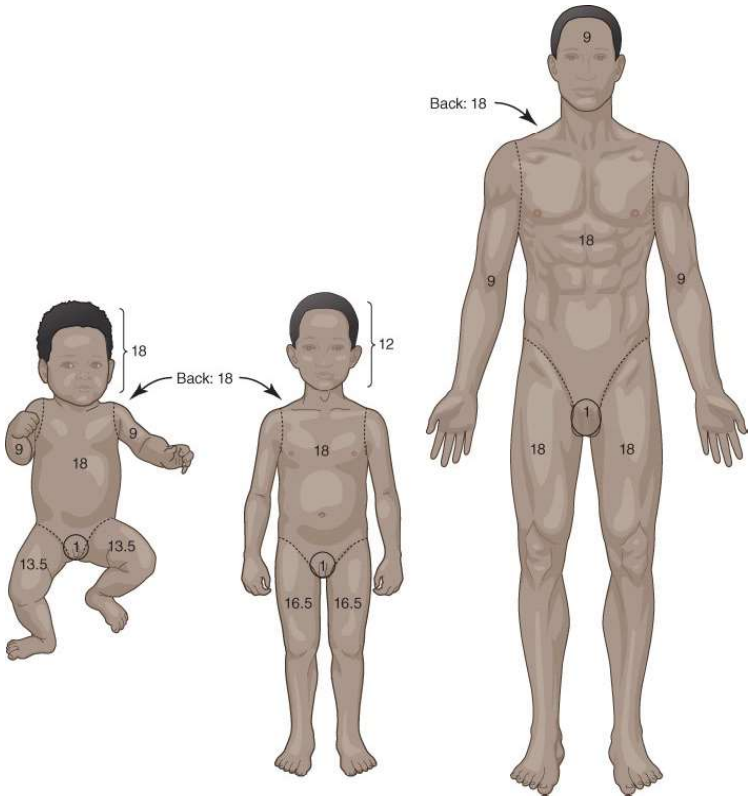
Consult Online Medical Control As Needed

Burns

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Consider nebulized epinephrine for respiratory distress early in airway burns when hoarse/muffled voice, stridor, etc. are presenting.
- Evaluate BSA: Use chart or use palm side of patient's hand = 1% BSA
- Critical Burns:
  - >20% 2° and 3° body surface area (BSA) age > 10;
  - >10% BSA age < 10 or > 50;
  - 3° burns >5% BSA;
  - 2° and 3° burns to face, eyes, hands or feet or genitalia; electrical burns; respiratory burns; deep chemical burns;
  - Burns with extremes of age or chronic disease; and burns with associated major traumatic injury.
- Non-critical burns (< 5% BSA 2nd and 3rd) not complicated by airway compromise or trauma do not require transport to a trauma center.
- Potential CO exposure should be treated with 100% oxygen.
- Circumferential burns to extremities are dangerous due to potential vascular compromise 2° to soft tissue swelling.
- Burn patients are prone to hypothermia - <u>Never apply ice or cool burns that involve >10% body surface area</u>.
- Do not overlook the possibility of multiple system trauma or child abuse with burn injuries.
- Hydrofluoric acid burns of 3% BSA may be fatal and may have little to no external signs

Rule of 9s for BSA



Burns

Adults Rule of 10s Formula

Amount of isotonic crystalloid in mL to be *infused over 1st hour*

Patient Weight 40 to 80 Kgs (~88 to 176 lbs)										
Estimate TBSA % to Nearest 10%, then TBSA x 10 = mL/hr										
TBSA %:	10	20	30	40	50	60	70	80	90	100
1st Hour Volume:	100	200	300	400	500	600	700	800	900	1000
Drops per minute (10 gtts):	17	33	50	67	83	100	117	133	150	167

Patient Weight 81 to 90 Kgs (~178 to 198 lbs)										
Estimate TBSA % to Nearest 10%, then TBSA x 10 = mL/hr + 100 mL/hr										
TBSA %:	10	20	30	40	50	60	70	80	90	100
1st Hour Volume:	200	300	400	500	600	700	800	900	1000	1100
Drops per minute (10 gtts):	33	50	67	83	100	117	133	150	167	183

Patient Weight 91 to 100 Kgs (~200 to 220 lbs)										
Estimate TBSA % to Nearest 10%, then TBSA x 10 = mL/hr + 200 mL/hr										
TBSA %:	10	20	30	40	50	60	70	80	90	100
1st Hour Volume:	300	400	500	600	700	800	900	1000	1100	1200
Drops per minute (10 gtts):	50	67	83	100	117	133	150	167	183	200

Patient Weight 101 to 110 Kgs (~222 to 242 lbs)										
Estimate TBSA % to Nearest 10%, then TBSA x 10 = mL/hr + 300 mL/hr										
TBSA %:	10	20	30	40	50	60	70	80	90	100
1st Hour Volume:	400	500	600	700	800	900	1000	1100	1200	1300
Drops per minute (10 gtts):	67	83	100	117	133	150	167	183	200	217

Rule of 10s: TBSA x 10 = mL/hr, plus 100 mL/hr for every 10 kg above 80 kg

TBSA, Total Body Surface Area

Burns

Children ≥ 14

Children ≥ 14 Years Old 2 mL x Kg x TBSA = Total for 24 Hours with 1/2 over First 8 Hours																						
	LBS	**100**	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**	**150**	**155**	**160**	**165**	**170**	**175**	**180**	**185**	**190**	**195**	**200**
TBSA%	**Kg**	**45**	48	**50**	52	**55**	57	**59**	61	**64**	66	**68**	70	**73**	75	**77**	80	**82**	84	**86**	89	**91**
10	**Gtts**	**9**	**10**	**10**	**11**	**11**	**12**	**12**	**13**	**13**	**14**	**14**	**15**	**15**	**16**	**16**	**17**	**17**	**18**	**18**	**19**	**19**
	1 hr mL	56	60	63	65	69	71	74	76	80	83	85	88	91	94	96	100	103	105	108	111	114
20	**Gtts**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**25**	**27**	**28**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
	1 hr mL	**113**	120	**125**	130	**138**	143	**148**	153	**160**	165	**170**	175	**183**	188	**193**	200	**205**	210	**215**	223	**228**
30	**Gtts**	**28**	**30**	**31**	**33**	**34**	**36**	**37**	**38**	**40**	**41**	**43**	**44**	**46**	**47**	**48**	**50**	**51**	**53**	**54**	**56**	**57**
	1 hr mL	169	180	188	195	206	214	221	229	240	248	255	263	274	281	289	300	308	315	323	334	341
40	**Gtts**	**38**	**40**	**42**	**43**	**46**	**48**	**49**	**51**	**53**	**55**	**57**	**58**	**61**	**63**	**64**	**67**	**68**	**70**	**72**	**74**	**76**
	1 hr mL	**225**	240	**250**	260	**275**	285	**295**	305	**320**	330	**340**	350	**365**	375	**385**	400	**410**	420	**430**	445	**455**
50	**Gtts**	**47**	**50**	**52**	**54**	**57**	**59**	**61**	**64**	**67**	**69**	**71**	**73**	**76**	**78**	**80**	**83**	**85**	**88**	**90**	**93**	**95**
	1 hr mL	281	300	313	325	344	356	369	381	400	413	425	438	456	469	481	500	513	525	538	556	569
60	**Gtts**	**56**	**60**	**63**	**65**	**69**	**71**	**74**	**76**	**80**	**83**	**85**	**88**	**91**	**94**	**96**	**100**	**103**	**105**	**108**	**111**	**114**
	1 hr mL	**338**	360	**375**	390	**413**	428	**443**	458	**480**	495	**510**	525	**548**	563	**578**	600	**615**	630	**645**	668	**683**
70	**Gtts**	**66**	**70**	**73**	**76**	**80**	**83**	**86**	**89**	**93**	**96**	**99**	**102**	**106**	**109**	**112**	**117**	**120**	**123**	**125**	**130**	**133**
	1 hr mL	394	420	438	455	481	499	516	534	560	578	595	613	639	656	674	700	718	735	753	779	796
80	**Gtts**	**75**	**80**	**83**	**87**	**92**	**95**	**98**	**102**	**107**	**110**	**113**	**117**	**122**	**125**	**128**	**133**	**137**	**140**	**143**	**148**	**152**
	1 hr mL	**450**	480	**500**	520	**550**	570	**590**	610	**640**	660	**680**	700	**730**	750	**770**	800	**820**	840	**860**	890	**910**
90	**Gtts**	**84**	**90**	**94**	**98**	**103**	**107**	**111**	**114**	**120**	**124**	**128**	**131**	**137**	**141**	**144**	**150**	**154**	**158**	**161**	**167**	**171**
	1 hr mL	506	540	563	585	619	641	664	686	720	743	765	788	821	844	866	900	923	945	968	1001	1024
100	**Gtts**	**94**	**100**	**104**	**108**	**115**	**119**	**123**	**127**	**133**	**138**	**142**	**146**	**152**	**156**	**160**	**167**	**171**	**175**	**179**	**185**	**190**
	1 hr mL	**563**	600	**625**	650	**688**	713	**738**	763	**800**	825	**850**	875	**913**	938	**963**	1000	**1025**	1050	**1075**	1113	**1138**

Gtts calculated using 10 drop set

Children ≤ 13

Children ≤ 13 Years Old 3 mL x Kg x TBSA = Total for 24 Hours with 1/2 over First 8 Hours																						
	LBS	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**100**	**110**	**120**
TBSA%	**Kg**	**2**	5	**7**	9	**11**	14	**16**	18	**20**	23	**25**	27	**30**	32	**34**	36	**39**	41	**45**	50	**55**
10	**Gtts**	**1**	**2**	**2**	**3**	**3**	**4**	**5**	**6**	**6**	**7**	**8**	**8**	**9**	**10**	**11**	**11**	**12**	**13**	**14**	**16**	**17**
	1 hr mL	4	9	13	17	21	26	30	34	38	43	47	51	56	60	64	68	73	77	84	94	103
20	**Gtts**	**1**	**3**	**4**	**6**	**7**	**9**	**10**	**11**	**13**	**14**	**16**	**17**	**19**	**20**	**21**	**23**	**24**	**26**	**28**	**31**	**34**
	1 hr mL	**8**	19	**26**	34	**41**	53	**60**	68	**75**	86	**94**	101	**113**	120	**128**	135	**146**	154	**169**	188	**206**
30	**Gtts**	**2**	**5**	**7**	**8**	**10**	**13**	**15**	**17**	**19**	**22**	**23**	**25**	**28**	**30**	**32**	**34**	**37**	**38**	**42**	**47**	**52**
	1 hr mL	11	28	39	51	62	79	90	101	113	129	141	152	169	180	191	203	219	231	253	281	309
40	**Gtts**	**3**	**6**	**9**	**11**	**14**	**18**	**20**	**23**	**25**	**29**	**31**	**34**	**38**	**40**	**43**	**45**	**49**	**51**	**56**	**63**	**69**
	1 hr mL	**15**	38	**53**	68	**83**	105	**120**	135	**150**	173	**188**	203	**225**	240	**255**	270	**293**	308	**338**	375	**413**
50	**Gtts**	**3**	**8**	**11**	**14**	**17**	**22**	**25**	**28**	**31**	**36**	**39**	**42**	**47**	**50**	**53**	**56**	**61**	**64**	**70**	**78**	**86**
	1 hr mL	19	47	66	84	103	131	150	169	188	216	234	253	281	300	319	338	366	384	422	469	516
60	**Gtts**	**4**	**9**	**13**	**17**	**21**	**26**	**30**	**34**	**38**	**43**	**47**	**51**	**56**	**60**	**64**	**68**	**73**	**77**	**84**	**94**	**103**
	1 hr mL	**23**	56	**79**	101	**124**	158	**180**	203	**225**	259	**281**	304	**338**	360	**383**	405	**439**	461	**506**	563	**619**
70	**Gtts**	**4**	**11**	**15**	**20**	**24**	**31**	**35**	**39**	**44**	**50**	**55**	**59**	**66**	**70**	**74**	**79**	**85**	**90**	**98**	**109**	**120**
	1 hr mL	26	66	92	118	144	184	210	236	263	302	328	354	394	420	446	473	512	538	591	656	722
80	**Gtts**	**5**	**13**	**18**	**23**	**28**	**35**	**40**	**45**	**50**	**58**	**63**	**68**	**75**	**80**	**85**	**90**	**98**	**103**	**113**	**125**	**138**
	1 hr mL	**30**	75	**105**	135	**165**	210	**240**	270	**300**	345	**375**	405	**450**	480	**510**	540	**585**	615	**675**	750	**825**
90	**Gtts**	**6**	**14**	**20**	**25**	**31**	**39**	**45**	**51**	**56**	**65**	**70**	**76**	**84**	**90**	**96**	**101**	**110**	**115**	**127**	**141**	**155**
	1 hr mL	34	84	118	152	186	236	270	304	338	388	422	456	506	540	574	608	658	692	759	844	928
100	**Gtts**	**6**	**16**	**22**	**28**	**34**	**44**	**50**	**56**	**63**	**72**	**78**	**84**	**94**	**100**	**106**	**113**	**122**	**128**	**141**	**156**	**172**
	1 hr mL	**38**	94	**131**	169	**206**	263	**300**	338	**375**	431	**469**	506	**563**	600	**638**	675	**731**	769	**844**	938	**1031**

Gtts calculated using 10 drop set

Carbon Monoxide

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.

Signs & Symptoms:
- Altered mental status/dizziness
- Headache, Nausea/Vomiting
- Chest pain/Respiratory distress
- Neurological impairments
- Vision problems/Reddened eyes
- Tachycardia/Tachypnea
- Arrhythmias, seizures, coma

Differential:
- Effects of other toxic fire byproduct (ie. Cyanide)
- Acute cardiac event
- Acute neurological event
- Flu/GI illness
- Acute intoxication
- Diabetic Ketoacidosis
- Headache of non-toxic origin

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Measure COHb% (SpCO), if equipment is available with covered or shielded probe
- SpCO > 25% with or without red flag symptoms: Utilize COGs as indicated, provide airway/ventilation management with 100% supplemental oxygen, and transport to an appropriate facility.
  - Red flag symptoms include: Pregnancy*; any cardiac or pulmonary complaint; Neurological changes such as altered mental status, seizure activity, or focal deficits. A headache alone is not considered a neurological change or red flag symptom.
- SpCO 16 – 24% with symptoms but no red flag symptoms: Remove the patient from the source and treat with 100% supplemental oxygen until symptoms improve or SpCO decreases to < 15% then transport or patient refusal as appropriate.
- SpCO < 15% and asymptomatic: No treatment is required.
  - Any patient presenting with a red flag symptom, regardless of SpCO, is to receive airway/ventilation management with 100% supplemental oxygen, and transport to an appropriate facility.

PL2 PL3 PL4 PL5

- Continuous $ETCO_2$ and ECG monitoring
- Acquire 12 lead ECG

PL4 PL5

- Vascular access as appropriate for patient condition
- IV fluid with isotonic crystalloid as needed

PL5

- Fire victims with AMS, lethargy, or cardiac arrest, consider Cyanide Guideline

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- ***Fetal hemoglobin has a stronger affinity to CO than maternal hemoglobin. Therefore, transport to an ED of a known/suspected female patient should occur for this reason.***
- The absence (or low detected levels of) of COHgb is not a reliable predictor of firefighter or victim exposure to other toxic byproducts of fire.
- The differential list for CO Toxicity is extensive. Attempt to evaluate other correctable causes when possible.
- Chronic CO exposure is clinically significant; therefore advice on smoking cessation is important medical instruction and; recommend evaluation of their home/work environment for presence of CO.

Cardiac: Bradycardia with Pulse

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- **Focus on rapid and early BLS airway and ventilation.** Intubation may not be the best option for these patients.
- **If HR <60 and age ≤1 yr, begin CPR**
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- HR < 60 min with hypotension
- Acute altered LOC
- CHF
- Seizure, syncope or shock secondary to bradycardia.
- Altered LOC
- Shock / Hypotension
- Syncope

Differential:

- Respiratory distress
- Respiratory obstruction
- Beta blocker / Digoxin
- Calcium Channel Blocker
- Organophosphate
- Hypovolemia
- Hypothermia
- Hypoxia
- Infection / Sepsis
- Medication or Toxin
- Trauma
- Arrhythmia / Acute MI

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen PRN titrated to SpO_2 92%-96%
- Basic airway management
- If pediatric and HR < 60 with poor perfusion despite oxygenation & ventilation, begin Pit Crew CPR

PL2 PL3 PL4 PL5

- 4 lead and 12 lead ECG placement and acquisition
- Apply waveform $EtCO_2$

PL4 PL5

- Vascular access
- Isotonic Crystalloid PRN titrated to SBP ≥ 90 mmHg or MAP ≥ 65

PL5 PL6

- Glucagon in setting of Beta Blocker OD or Calcium Channel Blocker OD
- Monitor and interpret ECG
- If Pediatric: Epinephrine
- Atropine
- Sedation: Midazolam or Ketamine
- Transcutaneous Cardiac Pacing
- If Adult: Norepinephrine (Levophed) infusion
- If Adult: Epinephrine infusion titrated to MAP ≥ 65
- If Pediatric: Epinephrine infusion titrated to patient presentation
- Advanced airway management as needed

Consult Online Medical Control As Needed

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- The use of lidocaine or amiodarone in heart block can worsen bradycardia and lead to asystole and death.
- Treatment of bradycardia is based on the presence of symptoms. If asymptomatic, monitor only.
- The use of atropine for bradycardia in the presence of an MI may worsen ischemia.
- Consider treatable causes for bradycardia (Beta blocker OD, Calcium channel blocker OD, etc.) – treat appropriately.
- Assure patient is adequately oxygenated.
- If wide complex bradycardia, consider hyperkalemia.
- Glucagon = Emesis
- Use volume control device (IV Burette) for medication and fluid infusions as needed.

Cardiac: Care of the LVAD Patient

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:
- Altered Mental Status
- Confusion
- Weakness, dizziness
- Absent Pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Indeterminable blood pressure
- Low ETCO2 readings
- Hypotension

Differential:
- Hypovolemia
- Sepsis
- Neurogenic Shock
- Anaphylaxis
- Dysrhythmia
- Device malfunction / Failure

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Contact patient's LVAD coordinator as early as possible
- Perform general patient assessment
- Oxygen PRN titrated to SpO_2 92% - 96%
- Basic airway management
- Ensure LVAD has power supply
- If LVAD failure is noted and no signs of life, begin CPR procedure. Refer to appropriate COG – Defibrillator can be used as normal, shift pads to not place directly on device.

PL2 PL3 PL4 PL5 PL6

- 4 lead and 12 lead ECG placement and acquisition, $EtCO_2$ Monitoring
- Assess LVAD for function – Refer to algorithm
- Assess patient for non-LVAD related illness

PL3 PL4 PL5 PL6

- Waveform $EtCO_2$

PL4 PL5 PL6

- Vascular access
- If a FLOW ALARM is noted, 20mL/kg Isotonic Crystalloid fluid challenge.

PL5 PL6

- Monitor and interpret ECG
- If FLOW ALARM still active after fluid bolus – Norepinephrine (Levophed)

Consult Online Medical Control As Needed

Pearls:
- Normal methods of obtaining a blood pressure will not work on LVAD patients, will need to use other means of determining circulatory state such as a manual cuff and doppler over brachial artery, inflate cuff to 120mmHg, doppler signal will indicate MAP. Be aware that SPO_2 will be unreliable in the presence of continuous flow devices.

- To determine LVAD function, place a stethoscope over the apex of the heart and listen for a humming sound, absence of humming indicates device failure. First attempt to restart the device, refer to flowchart.

- When transporting an LVAD patient, ensure that extra batteries and power module (if available) are transported with the patient. If changing batteries, change only one at a time.

- Utilize the patient's family members or caretaker as they may have specific knowledge of the function of the LVAD. Keep them with the patient.

- ECGs should be routinely performed, even if the complaint does not appear cardiac in nature. ECGs will likely demonstrate mechanical interference from the device. Contact LVAD coordinator even if complaint does not seem cardiac in nature.

Cardiac: Care of the LVAD Patient

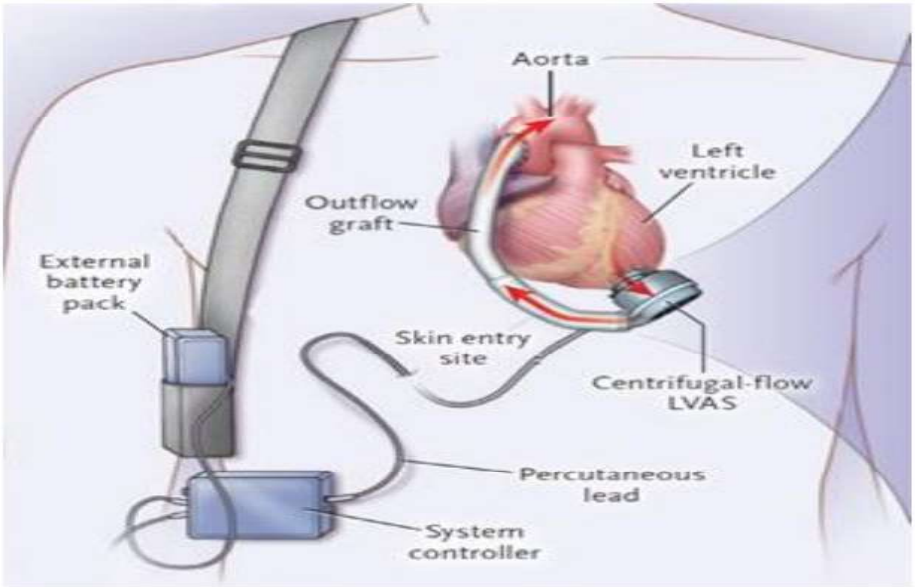
Transport patient to their LVAD facility if possible, however it may be necessary to transport the patient to the closest LVAD facility:

- St. David's Heart Hospital of Austin – LVAD coordinator emergency line – (512) 660-9564
- Ascension Seton MC – Austin – LVAD Coordinator emergency line – (512) 797-4260

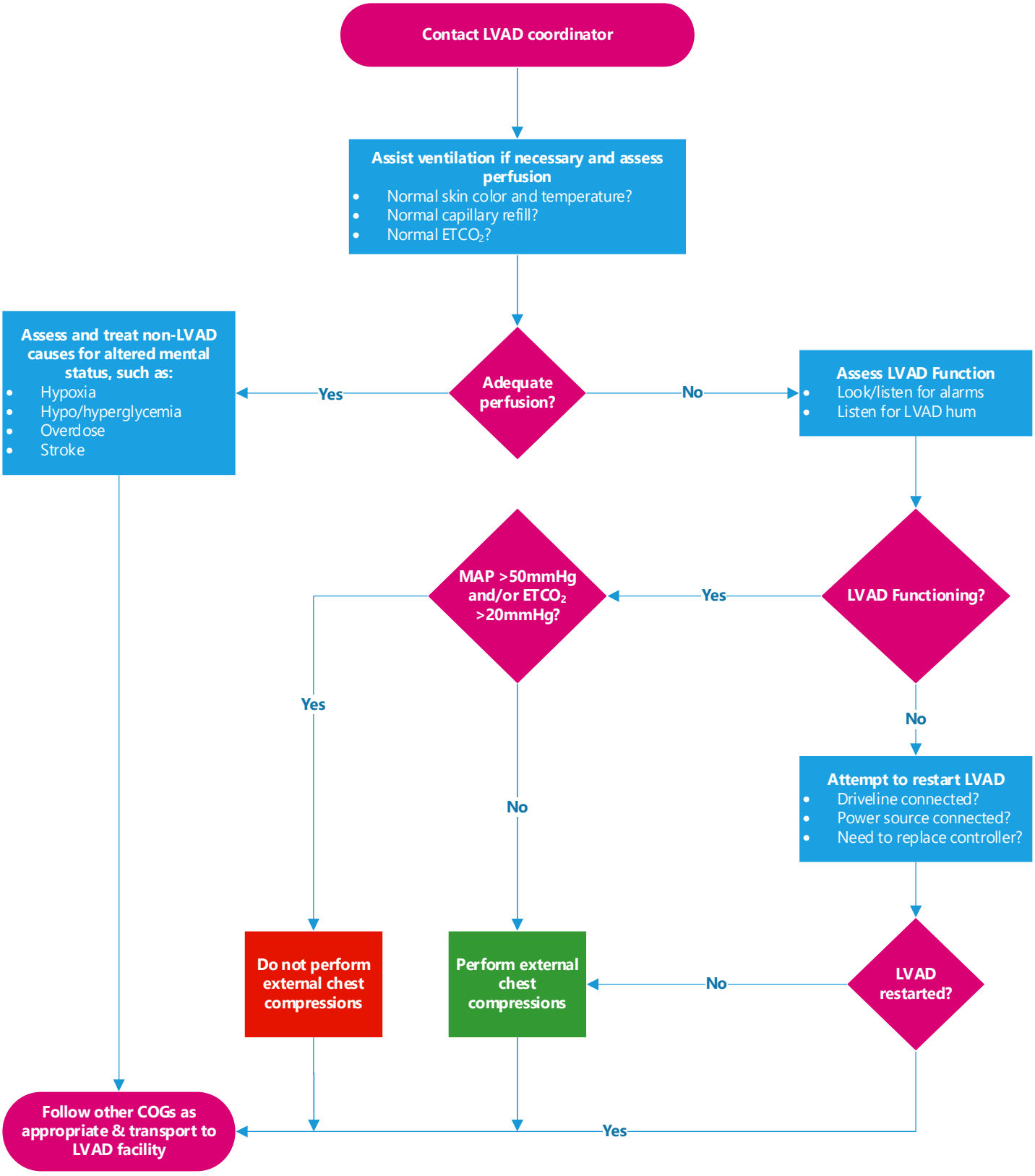
LVAD related emergencies:

- **Unstable Arrhythmias:** Common complications in LVAD patients. Symptoms vary and rarely, patients may be asymptomatic with ventricular arrhythmias. Symptomatic arrhythmias should be treated according to standard COGs.
- **Unexplained Hypotension:** Usually occurs from conditions resulting in decreased pre-load such as sepsis, hypovolemia, bleeding, and tamponade. This will likely trigger a low-flow alarm.
- **Bleeding Complications:** All LVAD patients are on blood thinners. Epistaxis is the most common bleeding complication. All bleeding should be treated with supportive interventions and efforts to cease bleeding if possible.
- **Stroke:** LVAD patients are at a higher risk for stroke and intracranial hemorrhage. Maintain a high suspicion for neurologic symptoms and perform a thorough history and physical assessment.
- **Infection:**
  - **LVAD-Specific:** Involve the driveline, pocket, pump, and/or cannula
  - **LVAD-Related:** Infections not involving the LVAD itself, but can have different implications or management in a LVAD patient (infective endocarditis, bacteremia)
  - **Non-LVAD Related:** Not affected by the presence of an LVAD (UTI, pneumonia)
- Pump thrombosis: Suspect with lasting increases in pump power by >50% in addition to high flow estimates. These patients should be promptly transported to the closest LVAD center.
- **Pump stoppage or failure, driveline trauma**: Pump stoppage occurs when there is a complete loss of power to the pump due to loss of battery power, disconnection of power leads, or disconnection of driveline system to controller. These patients will present with acute heart failure symptoms and may need vasopressors if in cardiogenic shock.

A typical left ventricular assist device (LVAD) consists of a pump connected to the cardiac apex and ascending aorta via an inflow cannula and outflow graft, a percutaneous driveline that exits the skin on the right, and a system controller that is typically work on a belt or vest. Power to the controller and pump is provided by external batteries or a power-based unit.



Cardiac: Care of the LVAD Patient



Cardiac: Narrow Complex Tachycardia with Pulse

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- QRS ≤ 0.12 sec
- Pale or Cyanosis
- Diaphoresis
- Tachypnea
- Vomiting
- Hypotension
- Altered Level of Consciousness
- Pulmonary Congestion
- Syncope

Differential:

- Heart disease (WPW, Valvular)
- Sick sinus syndrome
- Myocardial infarction
- Electrolyte imbalance
- Exertion, pain, emotional stress
- Fever
- Hypoxia or Anemia
- Hypovolemia
- Drug effect / Overdose
- Hyperthyroidism
- Pulmonary embolus
- Alcohol withdrawal

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen PRN titrated to SpO_2 92%-96%
- Basic airway management

- 4 lead and 12 lead ECG placement and acquisition
- Apply $EtCO_2$

- Vascular access
- Isotonic Crystalloid PRN titrated to SBP ≥ 90 mmHg or MAP ≥ 65

- Monitor and interpret of ECG
- Valsalva Maneuver (Adults only)
- Adenosine x2 doses as needed
- Continuous 12-lead ECG during Adenosine administration, if possible
- Diltiazem (Adults only) – DO NOT admin if Hx or 12 lead presentation of WPW
  - If there is a clinical concern with Diltiazem, Amiodarone is the alternative.
- Sedation: Midazolam or Ketamine as appropriate
- Adult Synchronized Cardioversion at maximum joules
- Pediatric Synchronized Cardioversion 0.5 to 1.0 j/kg, repeat as needed at 2 j/kg
- 12 lead ECG post conversion

Consult Online Medical Control As Needed

PEDIATRIC CARDIOVERSION DOSE CHART

Preemie	Newborn	4MO	6MO	1YR	2YR	3YR	4YR	5YR	6YR	7YR	8YR	9YR	10YR	11YR	12YR	13YR
2KG	4KG	6KG	8KG	10KG	12KG	15KG	17KG	20KG	22KG	25KG	27KG	30KG	35KG	40KG	50KG	60KG
1j	2j	3j	4j	5j	6j	8j	9j	10j	10j	15j	15j	15j	20j	20j	30j	30j
2j	4j	6j	8j	10j	10j	15j	15j	20j	20j	30j	30j	30j	30j	50j	50j	70j
4j	8j	10j	15j	20j	20j	30j	30j	50j	50j	50j	50j	70j	70j	85j	100j	120j

Cardiac: Narrow Complex Tachycardia with Pulse

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Use caution in patient currently on antihypertensive medication
- Adenosine may not be effective in identifiable atrial flutter / fibrillation but is not harmful.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Continuous pulse oximetry is required for all atrial fibrillation patients.
- Narrow complex tachycardia in setting of alcohol withdrawal should be treated aggressively with midazolam, not diltiazem. If SVT is "exquisitely regular", any heart rate variability should lead you to consider sinus tachycardia or atrial fibrillation.
- Consider a change of vector of initial cardioversion is unsuccessful to anterior/posterior pad placement.
- Sinus tachycardia may be misinterpreted as SVT or A-fib. Sinus tach >150 (adult) or >180 (pediatric) may be seen in the septic patient.

Cardiac: Suspected Acute Coronary Syndrome

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.

Signs & Symptoms:
- Pain or pressure between navel and jaw
- "Heart racing", "palpitations", or "heart too slow"
- CHF signs of symptoms
- Syncope
- Severe weakness if > 45 years old
- Difficulty breathing (no obvious respiratory cause)

Differential:
- Angina vs Myocardial infarction
- Pericarditis
- Pulmonary embolism
- Asthma / COPD
- Pneumothorax
- Aortic dissection
- GI reflux / Hiatal hernia / PUD
- Esophageal spasm
- Chest wall injury or pain
- Pleuritic pain
- Overdose (sympathomimetic)

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen PRN titrated to SpO_2 92%-96%
- Perform bilateral blood pressures, if difference between R & L arm SBP is ≥ 20mmHg then consider aortic dissection and withhold Aspirin and Nitro
- Aspirin
- Basic airway management

- 4 lead and 12 lead ECG placement and acquisition
- Nitroglycerin if SBP ≥ 180 mmHg and/or DBP ≥ 110mmHg **AFTER** Fentanyl administration

- Vascular access
- Isotonic Crystalloid PRN titrated to SBP ≥ 100 mmHg or MAP ≥ 65

- Monitor and interpret ECG within 5 minutes of patient contact
- Declaration of "STEMI Alert" and minimize scene time to < 15 minutes if possible
- Fluid therapy for Inferior Wall MI: Isotonic Crystalloid
- Pain management: Fentanyl
- If Hypersympathetic state from stimulant abuse: Midazolam (usually presents with sustained HR > 120 bpm and HTN)

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Primary pain management medication for all chest pain / ACS patients is Fentanyl.
- Do not administer Nitroglycerin in any patient who used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 48 hours or other PDE erectile dysfunction medications due to potential severe hypotension.
- Refer to STEMI Alert or ACS Consultation Criterion.
- If patient has STEMI, or is going directly to cardiac cath, attempt to establish a second IV but do not delay transport. Transport providers need to minimize scene time to < 15 minutes whenever possible.
- Monitor for hypotension and respiratory distress after administration of nitroglycerin, fentanyl, or midazolam.
- Diabetics, females, and geriatric patients often have atypical pain, or generalized complaints.
- $EtCO_2$ if multiple doses of Fentanyl or Midazolam medication administered.

Cardiac: Treatable Causes with a Pulse

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.
- If pulse < 60 despite oxygenation and ventilation, begin chest compressions and CPR

Signs & Symptoms:

- Unresponsive
- Abnormal breathing (gasps)
- Absent heart sounds

Differential:

- Continue to address specific differentials associated with signs, symptoms, and/or dysrhythmia.

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Hypoxia:
  - Adult & Pediatric - Airway Management and Oxygen
- Hypothermia:
  - Adult & Pediatric - Active warming strategies

PL4 PL5 PL6

- Hypovolemia:
  - Adult & Pediatric - Fluid bolus with Isotonic Solution as needed
- Hypoglycemia:
  - Adult & Pediatric - Dextrose infusion

PL5 PL6

- Calcium Channel / Beta Blocker Overdose
  - Adult & Pediatric - Glucagon
- Calcium Channel / Beta Blocker Overdose
  - Pediatric – Epinephrine infusion
- Tension Pneumothorax:
  - Adult & Pediatric - Needle Decompression
  - Adult- Simple Thoracostomy (only in cardiac arrest)
- Acidosis:
  - Adult & Pediatric - Sodium Bicarbonate
- Hyperkalemia
  - Adult – Calcium Chloride, Sodium Bicarbonate, and Albuterol
  - Pediatric – Sodium Bicarbonate
- Calcium Channel / Beta Blocker Overdose
  - Adult – Calcium Chloride
- Anaphylaxis:
  - Adult & Pediatric - Epinephrine

PL6

- Tension Pneumothorax:
  - Adult – Simple Thoracostomy (significant hemodynamic compromise)

Consult Online Medical Control As Needed

Cardiac: Wide Complex Tachycardia with Pulse

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- QRS > 0.12 sec
- Ventricular tachycardia on ECG (runs or sustained)
- Conscious, rapid pulse
- Chest pain
- Shortness of breath
- Dizziness
- Rate usually 150-180 bpm for sustained V-tach

Differential:

- Artifact / Device failure
- Cardiac history
- Endocrine / Electrolyte
- Hyperkalemia
- Drugs / Toxic exposure
- Pulmonary disease
- Tricyclic OD

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen PRN titrated to SpO_2 92%-96%
- Basic airway management

- 4 lead and 12 lead ECG placement and acquisition
- Apply waveform $EtCO_2$

- Vascular access
- Isotonic Crystalloid PRN titrated to SBP ≥ 90 mmHg or MAP ≥ 65

- Monitor and interpret ECG
- If a Treatable cause is identified, move that treatment up in priority
- If Torsades de Pointes: Magnesium Sulfate
- If Torsades de Pointes: Defibrillate at maximum joules for Adult
- If Ventricular Tachycardia: Amiodarone infusion
- If VT is refractory Amiodarone, then Lidocaine
- Sedate with Midazolam or Ketamine
- If hyperkalemia or Tricyclic OD, consider Sodium Bicarbonate early
- Synchronize cardioversion at maximum Joules for Adult
- For Pediatric Cardioversion 0.5 – 1.0 j/kg, repeat at 2 j/kg as needed
- 12 lead ECG post conversion

Consult Online Medical Control As Needed

PEDIATRIC CARDIOVERSION DOSE CHART

Preemie	Newborn	4MO	6MO	1YR	2YR	3YR	4YR	5YR	6YR	7YR	8YR	9YR	10YR	11YR	12YR	13YR
2KG	4KG	6KG	8KG	10KG	12KG	15KG	17KG	20KG	22KG	25KG	27KG	30KG	35KG	40KG	50KG	60KG
1j	2j	3j	4j	5j	6j	8j	9j	10j	10j	15j	15j	15j	20j	20j	30j	30j
2j	4j	6j	8j	10j	10j	15j	15j	20j	20j	30j	30j	30j	30j	50j	50j	70j
4j	8j	10j	15j	20j	20j	30j	30j	50j	50j	50j	50j	70j	70j	85j	100j	120j

Cardiac: Wide Complex Tachycardia with Pulse

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- For witnessed / monitor ventricular tachycardia, try having patient cough while preparing other therapies.
- Slow wide complex, consider Hyperkalemia.
- Maximum dose of antiarrhythmic should be given before changing antiarrhythmic.
- Amiodarone: allow 10 minutes after each dose completed before next dose.
- Pediatric pads should be used in children < 10 kg or PEDIA tape color purple.
- Consider a change of vector if initial Cardioversion is unsuccessful to anterior/posterior pad placement.
- Sinus tachycardia may be misinterpreted as SVT or A-Fib. Sinus tachycardia rate > 150 bpm in the adult patient or > 180 in the pediatric patient may be seen in the septic patient.

Cardiac Arrest: Asystole & PEA

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- Unresponsive
- Abnormal breathing (gasps)
- Pulseless
- Absent heart sounds
- Obvious death

Differential:

- Respiratory failure
- Foreign body airway obstruction
- Hyperkalemia
- Infection (Croup, epiglottitis)
- Hypovolemia
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxins or Overdose
- Hypoglycemia
- Acidosis
- Acute MI or PE

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Assess for unresponsiveness, absence of normal breathing, and pulselessness
- Assess for obvious death criteria
- Begin Pit Crew CPR procedure
- BLS Airway Management and BVM with Oxygen as available
- Passive oxygenation with nasal cannula at 25 LPM

PL 2 PL 3 PL 4 PL 5

- Airway management with iGel as needed
- Monitor $ETCO_2$

PL 4 PL 5

- Vascular access above the diaphragm if patient ≥ 12 months; if patient < 12 months and not large enough for access above the diaphragm, distal femur IO is preferred
- Epinephrine
- Fluid bolus with isotonic crystalloid as needed

PL 5 PL 6

- Monitor and interpret ECG
- Narrow PEA QRS ≤ 0.12 seconds:
  - Consider mechanical causes - Cardiac tamponade, Tension pneumo, Mechanical hyperinflation, PE, Hypovolemia, Acute MI, Pump failure
- Wide PEA QRS ≥ 0.12 seconds or Asystole:
  - Consider metabolic causes – Tricyclic OD, Severe hyperkalemia, Acidosis, Calcium Channel Blocker OD, Acute MI, Pump failure.
- Advanced Airway Management as needed. Intubation is not required if iGel is functioning appropriately with continuous waveform capnography.
- Perform Needle Decompression for the asthmatic patient in arrest.
- Perform Simple Thoracostomy for the asthmatic patient in arrest.
- If ROSC then declare a resuscitation alert and use Post Resuscitation Checklist.
- Targeted Temperature Management procedure if patient qualifies.

Consult Online Medical Control As Needed

Cardiac Arrest: Asystole & PEA

Pearls:

- Providers should not hasten departure after obtaining ROSC. Instead, focus on stabilizing the patient and ensuring that the airway is appropriately managed. If rearrest occurs, it will be in the first few minutes.
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- In order to be successful in adult or pediatric arrests, a cause must be identified early and corrected. Resuscitation should include targeted therapies to address the underlying cause of the arrest.
- Respiratory arrest is a common cause of pediatric cardiac arrest. Unlike adults early oxygen and ventilation is critical.
- In most cases pediatric airways can be managed by basic interventions.
- Effective CPR is critical: 1) Push hard and fast at appropriate rate 2) Ensure full chest recoil 3) Minimize interruptions in CPR. Pause CPR< 10 seconds only.
- Effective CPR and treatment of underlying causes are the keys to successful resuscitation.
- Prolonged cardiac arrests may lead to tired providers and decreased compression quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post-event.
- For pediatrics use volume control device (IV Burette) for Dextrose and Fluid infusions
- Always quickly confirm asystole in more than one lead and, trouble shoot for Equipment settings/ problems
- Reassess and document ETT/BIAD placement continuously after every move and at transfer of patient care.
- Continuous ETCO2 should be initiated as soon as practicable.
- Calcium and sodium bicarbonate should be given early if hyperkalemia is suspected (renal failure, dialysis)
- Continue to use primary monitor for all event recording and data capture.
- All monitor event data and recordings are uploaded into e-PCR.
- Ultrasound to determine cardiac wall motion at pulse check; DO NOT interrupt compressions for ultrasound.

Cardiac Arrest: pVTach & VFib

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- Unresponsive
- Abnormal breathing (gasps)
- Pulseless
- Absent heart sounds
- Obvious death

Differential:

- Respiratory failure
- Foreign body airway obstruction
- Hyperkalemia
- Infection (Croup, epiglottitis)
- Hypovolemia
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxins or Overdose
- Hypoglycemia
- Acidosis
- Acute MI or PE

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Assess for unresponsiveness, absence of normal breathing, and pulselessness
- Assess for obvious death criteria
- Begin Pit Crew CPR procedure
- BLS Airway Management and BVM with Oxygen as available
- Passive oxygenation with nasal cannula at 25 LPM

- Airway management with iGel as needed
- Monitor $ETCO_2$

- Vascular access above the diaphragm if patient ≥ 12 months; if patient < 12 months and not large enough for access above the diaphragm, distal femur IO is preferred
- Epinephrine
- Fluid bolus with isotonic crystalloid as needed

- Monitor and interpret ECG
- Manual Defibrillation
  - Adult: Maximum Joules
  - Pediatric: Initial 2 joules/kg then repeat 4 joules/kg – Refer to Pediatric Dosing Chart or HandTevy
- Amiodarone
- If pVT/VF refractory to Amiodarone, then Lidocaine
- If Torsades de Points or polymorphic pVT, then Magnesium Sulfate
- If treatable cause is identified, move that that treatment up in priority
- Advanced Airway Management as needed. Intubation is not required if iGel is functioning appropriately with continuous waveform capnography.
- Double sequential defibrillation at maximum Joules for Adults Only
  - **IF** refractory to at least 3 shocks pads placed Anterior / Anterior (V1) **AND**
  - Refractory to 1 additional shock pads placed Anterior / Posterior (V2) **AND**
  - pVT / VF **NEVER** converted
- If ROSC then declare a resuscitation alert and use Post Resuscitation Checklist.
- Targeted Temperature Management procedure if patient qualifies.

Consult Online Medical Control As Needed

Cardiac Arrest: pVTach & VFib

PEDIATRIC DEFIBRILLATION DOSE CHART																	
Age	Preemie	Newborn	4MO	6MO	1YR	2YR	3YR	4YR	5YR	6YR	7YR	8YR	9YR	10YR	11YR	12YR	13YR
Weight	2KG	4KG	6KG	8KG	10KG	12KG	15KG	17KG	20KG	22KG	25KG	27KG	30KG	35KG	40KG	50KG	60KG
DEFIB #1	4j	8j	10j	15j	20j	20j	30j	30j	50j	50j	50j	50j	70j	70j	85j	100j	120j
DEFIB #2	8j	15j	20j	30j	50j	50j	70j	70j	85j	85j	100j	100j	120j	150j	150j	200j	200j

Pearls:

- Providers should not hasten departure after obtaining ROSC. Instead, focus on stabilizing the patient and ensuring that the airway is appropriately managed. If rearrest occurs, it will be in the first few minutes.
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- In order to be successful in adult or pediatric arrests, a cause must be identified and corrected.
- Respiratory arrest is a common cause of pediatric cardiac arrest. Unlike adults early oxygenation and ventilation is critical.
- In most cases pediatric airways can be managed by basic interventions.
- Effective CPR is critical: 1) Push hard and fast at appropriate rate 2) Ensure full chest recoil 3) Minimize interruptions in CPR. Pause CPR< 10 seconds only.
- Effective CPR and prompt defibrillation are the keys to successful resuscitation.
- Prolonged cardiac arrests may lead to tired providers and decreased compression quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post-event.
- For pediatrics use volume control device (IV Burette) for Dextrose and Fluid infusions
- Always quickly confirm asystole in more than one lead.
- Trouble shoot for Equipment settings/ problems
- PL1, PL2 and PL3 may only use automated defibrillation (AED).
- Reassess and document ETT/BIAD placement continuously after every move and at transfer of patient care.
- Continuous ETCO2 should be initiated as soon as practicable.
- Calcium and sodium bicarbonate should be given early if hyperkalemia is suspected (renal failure, dialysis)
- Adult treatment priorities: uninterrupted compressions, defibrillation, ventilation, then IV/IO and airway management if needed.
- Polymorphic VT (Torsades) may benefit from Magnesium Sulfate.
- Prior to any external shocks providers should verify that defibrillation pads are well-adhered to the patient and that they do not touch.
- Continue to use **primary monitor** for all event recording and data capture.
- All monitor event data and recordings are uploaded into e-PCR.
- Once criteria for DSED are met subsequent shocks should be delivered as DSED
- Ultrasound to determine cardiac wall motion at pulse check; DO NOT interrupt compressions for ultrasound.

Cardiac Arrest: ROSC and Induced Hypothermia

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Targeted Temperature Management (TTM) not used for < 37 kg.

Signs & Symptoms:
- Return of pulse from a Non-Traumatic Cardiac Arrest

Differential:
- Continue to address specific differentials associated with original dysrhythmia.

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Continue Oxygenation, target SpO_2 92% - 96%
- Expose patient and apply ice packs to axilla, neck, and groin
- Use Post Resuscitation Checklist as indicated

- Vascular access above the diaphragm if patient ≥ 12 months; if patient < 12 months and not large enough for access above the diaphragm, distal femur IO is preferred

- Monitor and interpret ECG
- Cold Isotonic Crystalloid bolus 30 mL/kg to max of 2 liters, infused at 100 mL/min
- Advanced Airway Management as needed
- Resuscitation Alert if not already done so
- STEMI activation if appropriate and transmit 12 lead
- Midazolam or Ketamine for sedation as needed
- Rocuronium *only* after advanced airway placement
- Norepinephrine infusion titrated to MAP of 80mmHg

Consult Online Medical Control As Needed

Criteria for Targeted Temperature Management (TTM):

1. ROSC after cardiac arrest, not related to trauma or hemorrhage
2. Patient's weight is ≥ 37 kg
3. Initial temperature > 34°C (93.2°F)
4. Patient unable to follow commands

Review Pearls on Page 2 for Additional TTM Information

Cold Isotonic Crystalloid Bolus 30 mL/kg to Max of 2 Liters
Infused at 100 mL/min

Patient Weight (kg)	40	45	50	55	60	65	70 ≤
Max mL	1200	1350	1500	1650	1800	1950	2000

Cardiac Arrest: ROSC and Induced Hypothermia

Pearls:

- Providers should not hasten departure after obtaining ROSC. Instead, focus on stabilizing the patient and ensuring that the airway is appropriately managed. If rearrest occurs, it will be in the first few minutes.
- PL6 providers- consider Rapid Sequence Induction with Rocuronium after adequate resuscitation, use Airway management checklist
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- If patient meets other criteria for Targeted Temperature Management and does not have advanced airway, immediately provide cooling.
- If patient is hypotensive do not administer sedative/paralytic. Initiate volume replacement with cold saline.
- When exposing patient for purpose of cooling undergarments may remain in place to preserve the patient's modesty.
- Reassess airway frequently and with every patient move.
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- These patients should only be transported to designated Resuscitation Centers; refer to Clinical Reference.
- Notify destination ASAP when this Guideline is utilized so that the receiving unit can prepare to receive patient.
- Providers should have a controlled urgency to begin transport due to the possibility of re-arrest soon after ROSC.
- Targeted Temperature Management should not interfere with resuscitation.

Cardiac Arrest: Trauma

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:
- Traumatic Mechanism
- Apnea
- Pulseless
- PEA

Differential:
- Medical Cardiac Arrest
- Exsanguination
- Tension Pneumothorax
- Pelvic fracture(s)
- Hypoventilation
- Hypovolemia
- Hemorrhage
- Toxins
- Tamponade

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Place tourniquets prior to or concurrent with CPR for major hemorrhagic injuries as indicated.
- Pelvic Binder if blunt trauma involving the abdomen/pelvis.
- Perform Pit Crew CPR for Trauma with basic airway management until ALS (≥PL5) arrives, then pause CPR as necessary for correctable traumatic causes of death.
- Co-manage with Trauma Care Guideline & Cardiac Arrest Guidelines.
- Pull all extremities out to anatomical length/position.

PL2 PL3 PL4 PL5

- 4-lead ECG placement
- $EtCO_2$

PL4 PL5

- Vascular access above the diaphragm if patient ≥ 12 months with Isotonic Crystalloid bolus until ROSC or up to 1 liter. If patient < 12 months, distal femur IO acceptable

PL5

- Needle Decompression
- Tranexamic Acid (TXA)
- Simple Thoracostomies
- Ultrasound: EFAST and/or Cardiac Motion
- Administer Blood Products and Calcium Chloride if:
  - Witnessed traumatic arrest within 5 minutes of blood product availability **AND**
  - Exsanguination is a likely cause of arrest, reasonable bleeding control has been achieved, and provider judgment that one unit of blood products will significantly improve patient outcome

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for adults and pediatric patients.
- Emphasis is to be placed on correcting traumatic causes of death (hemorrhage control, application of pelvic binder, ventilation, decompression of the chest, reduction of grossly deformed extremities, volume resuscitation, etc.) prior to or concurrent with initiating CPR.
- Chest decompression should not be delayed for any other medical procedure or intervention to be accomplished, including CPR.
- CPR should be paused during Simple Thoracotomy to minimize the risk of provider injury.
- Traumatic arrest patients with short downtime and close proximity to an appropriate trauma facility can be considered for transport after reasonable life-saving interventions are first performed.
- In multi-patient events, traumatic arrests should not receive intervention until sufficient responders are present to meet the needs of the living patients.
  - Except for lightning strikes, perform reverse triage by prioritizing cardiac/respiratory arrests.

Cardiac Arrest: Treatable Causes

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Focus on rapid and early BLS airway and ventilation tools. Intubation may not be the best option for these patients.
- Pediatric pads should be used in children < 10 Kg or PEDIA tape color purple.

Signs & Symptoms:

- Unresponsive
- Abnormal breathing (gasps)
- Pulseless
- Absent heart sounds
- Obvious death

Differential:

- Continue to address specific differentials associated with signs, symptoms, and/or dysrhythmia.

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Hypoxia: Airway Management and Oxygenation
- Hypothermia: Active warming strategies

- Hypovolemia: Fluid bolus with Isotonic Solution as needed
- Hypoglycemia: Dextrose infusion
- Calcium Channel / Beta Blocker Overdose: Glucagon

- Hyperkalemia
  - Adult – Calcium Chloride, Sodium Bicarbonate
  - Pediatric – Sodium Bicarbonate
- Calcium Channel / Beta Blocker Overdose
  - Adult – Calcium Chloride
- Hypovolemia: Blood Product and Calcium Chloride if:
  - Witnessed arrest within 5 minutes of blood product availability **AND**
  - Exsanguination is a likely cause of arrest, reasonable bleeding control has been achieved and/or provider judgment that one unit of blood products will significantly improve patient outcome
- Calcium Channel / Beta Blocker Overdose
  - Pediatric – Epinephrine infusion
- Tension Pneumothorax:
  - Needle Decompression
  - Simple Thoracostomy

Consult Online Medical Control As Needed

Cardiac Arrest: Treatable Causes

Pearls:

- Providers should not hasten departure after obtaining ROSC. Instead, focus on stabilizing the patient and ensuring that the airway is appropriately managed. If rearrest occurs, it will be in the first few minutes.
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- In order to be successful in adult or pediatric arrests, a cause must be identified early and corrected. Resuscitation should include targeted therapies to address the underlying cause of the arrest.
- Respiratory arrest is a common cause of pediatric cardiac arrest. Unlike adults early oxygen and ventilation is critical.
- In most cases pediatric airways can be managed by basic interventions.
- Effective CPR is critical: 1) Push hard and fast at appropriate rate 2) Ensure full chest recoil 3) Minimize interruptions in CPR. Pause CPR< 10 seconds only.
- Effective CPR and treatment of underlying causes are the keys to successful resuscitation.
- Prolonged cardiac arrests may lead to tired providers and decreased compression quality. Ensure compressor rotation, summon additional resources as needed, and ensure provider rest and rehab during and post-event.
- For pediatrics use volume control device (IV Burette) for Dextrose and Fluid infusions
- Always quickly confirm asystole in more than one lead and, trouble shoot for Equipment settings/ problems
- Reassess and document ETT/BIAD placement continuously after every move and at transfer of patient care.
- Continuous ETCO2 should be initiated as soon as practicable.
- Calcium and sodium bicarbonate should be given early if hyperkalemia is suspected (renal failure, dialysis)
- Continue to use primary monitor for all event recording and data capture.
- All monitor event data and recordings are uploaded into e-PCR.
- Ultrasound to determine cardiac wall motion at pulse check; DO NOT interrupt compressions for ultrasound.

Comfort Measures/End of Life Care

Assessment

Pediatric Pearls:
- Position parents/caregivers in close proximity to the patient
- Allow parents/caregivers to comfort patient and guide medically-appropriate care

Signs & Symptoms:
- Apnea/Agonal breathing
- Hypotension
- AMS
- Bradycardia

Differential:
- If there is any doubt about possible reversible causes, implement resuscitative measures and consult OLMC

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Environment modification (dim lights, silence sirens/alarms)
- Discontinue continuous monitoring (SpO2, cardiac monitor) if patient/family desires
- Prioritize family and loved ones at bedside and allow them to play music or provide any other environmental comforts
- Ice chips and/or sips of water if desired and able to tolerate secretions
- Oxygen if desired or showing signs of air hunger

PL3 PL4 PL5 PL6
- Establish vascular access only if patient/family prefer IV administration vs IM/IN

PL5 PL6
- Fentanyl for pain and air hunger (1st line)
- Midazolam for air hunger or anxiety
- Droperidol for nausea/vomiting (1st line)

Consult Online Medical Control As Needed

Pearls:
- Implementation of comfort measures only/end of life care REQUIRES all of the following

1. **A medical condition/injury where death is imminent**
2. **A valid out of hospital DNR OR consultation with OLMC**
3. **Consent and agreement from POA or recognized surrogate decision maker (not required if patient meets TOR criteria)**

- Terminal pain and anxiety can still occur in patients with limited consciousness and should be treated. Signs include tachycardia, hypertension, tachypnea, or grimace.
- Patients on chronic opioids may require medication doses that exceed the clinical guidelines. Contact OLMC for orders if higher doses are needed.
- Transportation to an emergency department while under hospice care should involve close communication with hospice nursing. Family or EMS personnel should attempt to contact the hospice agency if not already on scene. Allow hospice agency to communicate directly with family if there is a difference of opinion on transportation.
- May give initial doses of fentanyl and midazolam simultaneously
- Treatment should be patient-directed and given only to minimize pain and suffering, not to induce apnea or unconsciousness.

Crush Injury

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Compartment Syndrome
  - Pain on passive stretch
  - Paresthesia
  - Paralysis
  - Pallor
  - Pulselessness
- Hypoperfusion
- Hypotension
- Altered Mental Status

Differential:
- Skin irritant exposure
- Dust concentrations in airway
- Hypo/Hyperthermia
- Hyperkalemia
- Dehydration
- Additional trauma

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Treatment in a confined space should be performed only by appropriately trained personnel.
- Air quality monitoring should be conducted and documented prior to entry into confined space. Continuous air quality monitoring must be maintained once contact is made with victim and when any rescuer is in a confined space. Document air quality measurement at patient location on PCR.
- Remove rings, bracelets, and other constricting items
- N95 mask PRN for dust environment
- Oxygen: Target SPO2 92% - 96%

PL2 PL3 PL4 PL5 PL6

- Nebulized Albuterol or saline PRN for patients with dust concentrations in airway.

PL4 PL5 PL6

- Vascular access x2 at 1.5 L/hr of Isotonic Crystalloid during extrication. If adequate hemodynamics, then may reduce to 500 mL/hr of Isotonic Crystalloid after extrication.

PL5 PL6

- Continuous $ETCO_2$ and ECG monitoring once practical.
- If goes into cardiac arrest, then treat for hyperkalemia with both Calcium Chloride and Sodium Bicarbonate in conjunction with cardiac arrest guidelines.
- Push Sodium Bicarbonate immediately prior to release
- Add Sodium Bicarbonate to each liter of Isotonic Crystalloid
- If MAP ≥ 65 and no respiratory failure, then Fentanyl for pain and Ketamine for refractory pain
- If MAP < 65 and/or respiratory failure, then Ketamine for pain

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Hydration should begin prior to extrication whenever possible. Large volume resuscitation prior to removal of the crush object and extrication is critical to preventing secondary renal failure and death.
- Crush injury is usually seen with compression of 4-6 hrs. but may occur in as little as 20 min.
- If possible, monitor patient for signs of compartment syndrome.
- Crush injury victims can 3rd space > 12L in the first 48 hours.
- Elderly patients should be monitored closely for volume overload but do NOT withhold fluids unless clinical signs/symptoms of volume overload.
- The larger the mass crushed (i.e. more limbs) the greater the likelihood of severe rhabdomyolysis and renal failure.
- Crush injury may cause profound electrolyte disturbances resulting in dysrhythmias. Monitor as soon as practically possible.
- Do not overlook treatment of additional injuries, airway compromise, hypothermia/ hyperthermia.
- ETCO2 if multiple doses of Narcotic Medication administered.

Cyanide

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Headache, weakness, vertigo
- Nausea / Vomiting
- Chest Pain / Respiratory Distress
- Tachycardia / Tachypnea
- Severe:
  - Cardiac Arrest
  - Seizures
  - Altered Mental Status / Coma

Differential:
- Acute coronary syndrome
- Stoke / TIA
- PE
- Meningitis / Encephalitis
- Head trauma
- Diabetes
- Acute intoxication
- CO Poisoning

Clinical Management Options

PL1	PL2	PL3	PL4	PL5	PL6	
						• Scene safety & decontaminate patient as needed • Oxygen via NRB 15 LPM regardless of SpO_2 reading and passive oxygenation with NC at 25 LPM • Basic airway maneuvers and management as needed
						• Monitor $EtCO_2$ as soon as it is practical
						• Vascular access • Hydroxocobalamin
						• Advance airway maneuvers and management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Do not begin transport until all contaminated clothing has been removed and patient has been decontaminated and cleared for transport.
- Be alert for exposure related dyspnea/tachypnea without cyanosis, nausea/vomiting, seizures, hyper/hypotension.
- Oxygen via NRB should be applied to all patients as SpO2 readings are unreliable in presence of cyanide or CO poisoning.
- If smoke inhalation always consider carbon monoxide poisoning and monitor for it if equipped.
- Mix hydroxocobalamin carefully with strict adherence to instructions. Do NOT shake.

Drowning / Submersion

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Unresponsive
- Mental status changes
- Decreased or absent vital signs
- Vomiting
- Coughing

Differential:
- Trauma
- Pre-existing medical problem
- Pressure injury (diving)
  - Barotrauma
  - Decompression sickness
- Duration of immersion
- Temperature of water

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Scene safety & decontaminate patient as needed
- Evaluate for Cardiac Arrest
- Oxygen, Target SpO_2: 92-94%
- BLS airway management as needed
- Evaluate for spinal motion restriction
- Keep patient warm

- If conscious and with wheezing, Albuterol & Ipratropium Bromide nebulizer
- If conscious and with rales/rhonchi, CPAP
- ECG placement

- Vascular access

- Evaluate ECG
- Advance airway maneuvers and management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Criteria for resuscitation includes suspected arrest from cause other than submersion, patient submersion time less than 20 minutes from witness of person going underwater or from arrival of the first Public Safety entity until the patient is in a position for resuscitative efforts to be initiated. On-scene rescuers should consider conversion from rescue to recovery at 20 minutes unless the patient is a diver with an air source or a patient trapped with a potential air source. Final decision for transition from rescue to recovery mode rests with on-scene command.
- SMR should be used when a suspected or known traumatic mechanism preceded the drowning.
- All victims should be transported for evaluation due to potential for worsening over the next several hours.
- Drowning is a leading cause of death among would-be rescuers. Allow appropriately trained rescuers to remove victims from areas of danger.
- With pressure injuries (decompression/barotrauma), if possible transport dive computer and/or dive logs with patient.
- Consider CPAP early if respiratory distress for any age if adequate mask seal can be established.
- Assess water temperature (< 10◦ C / < 50◦ F) defines cold water.

Environmental Hyperthermia

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Weakness
- Nausea & vomiting
- Cramping
- Syncope
- Diaphoresis & anhidrosis
- Altered Mental Status
- Bizarre behavior
- Hypotension
- Tachycardia

Differential:
- CVA
- Dehydration
- Encephalopathy
- Meningitis / Sepsis
- Head Trauma
- Overdose / Toxin
- Hypoglycemia
- Hyperactive Delirium with Severe Agitation
- Alcohol withdrawal

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Age appropriate core body temperature assessment
- Oxygen
- Move to shaded/cool environment, discontinue physical activity, PO fluids if tolerated
- If AMS, then BGL assessment
- If AMS and/or **body temperature > 102.2 F**, then active cooling measures per patient condition:
  - Ice packs to neck, axilla and groin, wet patient, ice sheets in tactical or rescue environment, and increased airflow
- If **body temperature ≥ 105.8 F**, then cold water immersion as soon as possible
  - Immerse patient 1min/degree Fahrenheit you are attempting to cool, discontinue immersion at 102.2F and move to active cooling

PL 4 PL 5 PL 6

- Vascular access
- Infuse Isotonic Crystalloid fluids titrated to effect

PL 5 PL 6

- If AMS, may infuse cold Isotonic Crystalloid if available up to 30 mL/kg or max of 2L
- If shivering develops, Midazolam for sedation

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for adults and pediatric patients.
- Signs of improvement to help titrate to effect include: improved heart rate, decrease in body temperature, resolution of thirst, feeling the need to urinate and/or increased urination, improvement in mental status, improvement in skin conditions, etc.
- If increased temperature, utilize passive cooling by removing excessive clothing or covers.
- Antipyretics should not be used in the setting of environmental heat emergencies.
- Exertional heat stroke should be suspected in anyone with a history of recent exertion and bizarre behavior, seizure, or syncope.
- Any AMS should have blood glucose performed. Severe heat emergencies may lead to liver dysfunction and hypoglycemia.
- If AMS and cold isotonic crystalloid fluids are unavailable, then ≥PL4 may begin isotonic crystalloid boluses.
- Damage caused by heat stroke is determined by how high the temperature got and how long it remained elevated.
- To make ice sheets: soak a sheet in ice water and drape over the patient's body, change and re-soak q 1min

Cold Isotonic Crystalloid Bolus 30mL/Kg to Max of 2L

Patient Weight (kg)	40	45	50	55	60	65	70 ≤
Max mL	1200	1350	1500	1650	1800	1950	2000

Environmental Hypothermia

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Cold, clammy
- Shivering
- Mental status changes
- Extremity pain or sensory abnormality
- Bradycardia
- Hypotension or shock

Differential:
- Metabolic disorder (hypoglycemia, hypothyroidism)
- Toxins
- Environmental exposure
- Shock
- Sepsis

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Oxygen
- Temperature less than 95 F (< 35 C): Remove wet clothing, blankets as needed
- Handle very gently if < 88 F (< 30 C)
- BGL assessment
- Use heat packs

PL2 PL3 PL4 PL5
- Increase the temperature of transport compartment

PL4 PL5
- Vascular access
- Warm IV Isotonic Crystalloid if available

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Extremes of age are more susceptible (young and old)
- < 34 C (93.2 F), shivering may diminish at < 31 C (87.8 F) shivering may stop.
- With temperature less than 30 C (88 F) ventricular fibrillation is common cause of death. Handle patients gently to reduce the risk. Transport immediately for re-warming.
- If the temperature is unable to be measured, treat the patient based on the suspected temperature.
- Hypothermia may produce severe physiologic bradycardia. Do not treat unless profound hypotension unresponsive to fluids.
  - Hypothermia:
    - Mild: 89.6 – 95 F (32 – 35 C)
    - Moderate: 82.4 – 89.6 F (28 – 32 C)
    - Severe: < 82.4 F (< 28 C)
- During warming, cold blood may re-enter central circulation causing a subsequent decrease in body temperature.

Epistaxis

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Bleeding from nasal passage
- Pain
- Nausea
- Vomiting

Differential:
- Trauma
- Infection – Viral URI or Sinusitis
- Allergic rhinitis
- Lesions – Polyps, Ulcers
- Hypertension

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Ice packs
- Compress bridge or base of the nose
- Tilt head forward

- Topical or IN Tranexamic acid (TXA)
- If bleeding is refractory to TXA, IN Epinephrine

- Vascular access
- Tranexamic acid (TXA)
- Adult: Consider Isotonic Crystalloid bolus titrated to MAP > 65 mmHg for adults
- Pediatric: Consider Isotonic Crystalloid bolus titrated to SBP > 70 + (age in years x 2) mmHg

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Recommended exams: Mental Status, HEENT, Cardiovascular, Respiratory, and Neuro
- Bleeding may also be occurring posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx.
- Anticoagulants include warfarin (Coumadin), heparin, enoxaparin (Lovenox), dabigatran (Pradaxa), rivaroxaban (Xarelto), and many over the counter headache relief powders. Anti-platelet agents like aspirin, clopidogrel (Plavix), aspirin/dipyridamole (Aggrenox), and ticlopidine (Ticlid) can contribute to bleeding and impair clotting.

ETOH Withdrawal

Assessment

Pediatric Pearls:

Signs & Symptoms:
- Headache
- Nausea and/or Vomiting
- Diarrhea
- Restlessness or sleeplessness
- Tachycardia
- Hypertension
- Tremors
- Tongue fasciculation
- Confusion and/or Agitation
- Seizures
- Cessation or temporary abstinence from alcohol use

Differential:
- Hypoglycemia
- Head trauma
- Heat exhaustion/ Heat stroke
- Drug or toxin exposure
- Sepsis
- Hypoxia
- Cardiac issues
- Seizure disorder

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Take a thorough history to include volume, quantity, and frequency of alcohol use
- Provide oxygen as needed to maintain SpO_2 > 94%

- Vascular access
- Begin fluid resuscitation with 20 ml/kg isotonic crystalloid

- If the patient meets indications for alcohol withdrawal syndrome in accordance to the screening checklist and has no exclusions, then Midazolam

Consult Online Medical Control As Needed

Alcohol Withdrawal Syndrome Screening Tool

Inclusion Criteria – All Must Be Present

1. Intact verbal communication capabilities.
2. Sudden period of cessation of alcohol consumption within the past 3 days.
3. Presenting with 3 or more of the following signs/symptoms:
    a. Nausea or Vomiting
    b. Tremors
    c. Sweating
    d. Agitation
    e. Heart rate > 100 beats per minute
4. Eighteen (18) years of age or older

Exclusion Criteria

1. Signs and Symptoms likely due to underlying medical illness or injury.
2. Respiratory distress

Additional Considerations that Increase the Risk for Respiratory Depression

1. Opioid use
2. COPD
3. Obstructive sleep apnea

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Alcohol withdrawal has a high mortality rate without appropriate treatment.
- It is important to treat symptoms early rather than waiting for symptoms to become serious.
- Patients may not be initially forthcoming about their alcohol history.

Eye Injury / Complaint

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Pain, swelling, blood
- Deformity, contusion
- Visual deficit / loss of vision
- Leaky aqueous / vitreous humor
- Upwardly fixed eye
- Shooting or streaking light
- Visual contaminants
- Rust ring
- Lacrimation

Differential:
- Trauma
- Infection – Viral URI or Sinusitis
- Allergic rhinitis
- Lesions – Polyps, Ulcers
- Hypertension

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Evaluate pupils
- Complete neurological exam
- Screen for unrecognized chemical and/or agent exposure
- Cover both eyes
- If out of socket, then cover with sterile water or isotonic crystalloid soaked gauze
- If impaled objected, then stabilize the object then cover both eyes
- If chemical exposure or burn, then irrigate with copious amounts of sterile water or isotonic crystalloid
    - Perform an initial and repeat respiratory assessments.

PL 4 PL 5 PL 6

- Vascular access
- May use Lidocaine in 1 L Isotonic Crystalloid for irrigation

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Normal visual acuity can present even with severe injury.
- Remove contact lens when possible. If adherent to globe, then do not force. Irrigation may assist with removal.
- Any chemical or thermal burns to the face/eyes should raise concern for respiratory insult.
- Orbital fracture raises concern for globe or nerve injury, or compartment syndrome. This requires repeat assessments.
- Always cover both eyes to prevent further insult.
- Use shield not pads for physical trauma to the eye. Pads are acceptable for the uninjured eye.
- DO NOT remove impaled objects
- Suspected globe rupture or compartment syndrome requires emergent evaluation.

Fever / Infection Control

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Warm
- Flushed
- Diaphoretic / Sweaty
- Chills / Rigors

Associated Symptoms to Help Localize:
- Myalgia, cough, chest pain, headache, dysuria, abdominal pain, altered mental status, rash, vomiting, diarrhea

Differential:
- Infections / Sepsis
- Cancer / Tumors / Lymphomas
- Medication or drug reaction
- Connective tissue disease(s):
  - Arthritis
  - Vasculitis
- Hyperthyroid
- Heat stroke
- Meningitis

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Age appropriate core body temperature assessment
- Oxygen
- Cooling measures and/or unbundle

- If fever > 100.4 F without an environmental cause:
  - Adult – Acetaminophen
  - Adult – Ibuprofen

- If fever > 100.4 F without an environmental cause:
  - Pediatric – Acetaminophen
- Vascular access
- If dehydrated and not able to hold PO fluids: Isotonic Crystalloid titrated to effect

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Provider and patient PPE are to be donned as soon as possible when signs of an infectious disease are recognized.
- Signs of improvement to help titrate to effect include: improved heart rate, decrease body temperature, resolution of thirst, feeling the need to urinate and/or increased urination, improvement in mental status, improvement in skin conditions, etc.
- If increased temperature, utilize passive cooling by removing excessive clothing or covers
- Droplet precautions include standard PPE plus a standard surgical mask for providers who accompany patients in the back of the ambulance and a surgical mask or NRB O2 mask for the patient. This level of precaution should be utilized with influenza, meningitis, mumps, streptococcal pharyngitis, and other illnesses spread via large particle droplets are suspected. A patient with a potentially infectious rash should be treated with droplet precautions.
- Contact precautions include standard PPE plus utilization of a gown, change of gloves after every patient contact, and strict hand washing precautions. This level of precaution is utilized when multi-drug resistant organisms (e.g. MRSA, scabies, or zoster (shingles)), or with other illnesses spread by contact are suspected.
- All-hazards precautions (Airborne Precautions) include standard PPE, contact precautions plus N-95 mask for providers. At minimum a surgical mask should be placed on the patient. This level of precautions is utilized during the initial phases of an outbreak when the etiology of the infection is unknown or when the causative agent is found to be highly contagious (e.g. SARS, TB).
- High Consequence Infectious Disease (HCID) is defined as: "An infectious disease that presents an immediate threat; poses a high risk of death or serious long-term disability to a large number of people; and creates a substantial risk of public exposure, due to the disease's high level of contagion or the method by which the disease is transmitted."

Headache

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.

Signs & Symptoms:
- Pain severity
- Nausea / Vomiting
- Photo / Auditory sensitivity
- "Worst ever"
- Thunderclap
- Nuchal rigidity
- Associated neurologic signs: diplopia, ataxia, weakness, etc.

Differential:
- Stroke
- Head trauma
- Hypoxia
- Seizure
- Neoplasm
- Toxins
- Hypertension
- Dehydration
- Infection
- Meningitis
- Hyper/hypoglycemia
- Pre-eclampsia
- Anxiety

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 92 – 96%
- BGL Assessment
- Basic Airway Management as needed

- Perform stroke assessment
- 3 & 12-lead ECG placement
- Monitor $ETCO_2$
- Acetaminophen for pain, only if no signs of difficulty swallowing are noted
- If SBP > 180 or DBP > 120, then suspect hypertensive crisis and consult OLMC

- Vascular access as appropriate for patient condition
- IV Acetaminophen for pain if PO route is not available
- Signs of dehydration, then infusion of isotonic crystalloid PRN

- Cardiac monitor and 12 ECG
- Droperidol for migraine
- Midazolam for withdrawal or anxiety/panic attack
- Advanced Airway Management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Document vital signs, including pain scale, before and after any intervention.
- Headaches often resolve with treatment of underlying disorder, which may require acute (ex: dehydration) or long-term (ex: hypertension) management.
- Headaches are broadly classified into "primary" and "secondary" headaches.
  - Primary headaches are benign and are recurrent that are not caused by an underlying disease or structural abnormality. These include, headache, cluster headache, tension headache, and primary sex headache.
  - Secondary headaches can be either benign or life threatening and are caused by underlying disease or a structural abnormality. These include meningitis, intracranial hemorrhage, subarachnoid hemorrhage, brain tumor, temporal arteritis, and postictal headache.
- Headaches can occur as a result of a hypertensive crisis, which are rare. When a hypertensive crisis does occur, it is often due to medication noncompliance or another factor that worsened existing hypertension.

Hypotension Non-Traumatic

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Restlessness, confusion, weakness
- Syncope
- Tachycardia
- Diaphoresis
- Pale, cool, clammy skin
- Delayed capillary refill
- Coffee-ground emesis
- Tarry stools

Differential:
- Infection/Sepsis
- Dehydration
- Vomiting
- Diarrhea
- Congenital heart disease
- Medication or Toxin
- Anaphylaxis
- Cardiac Failure (myocarditis)

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen
- Supine position, keep patient warm

- Vascular access
- These fluid boluses are for volume depletion – NOT for active bleeding.
- Pediatric: Isotonic Crystalloid bolus 20 ml/kg may repeat 10ml/kg bolus x 2 PRN
- Adult non-cardiac: Isotonic Crystalloid 500-1000 ml bolus, may repeat up to 2 liters
- Adult Cardiac: Isotonic Crystalloid 250-500 ml bolus, may repeat up to 1 liter
- Tranexamic acid (TXA) for hypotension due to hemorrhage

- Adult: Norepinephrine (Levophed) infusion, titrated to MAP ≥ 65 following fluid resuscitation **or** Epinephrine
- Push dose Epinephrine or Norepinephrine
- Pediatric: Epinephrine infusion titrated to effect
- Blood product administration procedure, including Calcium Chloride

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Adult hypotension can be defined as a MAP < 65 and signs or symptoms of hypoperfusion – altered mental status, increased respirations, tachycardia, poor pulses, skin changes.
- Consider all possible causes of shock and treat per appropriate COG.
- Patients should always have adequate intravascular fluid load before using vasopressors.
- Isotonic Crystalloid should be avoided in patients in whom hemorrhage is suspected.

$$MAP\ Calculation = \frac{(2\ X\ Diastolic) + Systolic}{3}$$

Nausea / Vomiting

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Fever
- Pain
- Constipation
- Diarrhea
- Anorexia
- Hematemesis

Differential:
- CNS (Increased ICP, headache, stroke, CNS lesions, Trauma or hemorrhage)
- Vestibular
- AMI
- Drugs (NSAIDS, antibiotics, narcotics, chemotherapy)
- GI or GU disorders
- Uremia
- Gynecologic disease (Ovarian Cyst / PID)
- Infections (pneumonia, influenza)
- Electrolyte abnormalities
- Food or Toxin induced
- Pregnancy

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Oxygen
- BGL assessment

- Inhaled isopropyl alcohol wipe to help control nausea
- Adult & Pediatric: Ondansetron

- Vascular access
- Adult: Diphenhydramine if patient allergic to Ondansetron **and** Droperidol
- IV fluid with Isotonic Crystalloid as needed for dehydration
- Adult: Tranexamic acid (TXA) with confirmed upper or lower GI bleeding AND hypotension if < 3 hours since bleeding onset

- ECG monitoring and interpretation
- Adult: Droperidol

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- If patient is conscious, place alcohol wipe under patient's nose and allow them to breathe it in to help control nausea.
- Assess number of times of emesis
- Appearance of emesis: bloody, coffee ground, bilious – green bile – solids and liquid or just liquid
- Heart rate: One of the first clinical signs of dehydration, almost always increased heart rate, tachycardia increases as dehydration becomes more severe, very unlikely to be significantly dehydrated if heart rate is close to normal.
- Droperidol may be a good option for cyclic vomiting or Cannabinoid Hyperemesis Syndrome.
- Due precaution of long QT syndrome for both Ondansetron and Droperidol, providers should choose one therapy only, **Contact OLMC if necessary**

Obstetrical: Emergency

Assessment

History:
- Past medical history
- Hypertension meds
- Due date or LMP
- If known high risk pregnancy
- Prenatal care
- Prior pregnancies / births
- Gravida / Para

Signs & Symptoms:
- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- Edema of the hands and face

Differential:
- Pre-eclampsia / Eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 to 92-96%

PL4 PL5

- Vascular access with Isotonic Crystalloid titrated to effect for vaginal hemorrhage
- Tranexamic Acid for hypotension due to significant hemorrhage

PL5

- Seizure: Midazolam
- Suspected Eclampsia: Magnesium Sulfate
- Monitoring & Interpretation of ECG and $EtCO_2$

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- **Eclamptic seizures may occur up to 2 months post-partum. Always consider in pregnant/recently pregnant seizing patient.**
- Severe headache, vision changes, edema, or RUQ pain may indicate preeclampsia.
- In the setting of pregnancy, hypertension is defined as a SBP greater than >140 or a DBP > 90, or relative increase of 30 systolic and 20 diastolic from the patient's normal (pre-pregnancy) blood pressure.
- Ask patient to quantify bleeding - number of pads used per hour.
- Any pregnant patient involved in a MVC should be seen immediately by a physician for evaluation and fetal monitoring in a Trauma Center.
- Magnesium may cause hypotension and decreased respiratory drive, monitor closely.
- If > 20 weeks, consider left lateral position.
- Ultrasound, if available, for PL-5 for fetal heart tones and movement.

Obstetrical: Labor and Childbirth

Assessment

History:
- Due date of LMP
- Time contractions started & how often
- Rupture membranes
- Time / amount of any vaginal bleeding
- Sensation of fetal activity
- Past medical and delivery history
- Gravida / Para status
- Medications
- If known high risk pregnancy

Signs & Symptoms:
- Episodic pain
- Vaginal discharge or bleeding
- Crowning of urge to push
- Meconium
- Urge to defecate

Differential:
- Abnormal presentation:
  - Buttock
  - Foot
  - Hand
- Prolapsed cord
- Placenta previa
- Abruptio placenta
- Premature labor

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 to 92-96%
- When the newborn's mouth appears over the perineum, immediately suction mouth then nose.
- If post-partum hemorrhage, then fundal massage and encourage infant to breast feed.
- See Clinical Procedures for Birthing and Position Complications, and APGAR Scoring

PL4 PL5

- Vascular access with Isotonic Crystalloid titrated to effect for vaginal hemorrhage
- Tranexamic Acid for hypotension due to significant hemorrhage following delivery or delayed placenta delivery

PL5

- Blood Product Transfusion and Calcium Chloride for severe postpartum hemorrhage

Consult Online Medical Control As Needed

Pearls:
- If stable, skin to skin contact between mother and baby is very important for healthy development. Delay clamping of umbilical cord for 3-5 minutes.
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- **Contact OLMC with all indicated Complications of Labor**
- Document all times (delivery, contraction frequency, and length). Record APGAR at 1 minute and 5 minutes after birth.
- If maternal seizures: refer to the Obstetrical Emergencies Guideline. Eclampsia can occur up to 2 months post-partum.
- After delivery, allowing child to nurse and massaging the uterus (lower abdomen) will promote uterine contraction and help to control postpartum bleeding.
- Post-partum hemorrhage defined as blood loss > 1000mL or > 500mL with signs/symptoms of hypotension. The perineum should be checked for bleeding from vaginal tears. Bleeding should be controlled by direct pressure over the laceration.
- The most common cause of post-partum hemorrhage is uterine atony due to prolonged labor, or multiple gestations

Obstetrical: Newborn Care

Assessment

History:
- Due date and gestational age
- Multiple gestation (twins, etc.)
- Meconium
- Delivery difficulties
- Congenital disease
- Maternal medications
- Maternal risk factors:
  - Substance misuse
  - Smoking

Signs & Symptoms:
- Respiratory distress
- Normal peripheral cyanosis or mottling
- Abnormal central cyanosis
- Altered level of responsiveness
- Bradycardia

Differential:
- Airway failure
  - Secretions
  - Respiratory drive
- Infection
- Maternal medication effect
- Hypovolemia
- Hypoglycemia
- Congenital heart disease
- Hypothermia

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, target SpO_2 to 92-96%
- Wipe nose and mouth with sterile gauze
- Suction if meconium or airway obstruction
- Vigorously dry and stimulate infant
- Keep warm.
- APGAR Score @ 1 and 5 minutes
- If stable, allow to nurse and skin to skin contact for mother and baby
- If just after birth pulse is < 100, BVM on "room air" for 30 seconds @ rate of 40-60 BPM
- If after initial ventilations pulse continues at < 60, Begin **CPR: 120 compressions with asynchronous ventilations at 30 per minute. Begin with room air and progress to Oxygen**
- If after initial ventilations pulse continues at 60 – 100, BVM only on "room air" add Oxygen as needed to increase SpO_2 if < 95%
- If after initial ventilations pulse improves and maintains > 100, monitor and Reassess
- BGL heel stick

PL4 PL5 PL6

- Vascular access – IV or IO if cardiac arrest of critical condition
- Naloxone if mother received narcotics just prior or during childbirth and signs & symptoms of opioid overdose are present
- Dextrose infusion if BGL < 40mg/dL
- Isotonic Crystalloid titrated to perfusion

PL5 PL6

- Advanced airway maneuvers and management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Non vigorous infant: evidenced by poor muscle tone, poor/absent respiration and heart rate < 100 bpm
- **If power suction is used, negative pressure must not exceed 100mmHg.**
- It is extremely important to keep infant warm
- Maternal sedation or narcotics will sedate infant (Naloxone effective but may precipitate seizures if given because of mother's addiction during pregnancy but; not if medications were given by EMS just prior to childbirth).
- Hypoglycemia is not uncommon in preterm infants, use syringe for dextrose infusion

Organophosphate Exposure

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.

Signs & Symptoms:
- Salivation
- Lacrimation
- Urination
- Defecation
- GI distress
- Emesis
- Bronchospasm
- Bronchorrhea
- Bradycardia
- Seizure

Differential:
- Stroke
- MI
- Asthma / COPD
- Other chemical agent / weapon
- Biologic agent / weapon
- Overdose
- Food borne illness
- Airborne irritant (hydrogen sulfide, chlorine, etc.)

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Scene safety, PPE
- Decontamination as trained and equipped
- Oxygen

- If Hypersalivation: Ipratropium Bromide
- CPAP

- Vascular access

- Atropine titrated to improvement of secretions, no max dose in this setting.
- Pralidoxime as available
- If Seizures, Midazolam and refer to Seizure COG

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Follow HazMat procedures for decontamination.
- Assure decontamination prior to initiating treatment unless specifically trained and equipped.

Overdose

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.

Signs & Symptoms:
- Salivation
- Lacrimation
- Urination
- Defecation
- GI distress
- Emesis
- Bronchospasm
- Bronchorrhea
- Bradycardia
- Seizure

Differential:
- Stroke
- MI
- Asthma / COPD
- Other chemical agent / weapon
- Biologic agent / weapon
- Overdose
- Food borne illness
- Airborne irritant (hydrogen sulfide, chlorine, etc.)

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Scene safety, PPE
- Basic Airway Maneuvers
- Narcotic OD: Naloxone IN, only if respirations are depressed
- Provide patient and/or acquaintance a Naloxone Rescue Kit if available

- ECG Application
- $EtCO_2$ application and monitoring

- Vascular access
- Narcotic OD: Naloxone if respirations are depressed

- Monitoring and interpretation of ECG & $EtCO_2$
- Advance airway maneuvers
- Adult: Midazolam
- Calcium Channel / Beta Blocker OD: Calcium Chloride, Epinephrine Infusion & Glucagon (Beta blocker OD only)
- Tricyclic or Phenobarbital OD: Sodium Bicarbonate
- Transcutaneous Cardiac Pacing PRN

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Do not rely on patient history of ingestion, especially in suicide attempts.
- Tricyclic: 4 major areas of toxicity: seizures, dysrhythmias, hypotension, decreased mental status or coma, rapid progression from AMS to death.
- Depressants: decreased HR, BP, body temperature, and respirations; non-specific pupils.
- Stimulants: increased HR, BP, body temperature; dilated pupils, seizures.
- Anticholinergic: increased HR, body temperature; dilated pupils, mental status changes.
- Cardiac meds: dysrhythmias and mental status changes.
- Solvents: nausea, vomiting, and mental status changes.
- Cholinerse / Insecticides: increased or decreased HR, increased HR, nausea / vomiting, diarrhea, pinpoint pupils
- Consider contacting Poison Control for Guidance on a recorded line – 1-800-222-1222
- Decon or Haz-Mat patients should be performed by trained personnel prior to initial patient contact or transport.
- Novel opioids, such as fentanyl and carfentanyl, may require very high doses of naloxone (10-20mg)

Pain Management

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.

Signs & Symptoms:
- Severity (Pain scale)
- Quality
- Radiation
- Relation to movement
- Respirations
- Reproduceable
- Increased upon palpation

Differential:
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural / Respiratory
- Neurogenic
- Kidney stone

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Bleeding control
- Oxygen
- Pain scale assessment 0-10, Wong-Baker faces for pediatrics, FLACC for infants
- SMR Evaluation, Bandaging, Splinting as needed
- Ice pack as needed
- Bilateral BP measurements
- SPO2 monitoring

PL2 PL3 PL4 PL5 PL6
- ECG application
- ETCO2 monitoring
- Acetaminophen – Adult PO only
- Ibuprofen – Adult PO only

PL4 PL5 PL6
- Acetaminophen
- Vascular access
- Isotonic Crystalloid as needed
- Acetaminophen

PL5 PL6
- Monitoring and interpretation of ECG & $EtCO_2$
- Fentanyl
- Ketamine only if respiratory failure; or pain unchanged by Fentanyl
- Lidocaine for suspected kidney stone

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Pain severity is a vital sign to be recorded pre and post pain intervention, especially medications.
- Vital signs should be obtained pre and 5-minutes post all medications.
- Monitor patient closely for over sedation, refer to Overdose COG if needed
- Sedating medications should be administered cautiously in head injury patients to avoid obscuring mental status exam
- Do not administer Acetaminophen to patients with history of liver disease or known to have consumed large amounts of ETOH.
- Fentanyl and Ketamine should be reserved for acute pain.
- Abdominal aneurysms may present as back pain and are a concern in patients over the age of 50.
- Any new bowel or bladder incontinence is a significant finding which requires immediate medical evaluation.
- In patient with history of IV drug abuse or pain management injections, an epidural abscess should be considered.
- Controlled substances are discouraged for non-traumatic back pain.
- Sedating medications should be administered with caution in patients already taking sedating medications

Pulmonary Edema

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Bilateral rales
- Jugular vein distention
- Pinky, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypoperfusion
- Hypotension
- Chest pain
- Respiratory distress
- Apprehension
- Orthopnea

Differential:
- Myocardial infarction
- Congestive heart failure
- Pulmonary embolus
- Pericardial tamponade
- Pleural effusion
- Pneumonia
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Toxic exposure

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Oxygen
- Position of comfort
- BLS airway management
- Aspirin if suspected ACS Chest Pain

PL2 PL3 PL4 PL5
- Consider CPAP with PEEP with rales/rhonchi indicating wet lung sounds
- Nitroglycerin q 5 minutes if SBP ≥ 100mmHg
- Nitroglycerin topical paste to chest wall if SBP ≥ 100mmHg
- 4 lead and 12 lead ECG placement and acquisition
- Place $EtCO_2$

PL4 PL5
- Vascular access

PL5
- Monitoring and interpretation of ECG, waveform $EtCO_2$
- Norepinephrine (Levophed) infusion, titrated to MAP ≥ 65

PL6
- Rapid sequence induction as needed to secure patent airway for oxygenation and ventilation.

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Avoid Nitroglycerin in any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 48 hours or other PDE erectile dysfunction medications due to potential severe hypotension.
- Careful monitoring of level of consciousness, BP, and respiratory status with above interventions is essential.
- Consider myocardial infarction in all these patients. If suspected give aspirin.
- Allow the patient to be in their position of comfort to maximize their breathing effort.
- Connect CPAP to o2 source and select liter flow setting to generate appropriate PEEP for patient condition per guideline.
- Patient BP may drop with CPAP, if CPAP is necessary for oxygenation/ventilation, may move to add pressor.

Respiratory Distress

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate and effort
- Wheezing, rhonchi, rales, stridor
- Use of accessory muscles
- Fever, cough
- Tachycardia
- Anxious appearance

Differential:
- Asthma / COPD (Emphysema, Bronchitis)
- Anaphylaxis
- Aspiration
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pneumothorax
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Inhaled toxin (CO, etc.)
- Croup / Epiglottitis
- Congenital heart disease
- Trauma
- Hydrocarbon ingestion

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Oxygen
- Position of comfort
- BLS airway management

PL2 PL3 PL4 PL5 PL6
- If wheezing (non-cardiac), then assist with patient's MDI 2 puffs PRN -or- Albuterol with Ipratropium
- If wheezing, Consider CPAP with PEEP if refractory to NEB
- If stridor, 3 ml nebulized Isotonic Crystalloid

PL4 PL5 PL6
- Vascular access

PL5 PL6
- Monitoring and interpretation of ECG & $EtCO_2$
- If Wheezing or Stridor, Epinephrine
- If wheezing or Stridor, Methylprednisolone or Dexamethasone
- If stridor, Epinephrine
- If wheezing, Magnesium Sulfate
- Advance airway management as needed
- If severe bronchospasm refractory to other medications, Ketamine
- Ultrasound pleural cavity if pneumo/hemothorax is suspected

PL6
- Rapid sequence induction as needed to secure patent airway for oxygenation and ventilation.

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- $EtCO_2$ and SpO_2 must be monitored continuously if either are abnormal or decline in patient's mental status/condition.
- A silent chest in respiratory distress is a sign for pre-respiratory arrest.
- Chronic COPD may have elevated CO2 at baseline. Patient respiratory status must be reassessed after each nebulizer or medication administration to determine need for additional dosing.
- CPAP if continued respiratory distress and if adequate mask seal can be established.
- Immediately assess for pneumothorax in asthmatics who develop a sudden decrease in blood pressure, increase in heart rate, or other signs of pneumothorax during an exacerbation.
- Development of bradycardia in respiratory distress in an ominous sign

Seizure

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Altered mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconscious
- Fever
- Seizure activity
- Tongue trauma
- Rash
- Nuchal rigidity

Differential:
- CNS/Head trauma
- Tumor
- Metabolic, Hepatic, or Renal failure
- Electrolyte abnormality (Na, Ca, Mg, K)
- Medication non-compliance
- Infection / Fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia
- Hypoglycemia

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen
- BGL & CPSS assessments
- SMR assessment
- BLS airway management
- For any seizure in a pregnant or recently post-partum patient, consider eclampsia and consult the OB Emergencies COGs.
- Examine mental status, HEENT, heart, lungs, extremities, and neuro

PL2 PL3 PL4 PL5

- Place ECG and ETCO2
- Patient assist: Vagus Nerve Stimulator (VNS) q 60 seconds, may repeat x3

PL4 PL5

- Vascular access
- Isotonic Crystalloid fluid challenge at 30 ml/kg
- Pediatric: Temp > 100.4 F then Acetaminophen

PL5 PL6

- Monitoring and interpretation of ECG & $EtCO_2$
- Midazolam
- Advanced airway management as needed

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Impending status epilepticus is defined as two or more successive seizures or a continuous seizure lasting 5 minutes without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- Grand mal seizure (generalized) are associated with loss of consciousness, incontinence, and tongue trauma.
- Focal seizures (petit mal) effect only a part of the body and are not usually associated with a loss of consciousness.
- Jacksonian seizures are seizures which start as focal seizure then become generalized.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations, especially if Midazolam is used.
- Addressing the ABCs and verifying blood glucose is more important than stopping the seizure. Hypoglycemia is the 2nd most common cause of seizure.
- Avoiding hypoxemia is extremely important.
- In an infant, a seizure may be the only evidence of a closed head injury.

Sepsis and Septic Shock

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Trigger for sepsis guideline:
  - Known or suspected infection -and-
  - $EtCO_2$ < 30 or > 45
- AND 2 or more of the following:
  - Temp < 96.8 F or > 100.4 F
  - Heart rate > 95
  - SBP < 100
  - Respiratory rate > 20
  - Altered Mental Status

Differential:
- Arrhythmia
- Pulmonary embolism
- Anaphylaxis
- Drug intoxication
- Heat stroke
- Hypothermia
- Hypoglycemia
- Dehydration
- Stroke

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6
- Oxygen
- BGL assessment
- Keep patient warm
- Treat wheezing, hypoxia, dyspnea, and pain as appropriate per COGs

PL2 PL3 PL4 PL5 PL6
- 4 and 12 lead ECG
- $EtCO_2$
- Acetaminophen

PL4 PL5 PL6
- Vascular access
- Isotonic Crystalloid fluid challenge:
  - Adult: 30 ml/kg
  - Pediatric: 20 ml/kg
  - Newborn: 10 ml/kg

PL5 PL6
- ECG interpretation
- Norepinephrine infusion, titrate to MAP > 65 if not responsive to IV fluid
- See Hypotension COG

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Early septic patients often become hypothermic instead of developing fevers.
- Only about 3% of pediatric septic patients receive IV fluid resuscitation in the field, paramedics should treat pediatric sepsis per COG.
- Hypoglycemia is not uncommon in patients with sepsis, particularly those on beta blockers.
- Sinus tachycardia may be misinterpreted as SVT or A-fib. Sinus tachycardia > 150 bpm in the adult patient or > 180 in the pediatric patient may be seen with sepsis.

Stroke

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy, hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Altered mental status
- Weak / Paralysis
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hyper/hypotension

Differential:
- Altered mental status
- Transient Ischemic Attack (TIA)
- Seizure
- Hypoglycemia
- Hypoxia / Hypercarbia
- Stroke
- Thrombotic / Embolic (85%)
- Hemorrhagic (15%)
- Tumor
- Trauma
- Atypical migraine

Clinical Management Options

PL 1	PL 2	PL 3	PL 4	PL 5	PL 6	
						• Oxygen titrated and PRN • BGL assessment • Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment • If CPSS+, then specifically assess for motor weakness. ○ If weak, then Visual Disturbance, Aphasia, and Neglect (VAN) Score • Basic airway management
						• Positive CPSS & Glucose > 50 and last known well ≤ 23 hours, then declare Stroke Alert and < 15 minute-on-scene time • Positive CPSS, weakness, +VAN & Glucose > 50 and last known well ≤ 23 hours, then declare LVO Alert and < 15 minute-on-scene time • Place 4 & 12 lead ECGs, $EtCO_2$ monitoring
						• Vascular access, 2nd vascular access if time and patient conditions permit
						• Monitoring and interpretation of ECG

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- A patient may have a positive CPSS without weakness, which is still a Stroke Alert. A LVO Alert requires weakness and positive VAN.
- Stroke patients are transported per Stroke Alert or LVO Alert criterion and Hospital Transport Grid.
- #FILM – Unit **#**, **F**amily Contact Info, Recent **I**nterventions, **L**ast Known Well, **M**edications (antiplatelet & anticoagulants)
- Last known well is defined as the last time the patient was seen symptom free; example: Awakening with stroke symptoms would be defined as an onset time of the previous night when the patient went to bed symptom free.
- Whenever possible, a family member should accompany the patient to the hospital to provide a detailed history or provide the hospital with the name and contact information of someone who can.
- The differential list on the Altered Mental Status guideline should be considered.
- Be alert for airway problems (swallowing difficulty, vomiting).
- Hypoglycemia can present as a localized neurological deficit, especially in the elderly.
- Blood samples for performing glucose analysis should be obtained through a finger-stick (heel for infants). Venous blood samples may produce artificially high glucose values and should be avoided.
- IV access is preferred sizes 20g or 18g with AC placement.

Syncope

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Pediatric hypotension is defined as SBP < 70 + (age in years x 2) mmHg

Signs & Symptoms:
- Loss of consciousness with recovery
- Lightheadedness, dizziness
- Palpitations, slow or rapid pulse
- Pulse irregularity
- Decreased blood pressure

Differential:
- Vasovagal
- Hypotension / Hypoperfusion
- Cardiac syncope / PE
- Micturition / Defecation syncope
- Stroke
- Hypoglycemia
- Seizure
- Toxicological
- Medication effect (hypotension)
- Aortic Stenosis / Vascular Disease

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen titrated and PRN
- BGL assessment
- Assess for a Stroke and follow Stroke COG accordingly
- Basic airway management
- Spinal Motion Restriction Assessment

- 4 lead and 12 lead placement / acquisition of ECG
- $EtCO_2$ placement

- Vascular access
- Isotonic Crystalloid as needed for dehydration or hypotension not caused by hemorrhage

- Monitoring and interpretation of ECG

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Assess for signs and symptoms of trauma if associated or questionable fall with syncope.
- Consider dysrhythmias, GI bleed, ectopic pregnancy, and seizure as possible cause of syncope.
- More than 25% of geriatric syncope is cardiac dysrhythmia based.
- Anyone > 65 years old with syncope should have continuous cardiac monitoring.

Trauma

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- Fluids and Medication titrated to maintain a SBP >70 + (age in years x 2) mmHg
- Hypotension: (SBP < 70+ 2x Age in years)

Signs & Symptoms:

- **M**assive Hemorrhage
- **A**irway
- **R**espirations (decompression)
- **C**irculation (IV, TXA)
- **H**ypothermia / Head injury
- **P**ain
- **A**ntibiotics
- **W**ound Care
- **S**plinting

Differential:

- Respiratory failure
- Foreign body airway obstruction
- Hypovolemia
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxins or Overdose
- Hypoglycemia
- Acidosis
- Acute MI or PE

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Control external hemorrhage and apply tourniquet(s) as necessary, including junctional tourniquets if needed and available.
- Wound packing (junctional/extremity) with pressure dressing as appropriate and apply Quick Clot Combat Gauze if available
- BLS airway management
- Place occlusive dressing/chest seal over open pneumothorax
- Evaluate for spinal motion restriction – Do not transport laying on long spine board
- Assess GCS score
- Apply pelvic binder if appropriate
- Keep patient supine and warm
- Administer oxygen to targeted SpO_2
- Bandage/splint injuries as appropriate for patient condition
- Declare Trauma Alert / Activation if appropriate for patient condition

PL 2 PL 3 PL 4 PL 5

- 12-lead placement and acquisition
- $ETCO_2$ assessment
- Acetaminophen (adult only) or Ibuprofen for musculoskeletal and/or joint pain/injury

PL 4 PL 5

- Acetaminophen (all routes) for musculoskeletal and/or joint pain/injury
- Vascular access
- Adult: Isotonic Crystalloid IV bolus 250 mL if patient shows signs of shock
- Adult: Fluid bolus with isotonic crystalloid as needed; Pediatric 20 ml/kg as needed
- Tranexamic Acid (TXA)

PL 5

- Needle decompression of the chest as indicated
- Advanced airway management
- Pain management – Fentanyl and/or Ketamine as indicated.
- If Adult Spinal Shock – Norepinephrine (Levophed) Infusion titrated to MAP ≥ 65
- Epinephrine
- Blood Product Transfusion and Calcium Chloride
- Ultrasound for EFAST exam.

PL 6

- Simple Thoracostomy
- Field Amputation as required
- Escharotomy as indicated for ventilation compliance

Consult Online Medical Control As Needed

Trauma

GCS

Eyes Open	Best Verbal	Best Motor
4 – Eyes Open	5 – Oriented	6 – Obeys Commands
3 – To Voice	4 – Confused	5 – Localizes Pain
2 – To Pain	3 – Inappropriate	4 – Withdraws from Pain
1 - None	2 – Incomprehensible	3 – Pain-Flexion
	1 - None	2 – Pain-Extended
		1 - None

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Consider Chest Decompression with signs of shock and diminished/absent breath sounds. If patient arrests, then immediately perform bilateral decompression.
- See Regional Trauma Guidelines for criteria when declaring trauma alert. Record "Trauma Alert" in ePCR.
- Minimize Scene time. If patient meets Trauma Alert criteria, then interventions should be performed enroute.
- Severe bleeding from an extremity not rapidly controlled by direct pressure may necessitate the application of a tourniquet.
- Permissive hypotension (target fluid resuscitation to MAP 55-65) should be used in the absence of neurologic injury, pregnancy, hypertensive history, and age $\leq$ 45 years old. If suspected neurologic injury maintain Adult SBP $\geq$ 90mmHg.
- Hypotension is devastating to neurologic injury and should be aggressively treated.
- MAP calculation [(2 x diastolic) + systolic] divided by 3
- Peripheral neurovascular status should be document on all extremity injuries and before and after splinting procedures. Same for neuro status before and after extrication, placement for LSB and before/after transport.
- In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of neuro-vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations should be evaluated for repair as soon as possible after injury.
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- If hypotension consider spinal shock or additional occult injury as source.
- Consider Altered Mental Status guideline.
- The most important item to monitor and document is a change in the level of consciousness and GCS.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraining Procedure.
- Any witnessed/documented loss of consciousness, prolonged confusion, or mental status abnormality should be evaluated by a physician ASAP.

Universal Patient Care

Assessment

Pediatric Pearls:
- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by HandTevy.
- If the patient does not fit on the tape, then they are considered to be an adult.

Signs & Symptoms:
- Location
- Onset
- Precipitating Event(s)
- Quality
- Radiation
- Severity
- Time/Duration
- Aggravating/Alleviating
- Associated Symptoms
- Prior history of same/similar

Differential:
- Vascular
- Infectious/Inflammatory
- Trauma/Toxins
- Autoimmune
- Metabolic
- Idiopathic
- Neoplastic
- Congenital

Clinical Management Options

PL 1 PL 2 PL 3 PL 4 PL 5 PL 6

- Demonstrate professionalism and courtesy; Scene/Crew Safety/PPE; with appropriate equipment and medications to the patient side
- Use close looped communication and crew resource management with all on scene providers
- Perform an initial assessment and physical exam
- Obtain vital signs: BP, pulse rate, respiratory rate, and body temperature
- Obtain blood glucose level as appropriate
- Oxygen as needed to maintain SpO_2 92 – 96% or as indicated by signs of hypoxia
- Perform medication cross check for all medication administrations

PL 2 PL 3 PL 4 PL 5 PL 6

- Place and monitor $EtCO_2$ as indicated
- 12 lead ECG acquisition and 4 lead ECG placement
- Rapid 12 lead acquisition if patient meets criteria and transmit 12-lead as soon as possible

PL 4 PL 5 PL 6

- IV / IO access as appropriate for patient condition

PL 5 PL 6

- Monitor and interpret ECG
- Use ultrasound for specific conditions as indicated, available, and trained
- Patients may be referred to a BLS transporting agency in accordance with the Transport Decision Process.

Consult Online Medical Control As Needed

Pearls:
- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Minimum exam for all patients includes vital signs, mental status including GCS, location of injury or complaint, and pain scale.
- Maintain all appropriate medications and procedures that have been initiated at the referral agency or institution.

Disaster COG
Dialysis Transport

Notes

Provider note:
During disaster declarations, patients with ESRD who require dialysis should be preferentially transported to outpatient dialysis centers.

System note:
This COG is effective at the discretion of the Chief Medical Officer or their designee

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Determine if the patient would prefer transport to outpatient dialysis
- Obtain heart rate, blood pressure, and temperature
- Determine the patient's typical hemodynamic dialysis schedule:
  - Monday-Wednesday-Friday
  - Tuesday-Thursday
  - Intermittent

PL2 PL3 PL4 PL5

- Obtain 12-lead ECG
- Determine if the patient has any complaints other than they typically feel prior to dialysis:
  - Mild shortness of breath
  - Weight gain
  - Back pain
  - Fatigue
- Screen for acute illness: hemodynamic instability, profound dyspnea, fever, other concerning symptoms
  - If concern for acute illness, recommend appropriate treatment and transport to appropriate ED
  - If symptoms are absent or mild and consistent with usual pre-dialysis symptoms **and** patient wishes to be transported to dialysis: contact C4L
- Contact OLMC with any questions or concerns

PL5

- 12-lead ECG interpretation

C4L

- Determine appropriate resource for transport to dialysis center
  - If dialysis needed immediately – utilize system ambulance
  - If patient unable to sit, stand, or walk and approved by on-call C4 provider (PL7+), contact private ambulance service
  - Use other resources as appropriate for patient condition

Consult Online Medical Control As Needed

Medical Exam- Integrated Services

Assessment

Purpose:	The following conditions indicate that the person should be considered a patient:	General Applicability:
• To establish criteria for ATCEMS MI6 personnel to provide a medical assessment for persons who do not meet the definition of a patient in order to identify unrecognized conditions and/or to monitor the person's health.	• SBP > 160 or DBP >110 with associated signs or symptoms • Resting HR >110 • SpO_2 <94 or SpO_2 more than 2% lower than baseline • BGL >300 or <70 • Temperature >100.4F • New or suspected new neurologic deficit • Otherwise meets the Definition of a Patient	The person does not voice any medical complaints and EMS was not requested by the person or their family for the care of a complaint. The person does not meet the definition of a patient prior to the exam.

Clinical Management Options

PL1 PL2 PL3 PL4 PL5 PL6

- Routine vital signs- HR, blood pressure, respiratory rate, pulse oximetry, spirometry, weight, temperature
- Use close-looped communication and crew resource management with all on-scene providers
- Perform an initial assessment and physical exam
- Obtain vital signs: BP, pulse rate, respiratory rate, and body temperature
- Obtain blood glucose level as appropriate
- Neurological exam as appropriate

Consult Online Medical Control As Needed

Pearls:

- A single vital sign reading outside of the above parameters can be re-evaluated after a few minutes of rest or other non-medical intervention if the person has no medical complaints. If the subsequent reading is within parameters, then they do not need to be considered a patient.
- Once the person is identified as a patient, all care will be in accordance with standard COGs. Providers shall offer evaluation and treatment in accordance with the patient's condition and complaint, and corresponding ePCR(s) shall be completed.
- This guideline is intended to be interpreted in the broadest sense, if there is doubt about the presence of an acute medical condition, the person should be considered a patient and treated and documented as such.

Opioid Withdrawal (Integrated Services)

Assessment

Pediatric Pearls:
- Pediatric age status is a contraindication
- Initiate emergency response and care as needed
- Consider child abuse reporting

Signs & Symptoms:
- Tremors
- Outbreak behaviors suggesting withdrawal
- COWS score ≥ 8
- Known severe DSM-V OUD, without recent usage

Differential:
- Alcohol intoxication
- Stimulant use
- Delirium Tremens
- Hypoglycemia
- Cor Pulmonale
- CNS depression
- Anxiety

Clinical Management Options

INTEGRATED SVCS

- Complete Medical Exam, COWS assessment, and obtain patient consent for CHP and opioid withdrawal treatment
- Confirm patient has Naloxone rescue kit and education on how to use
- If above criteria of signs and symptoms are met, then administer 8 mg buprenorphine then re- evaluate in 1 hour
  - At 1 hour, if COWS < 8, then set up time for visit the following day
  - At 1 hour, if COWS ≥ 8, then administer 8 mg dose for a total of 16 mg
    - Monitor for 30 minutes, set up appointment for following day, dose will be 16 mg
- If an initial dose of buprenorphine was administered by another agency/provider then re-evaluate at least one hour post administration.
  - Upon re-evaluation, if COWs < 8, then follow-up daily doses will be 8 mg
  - Upon re-evaluation, if COWs >= 8, then administer addition 8 mg dose and the follow-up daily doses will be 16 mg
- If initial enrollment after 2000hrs – administer 8mg dose and follow up within next day
  - If @8hrs COWs ≥8, can increase to next 8mg increment for max daily dose of 16mg without OLMC
- Ondansetron for nausea
- Acetaminophen or Ibuprofen for pain
- Encourage PO fluids for dehydration
- Attempt to get into MAT clinic and schedule appointment

Consult Online Medical Control As Needed

Pearls:
- Confirm that the patient has an appointment for the following day with CHP.
- See reference material for COWS assessment on page 2 of this COG.
- There is higher risk of CNS depression with combination of benzodiazepines and/or alcohol, if patient is on daily benzodiazepines or known to abuse these, call OLMC.
- Call OLMC through C4 if needed.
- Goal of treatment is 7 days or less by CHP, plan is to hand off to MAT clinic.
- Buprenorphine is a partial mu receptor agonist.
- We will not utilize buprenorphine for pain control/chronic pain.
- A patient on buprenorphine who experiences acute pain either from a medical or traumatic event can receive usual pain control, but keep in mind they may need a smaller or larger dose.
- Caution with patients who are trying to begin using methadone. Buprenorphine is contraindicated within 3 days of methadone ingestion because it will precipitate opioid withdrawal.

APPENDIX 1
Clinical Opiate Withdrawal Scale

For each item, circle the number that best describes the patient's signs or symptom. Rate on just the apparent relationship to opiate withdrawal. For example, if heart rate is increased because the patient was jogging just prior to assessment, the increase pulse rate would not add to the score.

Patient's Name:_____ Date and Time ____/____/____:_____

Reason for this assessment:_____

Resting Pulse Rate: _____beats/minute *Measured after patient is sitting or lying for one minute* 0 pulse rate 80 or below 1 pulse rate 81-100 2 pulse rate 101-120 4 pulse rate greater than 120	**GI Upset**: *over last 1/2 hour* 0 no GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 multiple episodes of diarrhea or vomiting
Sweating: *over past 1/2 hour not accounted for by room temperature or patient activity.* 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	**Tremor** *observation of outstretched hands* 0 no tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching
Restlessness *Observation during assessment* 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	**Yawning** *Observation during assessment* 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times/minute
Pupil size 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	**Anxiety or Irritability** 0 none 1 patient reports increasing irritability or anxiousness 2 patient obviously irritable or anxious 4 patient so irritable or anxious that participation in the assessment is difficult
Bone or Joint aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored* 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 still because of discomfort	**Gooseflesh skin** 0 skin is smooth 3 piloerrection of skin can be felt or hairs standing up on arms 5 prominent piloerrection
Runny nose or tearing *Not accounted for by cold symptoms or allergies* 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks	Total Score _____ The total score is the sum of all 11 items Initials of person completing assessment: _____

Score: 5-12 = mild; 13-24 = moderate; 25-36 = moderately severe; more than 36 = severe withdrawal

This version may be copied and used clinically.

Source: Wesson, D. R., & Ling, W. (2003). The Clinical Opiate Withdrawal Scale (COWS). *J Psychoactive Drugs*, 35(2), 253–9.

Wound Assessment/Care (Integrated Services)

Assessment

Pediatric Pearls:

Signs & Symptoms:
- Sutures or staples in a healing wound
- Skin Lesion/Wound

Differential:
- Healing wound requiring staple/ suture removal
- Possible wound/skin infection
- Chronic Wound
- Vascular Ulcer
- Cutaneous Fistula

Clinical Management Options

INTEGRATED SVCS

- Complete Medical Exam, obtain history of wound, and complete patient history as some illnesses may delay wound healing and increase the risk of infection.
- Obtain VS including HR, BP, RR, and temperature
- Visually inspect dressings and wound
  - Examine dressings for drainage
  - Examine wounds for infection and delayed healing including increasing inflammation, purulent drainage, foul odor, persistent pain, and fever
- Using Telehealth, connect with C4 and obtain permission to remove sutures/staples per Suture & Staple Removal Procedure.
- Apply steri-strips if indicated
- Wet to dry or other dressing as appropriate or ordered

Consult Online Medical Control As Needed

Pearls:
- If signs of infection are noted, contact C4, even if you are not planning to remove suture(s) or staples(s)
- Scarring related to sutures is normal; this can take upwards of one year to heal
  - May recommend Vitamin E oil/lotion & sunscreen to the area
- Ensure appropriate technique per procedure is used and that supplies are available before beginning the procedure

Advanced Airway Management Checklist

Reminder: *Resuscitate then intubate* – Risks HOp: Hypotension, Hypoxia, Hypoventilation (pH acidosis)

1st READY EQUIPMENT AND TEAM	
BLS or ALS Provider	☐ Position Patient Ear 2 Notch
	☐ C-Spine PRN
	☐ Head Up 30°
	☐ 360° Patient Access
	☐ Apply $EtCO_2$ & Prepare ETI $EtCO_2$
	☐ Vitals, ECG, & Monitor Visible
	☐ SpO_2 Opposite Side of NiBP
	☐ HiFlow NC On Patient
	☐ Suction Tested & Verified
	☐ O2 Cylinder x2 & > Half-full
	☐ NiBP Cycle q 60 Seconds
	☐ IGel Sized & Ready
	☐ Cric Kit Ready
	☐ Ready 6.5, 7.0, 7.5 mm ETubes
	☐ Tube Tamer in Place
ALS Provider	☐ ETT Size Chosen & Cuff Tested
	☐ Bougie in Place
	☐ Waveform $EtCO_2$ Confirmed
	☐ DL Handle/Blade Selected & Tested
	☐ VL Handle/Blade Selected & Tested
PL6	☐ Ventilator Pre-Flight Check

Team CRM - CUS
Anyone Can Speak Up & Say
I am **C**oncerned About…
I am **U**ncomfortable About…
STOP

2nd SET FOR PROCEDURE	
ALS Provider	☐ Identify Signs of Difficult Airway
	☐ Crew Briefed – PACE & Post Intubation Plan
	☐ Verify Patent IV/IO Access
	☐ Consider 2nd Vascular Access PRN
	☐ Ketamine or Midazolam, Drawn Up, Labeled, and Dose Confirmed
	☐ Rocuronium, Drawn Up, Labeled, and Dose Confirmed
	☐ Epi Push Dose Pressor, Drawn Up, Labeled, and Dose Confirmed
	☐ PreOx/DeN2ate/apOx
	☐ HiFlow NC ≥ 15 lpm
	☐ BVM/HME/Inline $EtCO_2$/PEEP
	☐ Select PEEP Pressure
	☐ 2 Person 2 Hand BVM Technique
	☐ Jaw Thrust and OPA/NPA PRN
	Go to appropriate green "**Go and Perform**" checklist

3rd GO AND PERFORM		
ALS Provider	**RSI**	
	☐ Administer KETAMINE or MIDAZOLAM for Induction over 60 Seconds	
	☐ If $SpO_2 \leq 94\%$ - Begin 3 Minute Countdown	☐ If $SpO_2 \geq 95\%$- Proceed
	☐ Confirm Ability to BVM Prior to Paralysis	
	☐ Administer ROCURONIUM for Paralysis	
	☐ Begin 90 Second Countdown	
	☐ Verify $EtCO_2$ Waveform and Number	
	☐ Verify Airway Depth, Absent Epigastric Sounds then Present Bilateral Breath Sounds	
	☐ Verify Cuff Pressure	
	☐ Secure Tube and Communicate Depth	
	☐ Gastric Tube PRN	
	☐ Assign Crew Member to Continuously Monitor Airway and Waveform $EtCO_2$	
	☐ Post Intubation Sedation and Analgesia	
	☐ Titrate BVM FiO_2 or utilize ventilator	

Advanced Airway Management Checklist

3rd GO AND PERFORM	
ALS Provider	**Surgical Cricothyrotomy**
	☐ Locate landmarks, palpate from bottom to top
	☐ Chlorohexidine
	☐ Use non-dominant hand to stabilize, slightly stretch skin
	☐ Vertical incision over CT membrane (1in above – 1in below)
	☐ Visualize CT membrane, punch incision
	☐ Dilate
	☐ Insert Bougie, ensure free movement
	☐ Advance appropriately sized ETT tube 1-2cm past cuff
	☐ Verify Airway Depth, Absent Epigastric Sounds then Present Bilateral Breath Sounds
	☐ Secure Tube and Communicate Depth
	☐ Gastric Tube PRN
	☐ Assign Crew Member to Continuously Monitor Airway and Waveform $EtCO_2$
	☐ Sedation and analgesia- Ketamine, Midazolam, Fentanyl
	☐ Titrate BVM FiO_2 or utilize ventilator

APGAR

Refer to OB/Labor & Newborn COGs as needed.

APGAR - 1 minute & 5 minutes after birth			
Sign	**0 Points**	**1 Point**	**2 Points**
Appearance Skin color	Blue-gray, pale all over	Pink except for extremities	Pink over entire body
Pulse	Absent	< 100 minute	> 100 minute
Grimace Reflex irritability	No response to stimuli	Grimaces in response to stimuli	Sneezes, coughs, pulls away
Activity Muscle tone	Absent, flaccid	Arms and legs flexed	Active movement
Respiration	Absent	Slow, irregular	Good, crying

Resuscitation efforts should not be delayed or stopped in order to obtain an APGAR score.

Scores:

10 Infant is in best possible condition
7 to 9 Infant is slightly depressed but near normal
4 to 6 Infant is moderately depressed
0 to 3 Infant is severely depressed

Cardiac Arrest & Termination of Resuscitation Checklists

Refer to Cardiac Arrest related Clinical Guidelines as needed.

Cardiac Arrest Checklist
☐ Pit crew positions identified
☐ Continuous compressions being performed with a metronome
☐ Ventilation timing device attached
☐ Nasal cannula & BVM are attached to oxygen and flowing (NC @ 25lpm, BVM @ 15lpm)
☐ Monitor screen visible to compressors and Code Commander
☐ Code Commander is identified and positioned at the monitor
☐ BVM mask attached to tubing if not being used
☐ $EtCO_2$ waveform is present and being monitored
☐ IV/IO access has been obtained **Above the diaphragm**
☐ Gastric distension has been considered and addressed as needed
☐ Family is receiving care and is at the patient's side
Treatable Causes & Differentials:
☐ Hypovolemia
☐ Hypoxia (CO, Cyanide)
☐ Hydrogen ions (Acidosis)
☐ Hypothermia
☐ Hyper/hypokalemia
☐ Hypoglycemia
☐ Toxins/Tablets (Beta blockers, Narcotics)
☐ Tamponade
☐ Tension Pneumothorax
☐ Thrombosis (MI)
☐ Thrombosis (PE)
☐ Trauma

Medical Arrest Termination of Resuscitation Checklist
Medical Arrest: Termination of Resuscitation (> 30 minutes) Checklist:
☐ Adequate CPR has been administered
☐ Airway managed with ET, BIAD, Cric
☐ IV/IO access has been achieved
☐ Rhythm appropriate medications and treatment administered
☐ Identified reversible causes have been addressed
☐ Ultrasound, when available, to determine ventricular wall motion
☐ Failure to establish sustained ROSC at any time
☐ Failure to establish recurring/persistent ventricular fibrillation
☐ Arrest not due to suspected hypothermia
☐ Providers agree with decision to cease efforts
Contact OLMC for Termination of Resuscitation

TRAUMA ARREST TOR on Page 2

Cardiac Arrest & Termination of Resuscitation Checklists

Trauma Arrest Termination of Resuscitation Checklist
Trauma Arrest: Termination of Resuscitation or Withholding of Resuscitation Checklist: ☐ Obvious injuries incompatible with life and/or obvious signs of organ destruction ☐ Patient is pulseless and apneic on arrival of first provider, and ☐ Lacks respiratory effort after basic airway maneuvers, and ☐ Identified reversible causes have been addressed, and ☐ Medical cause of arrest has been considered. Contact OLMC for Termination of Resuscitation if CPR was started by System Providers In all cases/circumstances continue CPR if started or continued by System Provider / Responder while obtaining Termination of Resuscitation ☐ The lead ≥ PL5 based upon patient presentation, clinical circumstances and their clinical judgement may contact OLMC for Termination of Resuscitation with < 30 minutes of resuscitation.

Conscious Sedation Checklist

Refer to Restraints Clinical Standard and Behavioral & Hyperactive Delirium with Severe Agitation COG.

Conscious Sedation Checklist
☐ OLMC Approval
☐ Additional ALS provider
☐ Roles assigned
☐ $EtCO_2$, 4 lead ECG, SpO_2
☐ BP set to cycle q 3 min
☐ IV access
☐ HF NC or NRB at flush rate
☐ Ensure airway, ventilation, and suction equipment are available and operational
☐ Confirm medications, dosing, and plan for escalating dosing
☐ **If elective intervention**, verbal consent
☐ Administer medication(s)
☐ Procedure
☐ Recover patient
☐ Continue to monitor until sedation resolves
☐ Documentation

Verbal Consent Script & Guideline:

> *Prior to reading this to you, we have discussed the risks, benefits, and alternatives to [PROCEDURE] performed at this time to the best of my abilities.*
>
> *This includes explaining why this [PROCEDURE] is to be performed on your [Right or Left] [Anatomical Location].*
>
> *I have explained the procedure to you as well as the medications that will be used, including the risks of respiratory failure, decreased blood pressure, and other medication side effects.*
>
> *Additionally, I have explained the steps that will be taken to continuously monitor your condition and vital signs.*
>
> *With [Identify 2nd Provider] as a witness, do you have any questions or concerns that have not been addressed or do I have your verbal consent to proceed?*

1. If patient has additional questions or concerns that can be resolved, then do so and again read the consent.
2. If patient has additional questions or concerns that cannot be resolved, then consult OLMC as needed and continue care alternative to the procedure.
3. If patient provides verbal consent and is witnessed, then proceed with procedure.

This consent process must be specifically and thoroughly documented in the ePCR.

Pit Crew CPR, Cardiac Arrest, Post Resuscitation Checklists

Refer to Cardiac Arrest related Clinical Guidelines as needed.

Team Leader's Pit Crew Checklist

Adult Pit Crew (≥ 37 kg or ≥ 81 lbs.)

1. Initial Actions (Goal < 30 sec)

- ☐ Assess for cardiac arrest (1,2)
- ☐ Move patient to adequate space (1,2,3)
- ☐ Power on AED (2,4)
- ☐ Narrate all actions (2,4)

2. CPR / BVM - 1st set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Place CPR feedback puck (2)
- ☐ Assemble BVM & place OPA & N/C @ 25lpm(3)
- ☐ Turn on vent. timing light & metronome (2)
- ☐ Place AED pads & connect (2)
- ☐ Squeeze bag using timing light (1,2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

3. AED / Shock —1st (Goal < 15 sec)

- ☐ Check carotid pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated (2)
- ☐ Resume chest compressions (1)

4. CPR—2nd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Squeeze bag using timing light (1,2)
- ☐ Prepare BIAD (2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

5. AED / Shock—2nd (Goal < 15 sec)

- ☐ Check carotid pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated(2)
- ☐ Hold bag after connected to I-gel (3)
- ☐ Resume chest compressions (1)

6. CPR & BIAD- 3rd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Squeeze bag using timing light (3)
- ☐ Insert BIAD w/o stopping CPR (3)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

Repeat steps 5 & 6 until ROSC/TOR/TSP.
****numbers in parentheses refer to Positions****

Pediatric and Infant Pit Crew

(> 5 days and <37 kg or < 81 lbs.)

1. Initial Actions (Goal < 30 sec)

- ☐ Assess for cardiac arrest (1,2)
- ☐ Move patient to adequate space (1,2,3)
- ☐ Power on AED (2,4)
- ☐ Narrate all actions (2,4)

2. CPR / BVM - 1st set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Open/clear airway, assemble BVM ASAP and ventilate on room air once every 3-4 seconds (3)
- ☐ Turn on Pedi vent. timing light & metronome (2)
- ☐ Place AED pads & connect (2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

3. AED / Shock —1st (Goal < 15 sec)

- ☐ Check carotid or brachial pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated (2)
- ☐ Resume chest compressions (1)

4. CPR & OPA/O2—2nd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ If not already done, move to 2 handed mask seal (3)
- ☐ Squeeze bag on count by P3 or Pedi timing light(1,2)
- ☐ Assist P3 with adding OPA & N/C @ 25lpm and connect tubing to O2 as soon as available (1, 2, 4)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

5. AED / Shock—2nd (Goal < 15 sec)

- ☐ Check carotid pulse during analysis (1)
- ☐ Clear patient & deliver shock if indicated (2)
- ☐ Resume chest compressions (1)

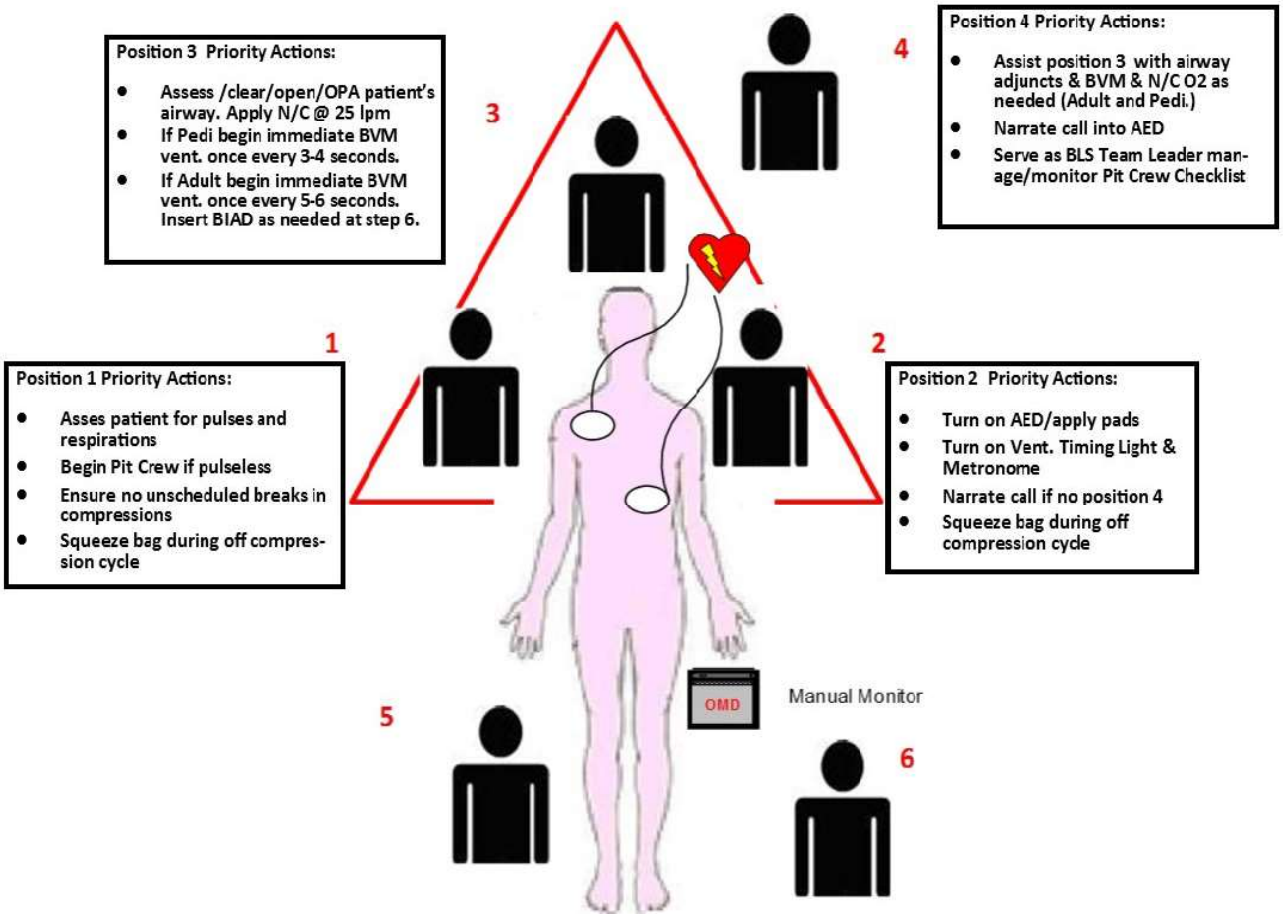
6. CPR - 3rd set (Goal ~ 2 min)

- ☐ 100 manual compressions (1)
- ☐ Squeeze bag on count by P3 or timing light (1,2)
- ☐ 2nd set 100 manual compressions (2)
- ☐ Remaining compressions if needed (1)

Repeat steps 5 & 6 until ROSC/TOR/TSP.
****numbers in parentheses refer to Positions****

Pit Crew CPR, Cardiac Arrest, Post Resuscitation Checklists

CPR Procedure



Rapid 12-lead ECG & Suspected ACS Checklists

Refer to 12-lead Clinical Procedure and Applicable Clinical Guidelines based on Patient Condition.

Rapid 12-lead ECG
☐ Any patient ≥ 30 years of age with any of the following criteria:
☐ Suspected cardiac patient - Pain between naval and jaw; Pressure, discomfort, tightness or heartburn; "Heart racing", "palpitations", or "heart is too slow"; CHF signs and symptoms
☐ Electrical injuries
☐ Syncope
☐ Severe weakness
☐ Difficulty breathing with no obvious respiratory cause
☐ New onset of stroke symptoms
☐ Suspected overdose
☐ Patient of any age with any of the above symptoms and history of cardiac disease, diabetes, obesity, family history of congenital heart disease, recent stimulant use, or syncope
☐ ≥ PL5 discretion

If the patient meets any of the above criteria, then ≥ PL2 providers are to attach ECG electrodes as soon as possible and ≥ PL5 providers are to obtain a 12-laed ECG within 5 minutes of patient contact. If STEMI, then declare *STEMI Alert* and transmit 12-lead ECG as soon as possible to the transport hospital.

Suspected Cardiac Chest Pain / ACS Checklist
☐ Rapid 12-lead ECG criteria/acquisition
☐ Aspirin, if not allergic, chewed
☐ Oxygen targeted SpO_2 92-96%
☐ If STEMI, then: Symptomatic and ≥ 1 mm ST elevation in 2 contiguous leads and no STEMI Alert exclusions. Immediate packaging and transport. Declare STEMI Alert and transmit 12-lead ECG as soon as possible. Defer additional treatment until enroute.
☐ Fentanyl for pain
☐ NTG SL and paste if: SBP ≥ 180 mmHg and/or DBP ≥110mmHg **AFTER** Fentanyl administration No allergies to NTG. No Viagra/Levitra last 24 hours. No Cialis last 48 hours. IV as time permits.
☐ Contact Receiving facility, via radio preferred or phone if radio is not working.

Refusal of Care, Lift Assist, and Capacity Checklists

Refer to Clinical Standard Refusal of Treatment and Transport for ePCR Documentation Requirements.

Refusal of Care and/or Treatment Checklist
☐ Patient is ≥ 18 or is an emancipated minor
☐ Patient is not suicidal or homicidal
☐ Patient demonstrates capacity based on capacity checklist
☐ Patient is informed and understands evaluation is incomplete
☐ Solutions to obstacles have been sought
☐ Patient instructed to seek medical attention
☐ Patient instructed to call back at any time
☐ Above documented fully in ePCR

High Risk Refusal Criteria Checklist
☐ Pulse less than 60 or greater than 110
☐ Systolic BP less than 90 or greater than 200
☐ Respirations greater than 30 or less than 12
☐ Blood glucose less than 70 or greater than 300
☐ SPO_2 < 93% on room air or previously prescribed home oxygen
☐ Mean Arterial Pressure less than 65 or greater than 120 MAP = [SBP + (2 x DBP)] / 3
☐ Serious chief complaint or provider impression, such as: chest pain, shortness of breath, syncope, etc.
☐ Significant mechanism of injury or high suspicion of injury

Any **High-Risk** patient as defined above must be assessed by a ≥ PL5 provider:

- If a > PL5 provider has not been dispatched to the scene and the primary complaint is ambulatory dysfunction, for example lift assist, then there must be an offer for a > PL5 evaluation.
- If the patient subsequently refuses a > PL5 evaluation, then refer to Refusal of Care, Lift Assist, and Capacity Checklists.
- For PL1 – PL4, if the patient is considered **High Risk** then OLMC must be contacted. Following consultation with OLMC, a ≥ PL1 may complete the refusal form based on OLMC recommendation.
- Even when a ≥ PL5 provider completes a full evaluation, consultation with OLMC is recommended for all **High Risk** refusals.

Read to *all* **High-Risk** patients refusing ≥ PL5 evaluation:

> *There is the potential that you have a serious underlying medical condition that resulted in your injury or complaint or that occurred because of your injury or complaint. You have received a basic screening exam only and we are unable to fully evaluate for a large number of potential illnesses or injuries. Despite this, you are refusing a more advanced assessment by one of our advanced level providers.*

Refusal of Care, Lift Assist, and Capacity Checklists

YES / NO Checklist for Lift Assists	
YES / NO General Questions:	
Have you had any recent falls or illness that include fever, chills, nausea, vomiting, diarrhea, shortness of breath, chest pain, dizziness, or other illness?	If YES to any of these questions, then request EMS or OLMC and continue care. If NO to all of these questions, then continue to vital signs.
Did you faint or pass out?	
Have you had any new or worsening weakness?	
Is the reason you called us today a new problem for you?	
YES / NO Vital Signs:	
Heart rate between 60 – 100?	If YES all of these questions, then continue to physical exam. If NO to any of these questions, then request EMS or OLMC and continue care.
SBP between 100 - 200 & DBP < 140?	
Respiratory rate between 12 – 20?	
SpO_2 between 90 - 100% on room air or prescribed O_2?	
Blood glucose between 70 – 300?	
Temperature between 96.8 - 100.4 F?	
Fully alert and oriented with GCS of 15, or normal baseline?	
YES / NO Physical Exam:	
Upon head to toe physical exam, are there signs of acute trauma, tenderness, rigidity, or deformity?	If YES, then request EMS or OLMC and continue care. If NO, then continue to ADLs & Age.
YES / NO Activities of Daily Living (ADL) and Age:	
Was the patient on the ground for less than 2 hours?	If YES to all of these questions, then complete lift assist, refusal, and appropriate documentation including ePCR. If NO to any of these questions, then contact OLMC.
Can the patient ambulate to their baseline?	
Does the patient have baseline range of motion in all extremities?	
Is the patient able to perform ADLs at their baseline?	
Have you addressed non-structural likely fall or trip hazards that could be addressed?	

Complete your assessment, physical exam, & obtain all vital signs before calling OLMC.

Refusal of Care, Lift Assist, and Capacity Checklists

Capacity Checklist
Patient is able to express in their own words: □ An understanding of the nature of their illness, and □ An understanding of the risks of refusal including death, and □ An understanding of alternatives to EMS treatment and/or transport, and □ Provide rationale for refusal and debate this rationale.
A patient with any of the following **MAY** lack decision making capacity and should be carefully assessed for their ability to perform the above. □ Orientation to person, place, or time that differs from baseline; □ History of drug and/or alcohol ingestion with appreciable impairment such as slurred speech or unsteady gait; □ Head injury with positive loss of consciousness, amnesia, repetitive questioning; □ Medical condition such as hypovolemia, hypoxia, metabolic emergencies (eg. diabetic episode), hypothermia, hyperthermia, and etc.;
If any question exists about their capacity, then contact OLMC.

Restraints Checklist

Refer to Restraints Clinical Standard and Behavioral & Hyperactive Delirium with Severe Agitation COG.

Restraints Checklist
☐ All other calming attempts have failed, which include at minimum verbal de-escalation and/or reduced stimulation.
☐ Adequate personnel to effect restraint, with consideration to include law enforcement.
☐ Place patient in supine position restrained with 1 arm up and 1 arm down, unless clinically contraindicated.
☐ Law enforcement must be immediately available if handcuffed.
☐ EMS personnel in constant attendance.
☐ Sedation administered, if required.
☐ Continuous $EtCO_2$, SpO_2, ECG, and vital sign monitoring.
☐ Continuous assessment of neurovascular status every 15 minutes, which includes pulse, motion, sensation in all extremities.
☐ Adequate personnel for transport.
☐ Hyperactive delirium with severe agitation considered.
☐ Physical and/or chemical restraints reviewed on a periodic basis.
☐ Above documented fully in ePCR, including: Efforts prior to restraint, Time of restraint, Chemical sedation, Continuous monitoring, Neurovascular status evaluation

Post Resuscitation Checklist

Refer to Cardiac Arrest related Clinical Guidelines as needed.

Post Resuscitation / ROSC Checklist
☐ Reassess patient and obtain vital signs
☐ Does the patient meet all criteria for Targeted Temperature Management?
☐ ROSC
☐ ≥ 37 kg
☐ Non-traumatic cause
☐ No suspected hemorrhagic cause
☐ Temp > 34 C (93.2 F)
☐ Unable to follow commands
☐ Airway confirmed continuously and with each move
☐ Oxygen target 92-96%
☐ Continuous $EtCO_2$ and ECG monitoring
☐ 12-lead ECG, if STEMI then transmit 12-lead ASAP
☐ Resuscitation Alert / STEMI Alert declared
☐ Ketamine / Midazolam / Rocuronium if no hypotension (advanced airway only)
☐ Norepinephrine to MAP ≥ 80
☐ If ice packs are needed, apply to neck, axilla & groin
☐ If cold saline infused - 30 ml/kg max 2 L
☐ Controlled ventilation < 12 bpm
☐ Adequate personnel for transport
☐ If loss of ROSC, then go to appropriate guideline

Simple Thoracostomy Checklist

Refer to Simple Thoracostomy Clinical Procedure and Trauma Care and Traumatic Arrest COGs as needed.

Simple Thoracostomy Checklist
☐ Equipment: Scalpel, Curved Kelly Forceps, Chlorhexidine Sponge, Permanent Marker, Chest Seals
☐ ID site (see Figure 1)
☐ Clean site
☐ Incise skin over 5th or 6th rib
☐ Penetrate pleural space with forceps
☐ Release air and blood
☐ Spread forceps while pulling out
☐ Confirm entry (finger sweep)
☐ Mark incision "EMS"
If ROSC or transport
☐ place chest seal
If Cardiac Arrest after ROSC: Remove chest seal, finger sweep, replace seal.

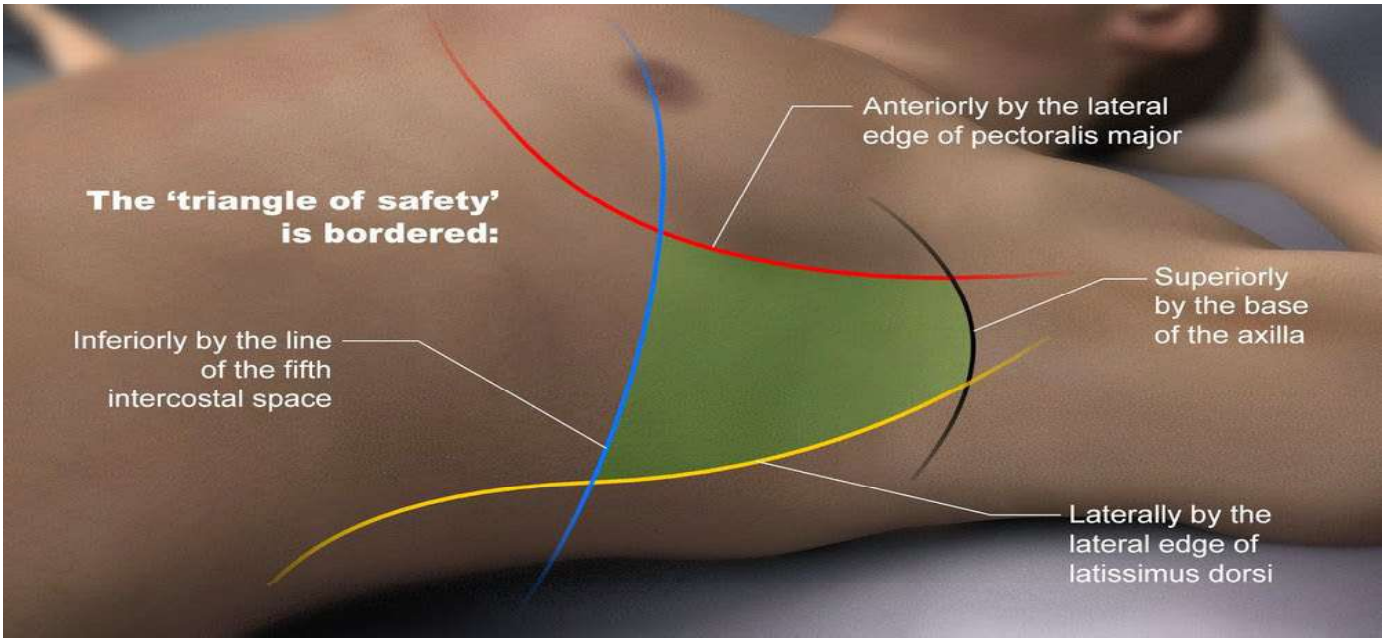


Figure 1. Simple Thoracostomy Placement

Spinal Motion Restriction

Refer to Spinal Motion Restriction Clinical Procedure and Related Trauma COGs as Needed

Spinal Motion Restriction Checklist
For blunt force trauma patients, **SMR is *needed* when**: ☐ Obvious injury ☐ Midline tenderness ☐ Pain with movement ☐ Distracting injury ☐ Communication impairment ☐ Neuro abnormalities

If none of the signs or symptoms are present, then SMR is not required.

DO NOT TRANSPORT PATIENTS ON LSBs

Stroke Screening Tool

Refer to Stroke Alert Clinical Standard and Stroke or Altered Mental Status COGs as needed.

Cincinnati Pre-hospital Stroke Screen (CPSS)	
Test	**Finding**
Facial Droop: Have the patient smile or show their teeth.	☐ Normal - both sides of face move equally
	☐ Abnormal - one side of the face does not move as well as the other side.
Arm Drift: Patient closes eyes and extends both arms straight out, palms up, and for 10 seconds.	☐ Normal - both arms move the same or both arms and held steady.
	☐ Abnormal - one arm drifts downward or the palm turns towards the ground (pronator drift*) when compared with the other or unable to lift one arm.
Abnormal Speech: Have the patient say, *You can't teach an old dog new tricks*.	☐ Normal - patient uses correct words with no slurring.
	☐ Abnormal - patient slurs words, uses the wrong words, or is unable to speak.

*Pronator drift is when the forearm will pronate and arm will drift downwards.

Any abnormality in the screening is positive for stroke and perform a VAN Score

Visual Disturbance, Aphasia, Neglect (VAN) Score	
Test	**Finding**
Weakness: Have the patient hold both arms straight out for 10 seconds.	☐ Positive – One or both arms drift; or unable to lift one arm -> Continue to Visual Disturbance
	☐ Normal – No weakness noted -> VAN Negative
Visual Disturbance: Have the patient look straight at your nose and test all 4 visual quadrants with your fingers. Ask the patient about any new double vision or blindness	☐ Positive – Inability to see one or more quadrant; or new double vision or blindness -> **VAN Positive & Stop**
	☐ Normal – Normal vision in all four quadrants; or no new double vision or blindness -> Continue to Aphasia
Aphasia: Have the patient name two objects and repeat a simple phrase.	☐ Positive – Inability to name two objects; or inability to repeat a simple phrase -> **VAN Positive & Stop**
	☐ Normal – Ability to name objects and patient is able to repeat simple phrases at their baseline abilities -> Continue to Neglect
Neglect: Ask the patient to look to the left and right and assess directions of tracking. Test whether the patient can feel you touching the left & right arms separately and together.	☐ Positive – Forced gaze to one side; or Ignoring or unable to feel one arm/side -> **VAN Positive & Stop**
	☐ Normal – Patient has normal eye movement and control or is at baseline, able to track with eyes, and has bilateral feeling -> VAN Negative & Stop

Ascertain the time of *last known well*

LVO Alert: +CPSS, Weakness, &+ VAN ≤ 23 hours onset, glucose > 50 -> Thrombectomy Capable Center
Stroke Alert: Only +CPSS, ≤ 23 hour onset, glucose >50 -> Any Stroke Center

Telemedicine Consult Checklist

Refer to Clinical Standard Telemedicine Consult Guidelines & Process

Patient Selection Criteria for Telemedicine
☐ Patient is older than ≥ 6 months old
☐ No history of coronary artery disease
☐ No acute hypotensive, syncope, or near syncope events
☐ No episodes of hypoxia while in EMS care
☐ Can ambulate, function, and perform ADLs at baseline
☐ Adult vital signs are within parameters, if pediatric then within normal ranges.
○ Pulse: 60 – 110 bpm
○ Systolic BP: 90 – 200 mmHg
○ Respirations: 12 – 30 bpm
○ Blood glucose: 70 – 300 mg/dL
○ SpO_2 ≥ 93% on room air or prescribed supplemental O_2; obtain $EtCO_2$ as indicated by COG

	Field Providers	C4
1	Review Patient Selection Criteria.	
2	Determine most appropriate Clinical Guideline(s) based on patient complaint and presentation.	
3	Complete assessment, exam, diagnostics based on COG(s).	Use Pulsara for all telemedicine calls
4	Obtain complete vitals.	Use standard format with brief introduction to telemedicine provider.
5	Use Pulsara.	Document interaction and consult.
6	Lead provider contacts telemedicine using standardized format.	Send discharge instructions when able.
7	Assign the telehealth provider to your EHR.	Follow up / Call back as directed.
8	Document telehealth interaction.	

If patient does not meet above criteria, but provider believes telemedicine may be appropriate, contact OLMC.

Withholding Resuscitation Checklist

Refer to Criteria for Death or Withholding Resuscitation Clinical Standard.

Call for DOS
☐ Decomposition or Putrefaction **OR**
☐ Decapitation **OR**
☐ Incineration **OR**
☐ Massive Crush Injury with no signs of life **OR**
☐ Severe Displacement of brain matter with no signs of life **OR**
☐ Complete exsanguination **OR**
☐ Complete transection of the Torso **OR**
☐ Submersion greater than 20 minutes
Call for DOS

*****If in doubt, Resuscitate*****

Requires Further Assessment before DOS	
☐ Widespread Dependent Lividity **OR** ☐ Rigor Mortis to major joints (shoulders, elbows, hips, knees) **OR** ☐ Blunt or Penetrating Trauma – apneic & pulseless without other signs of life on EMS arrival	
ALS Assessment	BLS Assessment
☐ Cardiac Standstill via Ultrasound **OR** ☐ 6-second ECG – 2 or more leads	☐ Pupils fixed and dilated **AND** ☐ No apical heart tones (30 seconds) **AND** ☐ No femoral or carotid pulses (30 seconds)
Call DOS	

*****If in doubt, Resuscitate*****

ATCEMS System Transport Grid

Cardiac

	Dell Children's	Dell Children's - NORTH	Dell Seton MC at UT	Seton MC Williamson	St. David's Round Rock MC	St. David's South Austin MC	Seton MC Hays	St. David's Heart Hospital	St. David's MC	Seton MC Austin	St. David's North Austin MC	Seton Northwest Hospital	Seton Southwest Hospital	Baylor Scott & White - Lakeway	Baylor Scott & White - Round Rock	Cedar Park Regional MC	St. David's Children's Hospital	Hospital at Westlake	Baylor S&W - Pflugerville	Baylor Scott & White - Austin	Baylor Scott & White - Buda
Basic Receiving Facilities																					
All Ages Alpha - Charlie <20 weeks **(OB is OK)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
All Ages Alpha - Charlie **(not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Comprehensive Receiving Facilities																					
Resuscitation Alert **(Not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓					
Resuscitation Alert **(OB is OK)**					✓	✓	✓		✓	✓	✓			✓	✓	✓					
STEMI Alert **(Not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓					
STEMI Alert **(OB is OK)**					✓	✓	✓		✓	✓	✓			✓	✓	✓					
LVAD Facilities								✓		✓											
Pediatric Facilities																					
≤ 17 years STEMI Alert	✓																✓				
≤ 17 years Resuscitation Alert	✓																✓				

ATCEMS System Transport Grid

Perinatal

	Dell Children's	Dell Children's - North	Dell Seton MC at UT	Seton MC Williamson	St. David's Round Rock MC	St. David's South Austin MC	Seton MC Hays	St. David's Heart Hospital	St. David's MC	Seton MC Austin	St. David's North Austin MC	Seton Northwest Hospital	Seton Southwest Hospital	Baylor Scott & White - Lakeway	Baylor Scott & White - Round Rock	Cedar Park Regional MC	St. David's Children's Hospital	Hospital at Westlake	Baylor S&W - Pflugerville	Baylor Scott & White - Austin	Baylor Scott & White - Buda
Basic Receiving Facilities																					
All Ages Alpha - Charlie <20 weeks **(OB is OK)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
All Ages Alpha - Charlie **(not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Comprehensive Receiving Facilities ≥ 20 weeks gestation																					
Alpha - Charlie				✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓					
Alpha - Echo				✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓					

ATCEMS System Transport Grid

Stroke

	Dell Children's	Dell Children's - North	Dell Seton MC at UT	Seton MC Williamson	St. David's Round Rock MC	St. David's South Austin MC	Seton MC Hays	St. David's Heart Hospital	St. David's MC	Seton MC Austin	St. David's North Austin MC	Seton Northwest Hospital	Seton Southwest Hospital	Baylor Scott & White - Lakeway	Baylor Scott & White - Round Rock	Cedar Park Regional MC	St. David's Children's Hospital	Hospital at Westlake	Baylor S&W - Pflugerville	Baylor Scott & White - Austin	Baylor Scott & White - Buda
Basic Receiving Facilities																					
All Ages Alpha - Charlie <20 weeks **(OB is OK)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
All Ages Alpha - Charlie **(not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Comprehensive Receiving Facilities																					
Stroke alert <23hrs **and** transport time to nearest thrombectomy center is >15 min longer **or** any T.I.A. **(Not OB) - Primary Stroke Centers**			✓	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓					
Stroke alert <23hrs and transport time to nearest thrombectomy center is >15 min longer or any T.I.A. **(OB is OK) - Primary Stroke Centers**					✓	✓	✓		✓	✓	✓			✓	✓	✓					
LVO Alert ≤ 23 hours - Thrombectomy centers **Comprehensive Stroke Centers - (Not OB)**			✓	✓	✓				✓	✓											
LVO Alert ≤ 23 hours - Thrombectomy centers **Comprehensive Stroke Centers - (OB is OK)**					✓				✓	✓											
Pediatric Facilities																					
≤ 17 years Stroke Alert (Not OB)	✓	✓																			
≤ 17 years LVO Alert (Not OB)	✓																				

ATCEMS System Transport Grid

Trauma

	Dell Children's	Dell Children's - North	Dell Seton MC at UT	Seton MC Williamson	St. David's Round Rock MC	St. David's South Austin MC	Seton MC Hays	St. David's Heart Hospital	St. David's MC	Seton MC Austin	St. David's North Austin MC	Seton Northwest Hospital	Seton Southwest Hospital	Baylor Scott & White - Lakeway	Baylor Scott & White - Round Rock	Cedar Park Regional MC	St. David's Children's Hospital	Hospital at Westlake	Baylor S&W - Pflugerville	Baylor Scott & White - Austin	Baylor Scott & White - Buda
Basic Receiving Facilities																					
All Ages Alpha - Charlie <20 weeks if OB			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
All Ages Alpha - Charlie **(Not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
All ages Alpha - Charlie OPEN fractures			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Comprehensive Receiving Facilities																					
Trauma Alert ≥ 15 years **(OB is OK)**			✓	✓	✓	✓	✓														
>18 years Alpha - Echo **(Not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	
>18 years Alpha - Echo **(OB is OK)**					✓	✓	✓		✓	✓	✓	✓		✓	✓	✓					
Critical Burns ≥ 15 years- Face, hands/feet, genitalia, inhalation, chemical, electrical and/or ≥ 10% BSA 2nd or 3rd degree **(OB is OK)**			✓																		
≥ 18 years, Sexual Assault **(Not OB)**			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
≥ 18 years, Sexual Assault **(OB is OK)**					✓	✓	✓		✓	✓	✓	✓		✓	✓	✓			✓		
Pediatric Facilities																					
≤ 14 years, injured **NO** Trauma Alert	✓	✓															✓				
≤ 14 years, **TRAUMA ALERT**	✓																				
≤ 17 years, injured **NO** Trauma Alert											✓										
≤ 17 years, Sexual Assault **(Not OB)**	✓	✓															✓				

Trauma Criteria

RED CRITERIA
High Risk for Serious Injury

Injury Patterns
• Penetrating injuries to head, neck, torso, and proximal extremities • Skull deformity or suspected skull fracture • Suspected spinal injury with new motor or sensory loss • Chest wall instability, deformity, or suspected flail chest • Suspected pelvic fracture • Suspected fracture of two or more proximal long bones • Crushed, degloved, mangled, or pulseless extremity • Amputation proximal to wrist or ankle • Active bleeding requiring a tourniquet or wound packing with continuous pressure • Burns/Explosions (triage to burn age appropriate center)

Mental Status & Vital Signs
All Patients • GCS ≤ 13 • RR < 10 or > 29 breaths/min • Respiratory distress or need for respiratory support • Room air SPO_2 < 90% **Age 0-9 years** • SBP <70mmHg + (2 x age in years) **Age 10-64 years** • SBP<90mmHg or • HR>SBP **Age ≥65 years** • SBP <110mmHg or • HR>SBP

Patients meeting any one of the above **RED** criteria should be transported to the closest level I or II trauma center available. Patients < 15 years of age should be transported to a pediatric trauma center. Burn patients should be transported to Dell Seton or Dell Children's.

Yellow Criteria
Moderate Risk for Serious Injury

Mechanism of Injury

• High-Risk Auto crash
  ▪ Partial or complete ejection
  ▪ Significant intrusion (includes roof)
  ➢ >12 inches occupant site OR
  ➢ >18 inches any site
  ➢ Need for extrication of entrapped patient
  ▪ Death in the same compartment
  ▪ Child (0-9 years) unrestrained or in unsecured child safety seat
  ▪ Vehicle telemetry data consistent with severe injury
• Rider separated from transporte vehicle with significant impact (e.g. auto ejection or thrown from motorcycle, ATV, or horse, etc.)
• Pedestrian/bicycle rider thrown, run over, or with significant impact
• Fall from height > 10 feet (all ages)

EMS Judgement
Consider risk factors • Low level falls in young children (≤5 years) or older adults (≥65 years) with significant head impact) • Anticoagulant use (Eliquis, Pradaxa, Xarelto, Coumadin, etc.) • Suspicion of child abuse • Special, high-resource healthcare needs • Pregnancy > 20 weeks (should be transported to the closest trauma center with early notification of pregnancy, gestational age and any complications) • Children should be triaged preferentially to pediatric capable centers (Pediatric trauma center cutoff age is 15 years) **If there are trauma concerns, take the patient to a trauma center.**

Pediatric Vitals

PREEMIE (2Kg)	
Systolic BP	55 - 90
Heart Rate	120 - 170
Respiratory Rate	40 - 70

Newborn (4Kg)	
Systolic BP	60 - 100
Heart Rate	100 -160
Respiratory Rate	30 - 60

4 Months (6Kg)	
Systolic BP	70 -100
Heart Rate	105 - 160
Respiratory Rate	30 - 60

6 Months (8Kg)	
Systolic BP	70 - 100
Heart Rate	110 -160
Respiratory Rate	24 - 38

1 Year (10Kg)	
Systolic BP	75 - 105
Heart Rate	90 - 150
Respiratory Rate	22 - 30

2 Years (12Kg)	
Systolic BP	75 - 110
Heart Rate	85 - 140
Respiratory Rate	22 - 30

3 Years (15Kg)	
Systolic BP	76 - 115
Heart Rate	85 - 140
Respiratory Rate	22 - 30

4 Years (17Kg)	
Systolic BP	78 - 115
Heart Rate	75 - 120
Respiratory Rate	22 - 26

5 Years (20Kg)	
Systolic BP	80 - 115
Heart Rate	70 - 115
Respiratory Rate	20 - 24

6 Years (22Kg)	
Systolic BP	82 - 120
Heart Rate	70 - 115
Respiratory Rate	20 - 24

7 Years (25Kg)	
Systolic BP	84 - 120
Heart Rate	70 - 110
Respiratory Rate	16 - 22

8 Years (27Kg)	
Systolic BP	86 - 120
Heart Rate	70 - 110
Respiratory Rate	16 - 22

9 Years (30Kg)	
Systolic BP	88 - 120
Heart Rate	65 - 105
Respiratory Rate	16 - 22

10 Years (35Kg)	
Systolic BP	90 - 120
Heart Rate	60 - 100
Respiratory Rate	16 - 22

11 Years (40Kg)	
Systolic BP	90 - 120
Heart Rate	60 - 100
Respiratory Rate	16 - 22

12 Years (50Kg)	
Systolic BP	90 - 120
Heart Rate	60 - 100
Respiratory Rate	16 - 22

GLASGOW COMA

Eyes (Adult and Pediatric)
4. Spontaneous
3. To Voice
2. To Pain
1. None

Best Verbal Response (Adult)	Best Verbal Response(Pediatric)
5. Oriented	5. Smiles or Babbles
4. Confused	4. Irritable / Non consolable
3. Inappropriate Words	3. Cries/ screams with pain
2. Incomprehensible Sounds	2. Grunts/ moans with pain
1. None	1. None

Best Motor Response (Adult and Pediatric)
6. Obeys Instructions (appropriate for age)
5. Localizes to Pain (Withdraws to touch)
4. Withdraws from Pain
3. Abnormal flexion (Decorticate posturing)
2. Abnormal extension (Decerebrate posturing)
1.None

12-lead ECG Placement (≥ PL2)

Clinical Indications:

1. Suspected STEMI, cardiac, or cardiac related event.

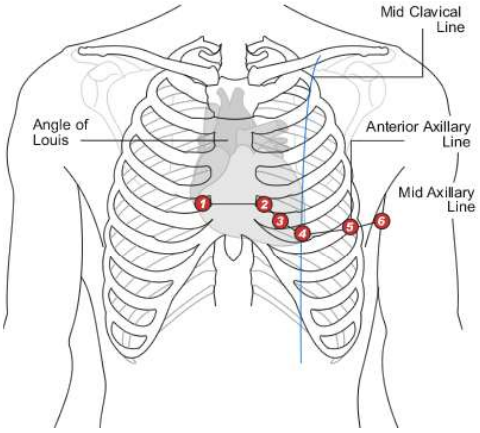
Contraindications:

1. None in the emergency setting.

Procedure:

≥ PL2 Provider:

1. Assess patient.
2. Administer oxygen as patient condition warrants.
3. Expose chest and prep as necessary. Modesty of the patient should be respected as best as possible.
4. Apply chest leads and extremity leads using the following landmarks:
   a. RA - Right Arm
   b. LA - Left Arm
   c. RL - Right Leg
   d. LL - Left Leg
   e. V1 - 4th intercostal space at right sternal border
   f. V2 - 4th intercostal space at left sternal border
   g. V3 - Directly between V2 and V4
   h. V4 - 5th intercostal space at midclavicular line
   i. V5 - Level with V4 at left anterior axillary line
   j. V6 - Level with V5 at left midaxillary line



≥ PL4 Provider:

5. Prepare ECG monitor and connect patient cable with electrodes.
6. Enter the required patient information in the 12-lead ECG monitor.
7. Instruct patient to remain still.
8. Press the appropriate button to acquire the 12-lead ECG.
9. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed; and for repeat 12-lead ECGs are indicated by patient's condition.
10. Monitor the patient while continuing the treatment guideline.
11. Document the procedure, time, and results on/with the ePCR

Automated External Defibrillation (≥ PL1)

Clinical Indications:
1. Patient is in cardiac arrest.

Contraindications:
1. None

Preparation for Use:
1. Ensure safe environmental and patient conditions.
2. Age < 8 years, use Pediatric Pads, if available, or if device has “energy attenuating” key, be sure to activate key.
3. If Pediatric pads are **not** available use Adult pads
4. If AED Pads touch due to patient size use an Anterior-Posterior pad placement.

Procedure for true AEDs:
1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use.
2. Remove any medication patches on the chest and wipe off any residue.
3. Turn on AED and follow clinical procedure in accordance with Pit Crew CP-19.
4. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
5. Keep interruption in CPR as brief as possible.
6. If shock advised, assertively state “CLEAR” and visualize that no one, including yourself, is in contact with the patient then press the shock button. If BIAD has been placed, Position 3 will continue to hold BVM to stabilize BIAD in vertical position.
7. Immediately return to chest compressions.
8. If no shock advised, immediately return to chest compressions.
9. Allow AED to analyze when prompted (approximately 2 minutes). Perform pulse check at this time.
10. Repeat steps 6 through 8.
11. Keep interruption of CPR compressions as brief as possible. Adequate CPR is a key to successful resuscitation
12. If pulse returns: Go to appropriate COG

Procedure for using Zoll Monitor as an AED (PL3):

1. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the Zoll monitor is being prepared for use.
2. Remove any medication patches on the chest and wipe off any residue.
3. Turn on Zoll monitor and follow clinical procedure in accordance with Pit Crew CP-19.
4. Apply appropriately sized defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
5. Ensure patient mode is set to correctly to "adult" or "pediatric"
6. At rhythm check, press the yellow "analyze" button
7. If monitor screen reads "no shock advised," continue CPR
8. If monitor screen reads "shock advised," continue CPR while appropriate energy is selected and monitor is charged
    a. Press "energy select" or "charge" button
    b. Select appropriate joules for the patient 200j for adults or referencing HandTevy for pediatric patients
    c. Press the "charge" button
    d. When the monitor is ready to shock, it will say "Charged at the bottom of the screen, the selected energy will be highlighted yellow, and the red "shock" button will light up.
    e. State "clear", stopping compressions and visually inspect to ensure all personnel are clear from the patient.
    f. Press the red "shock" button to deliver the charge
9. Resume chest compressions

PEDIATRIC DEFIBRILLATION DOSE CHART

Age	Preemie	Newborn	4MO	6MO	1YR	2YR	3YR	4YR	5YR	6YR	7YR	8YR	9YR	10YR	11YR	12YR	13YR
Weight	2KG	4KG	6KG	8KG	10KG	12KG	15KG	17KG	20KG	22KG	25KG	27KG	30KG	35KG	40KG	50KG	60KG
DEFIB #1	4j	8j	10j	15j	20j	20j	30j	30j	50j	50j	50j	50j	70j	70j	85j	100j	120j
DEFIB #2	8j	15j	20j	30j	50j	50j	70j	70j	85j	85j	100j	100j	120j	150j	150j	200j	200j

System Guidance for AED Analysis Delays, Failures, and Alarm Indications

AED Analysis Delays

Recent experiences have introduced the possibility of an extended delay in an AED reaching a decision to shock or not shock. We are reviewing the frequency and extent of these delays. In the interim, I am providing the following additional direction to follow in the event of a lengthy AED analysis interval.

1. If an AED analysis has NOT reached a decision within 20 seconds of stopping CPR, immediately resume CPR and ignore the AED's prompts to stop motion.
2. Approximately 2 minutes later, the AED should prompt for CPR and all motion to stop.
3. Listen for the AED prompts and respond accordingly to each prompt. Repeat these steps as needed.
4. Verbalize all observations and actions using the AED's voice recorder.

AED Failure

In rare cases, providers may encounter a situation in which the AED fails to function at all as evidenced by either 1) not powering on, or 2) not delivery a shock even though the AED reached a shock advised decision. If a System credentialed provider encounters such a situation, take the following actions.

1. Disarm the AED shock, unplug the pads from the AED, or turn off the AED.
2. Immediately resume CPR.
3. If another AED is available, immediately apply the second AED to the patient.
4. If another AED is not available, continue uninterrupted CPR until a functioning defibrillator (AED or Manual) arrives and is placed on the patient.
5. If possible, verbalize all observations and actions using the AED's voice recorder.

Philips FR3 Alarm Indication

When using the Philips FR3 AED, the device may produce a chirping sound indicating the need for AED attention.

1. Should the AED emit a periodic single (1) chirp sound before turning it on, use the AED if no other defibrillator is available at the patient's side.
2. Should the AED emit a periodic triple (3) chirp sound before turning it on, do not use the AED to treat a patient. Continue CPR until another AED is available at the patient's side.
3. Should either of these sounds be heard when not responding to a patient, remove the AED from service and contact the appropriate person in your Agency and contact OMD Performance Improvement, tellemsmd@austintexas.gov .

If any of the above occurs and after patient care is completed, notify the appropriate person in your agency to obtain the AED data file from your AED. Ensure these AED data files as well as Equipment Failure Report are sent to the OCMO Performance Improvement Coordinator at tellemsmd@austintexas.gov (512-978-0011).

Should you have questions regarding any of these topics, please contact the OMD.

Alternative Venous Access

Clinical Indications:

- Venous access when an implanted access device and equipment are available

Contraindications:

- Patients where traditional IV access is available
- Patients where IV access is unnecessary for immediately necessary treatments

Notes/Precautions:

- Venous access devices can be complicated. Consider contact with OLMC for guidance
- Alternate access devices provide a direct line into patient circulation; therefore, the introduction of air can be extremely hazardous
- Do not remove the injection cap from the catheter or allow IV fluids to run dry

Procedure:

Broviac / Hickman / Groshong and other double and triple lumen catheters

1. Silicone tube inserted into the distal superior vena cava or right atrium, usually via the cephalic vein. The catheter enters the skin through an incision in the chest. Most lines are kept heparinized and protected via an injectable cap.
2. Select appropriate port for access. If two are available, access the blue or brown port.
3. Thoroughly cleanse the injectable port cap with chlorohexadine or alcohol prep pad.
    - Insert an 18-gauge needle attached to a 12 cc syringe into injectable port cap and aspirate 10 mL of blood from catheter (this prevents an inadvertent anticoagulant bolus from occurring). Dispose of aspirated blood
    - If ports are needleless, use appropriate needleless adapter
4. If you cannot aspirate blood or infuse fluids at any time, do not use line as clotting may have occurred.
5. Attach IV line (attached to an 18-20 gauge needle) into injection port. Begin IV fluid flow and adjust appropriately.
6. Medications are injected through the IV lifeline.

PICC Line (Peripherally Inserted Central Catheter)

1. Usually inserted into the right atrium via the antecubital vein.
2. Select a port on one of the catheters. When two sizes are available, select the larger. Cleanse port with chlorohexidine or alcohol prep pad.
3. Attach a needle to a 10 cc syringe and draw up 5 cc of normal saline (NS). Insert needle into port and attempt to inject NS. If resistance is met, withdraw needle and attempt same procedure on different port. Do this until you find catheter that does not present with resistance to administration of NS. If resistance continues, do not use either port.
4. When no resistance is met, inject contents of syringe into catheter and then draw back to achieve blood flash, indicating successful access.
5. Remove syringe, attach IV tubing, and proceed as normal, opening line and insuring patency.

Alternative Venous Access

Internal Subcutaneous Infusion Ports (portacath)

1. Unless patient is in cardiac arrest, access should not be attempted without specialized Huber needle.
2. Patients with a pulse: Inquire if patient has Huber needles available. If so, proceed as outlined. If no Huber angle needles are available, DO NOT ACCESS PORT WITH REGULAR NEEDLES.
3. Patients in cardiac arrest: Access may be obtained using a regular 18 gauge needle when Huber needles are not available. Do not use unless absolutely necessary as a regular needle may destroy the self- sealing core, rendering the port useless.
4. Locate the site by visualization and palpation. These ports are generally found in the upper chest and present as a dome shaped protrusion.
5. Prepare site as if starting an IV, cleaning with a chlorohexidine or alcohol prep pad.
6. Using a non-coring Huber angle needle attached to a syringe, insert into the site at a 90-degree angle until resistance is met.
7. Inject saline into port and aspirate blood (withdraw 10 ml of blood and waste) If resistance is met or blood cannot be aspirated, withdraw needle and do not attempt further access at this site.
8. With successful attempt, remove syringe, cover port and needle with Tegaderm dressing, attach IV tubing, and proceed as normal, opening line and insuring patency.

Multi-lumen Catheter	Internal Subcuntaneous Port	PICC Line
		

Adult Assessment (≥ PL1)

Clinical Indications:

1. Any patient requesting medical evaluation that is too large to be measured with a PEDIA Tape or ≥ 37 Kg.

Contraindications:

1. None

Preparation for Use:

1. Ensure safe scene and patient conditions.

Procedure:

1. Scene size-up, including appropriate PPE, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction.
2. Initial assessment includes a general impression as well as rapid evaluation of the status of a patient's airway, breathing, and circulation, mental status (e.g., AVPU, GCS) and disability (e.g. motor/neuro deficits, pupil response).
3. Assess the need for and complete any critical interventions. Manage additional system resources as appropriate.(request additional units or where appropriate downgrade or cancel responding units).
4. Perform a focused history and physical based on patient's chief complaint making efforts to protect patient privacy and modesty. Complete secondary exam to include a baseline set of vital signs as directed by patient complaint or protocol.
5. Maintain an on-going assessment throughout transport; to include patient response to/possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints/conditions.
6. Document all findings and information associated with the assessment, performed procedures, and any administration of medications on the ePCR.

Pediatric Assessment (≥ PL1)

Clinical Indications:

1. Any patient that can be measured with the PEDIA Tape or < 37 Kg.

Contraindications:

1. None

Preparation for Use:

1. Ensure safe scene and patient conditions.

Procedure:

1. Scene size-up, including appropriate PPE, scene safety, environmental hazards assessment, need for additional resources, bystander safety, and patient/caregiver interaction. Take reasonable steps to protect patient privacy and modesty.
2. Assess patient using the pediatric triangle of ABCs:
   a) Appearance: (TICLS) tone, interactiveness, consolability, look/gaze, and speech/cry
   b) Work of breathing: evaluate for head bobbing, grunting, absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning, irregular or gasping respirations
   c) Circulation to skin: pallor, mottling, cyanosis
3. Assess disability (motor function, sensory function, pupils).
4. Determine responsiveness appropriate for age (AVPU, GCS, etc.).
5. Perform spinal motion restriction, if suspicion of spinal injury.
6. Color code using HandTevy.
7. Perform a focused history and physical exam. Pediatric patients unable to verbalize their own complaint should be fully exposed for assessment. Recall that pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam.
8. Record vital signs:
   a) Ideally the use of infant or child/pediatric BP cuff sizes when appropriate and available
      i) 50^{th} percentile BP estimate = (age in years x 2) + 90 mm Hg
      ii) Hypotension when BP ≤ (age in years x 2) + 70 mm Hg
   b) To assess perfusion when obtaining a BP is not possible:
      i) Age appropriate heart rate:
         (1) *Tachycardia is usually the most common sign of compensated shock in children,*
         (2) BP doesn't drop until about 30% of circulating blood volume is lost
      ii) Mottled extremities
      iii) Decreased peripheral pulses compared to central, cool extremities
9. Include Immunizations, Allergies, Medications, Past Medical History, last meal, and events leading up to injury or illness where appropriate.
10. Treat chief complaint as per guideline.

Auto-Injector Delivered Medication (≥ PL1)

Clinical Indications:

1. When clinical guideline indicates medication delivery via auto-injector.
2. When other medication administration routes are unsuccessful or unavailable.

Contraindications:

1. None

Preparation for Use:

1. Appropriate equipment – chlorohexidine wipe and Band-aids.
2. Identify the appropriate injection site.
3. Do not place thumb, finger(s), or hand(s) over either end of the auto-injector at any time.

Procedure:

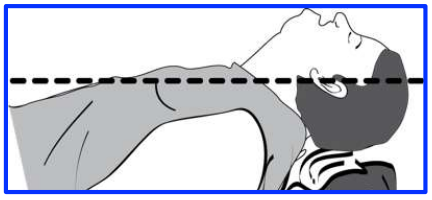
1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Locate appropriate injection site.
    a. Vastus lateralis located on the lateral aspect of the thigh
    b. Injection is given into the mid thigh
4. When time permits expose target site and prep with chlorohexidine (not required as injectors are designed to work through clothing.).
5. Remove the auto-injector from its storage container.
6. Perform Medication Administration Cross Check
7. Form a fist around the auto-injector with black or orange tip facing down. Do NOT place thumb over either end of the auto-injector.
8. Remove the Gray or Blue safety cap with your other hand.
9. Position at a 90 degree angle the Black or Orange "needle end" cap against the desired injection site press very firmly listening for an audible "click."
10. Hold auto-injector in place for 10 seconds to allow complete delivery of medication.
11. Remove auto-injector and dispose of the sharp in an appropriate container.
12. Massage the injection site for 10 seconds to speed delivery of the medication.
13. Observe patient for response to medication.
14. All patients receiving auto-injector medications should be transported to the hospital for further evaluation and observation.

Bag Valve Mask (BVM) (> PL1)

Clinical Indications:
Patients in respiratory arrest or failure requiring oxygenation with volume and/or rate control.

Contraindications:
None

Preparation for Use:
1. Don appropriate PPE to include eye and respiratory protection.
2. Select appropriately sized bag and mask then inspect and prepare BVM for use:
    a. Infant, > 7 kgs (15 lbs), maximum tidal volume of 200 mL
    b. Child, < 7 to < 30 kgs (15-66 lbs), maximum tidal volume of 500 mL
    c. Adult, > 30 kgs (66 lbs), maximum tidal volume of 750 mL
3. Connect to oxygen at a minimum of 10 LPM and ensure the reservoir bag is filling.
4. Make readily available and operational airway suctioning and basic airway adjuncts.
5. SpO_2 and $EtCO_2$ monitoring as credentialed and available.



Procedure:
1. Appropriately open the airway and suction if needed to clear fluids and obstructions.
2. Position and pad the patient to achieve a sniffing position or ear to sternal notch position.
    a. Consider inserting an appropriately sized OPA or NPA.
3. Obtain a proper mask-to-face seal by lifting the patient's head and face into the mask.
    a. Utilize the two person BVM technique as soon as providers are available to do so.
4. Begin ventilating the patient based on their age group by gently depressing the BVM for 1-2 seconds then releasing it. **Initial rate**:
    a. *With a pulse*:
        i. Neonates, 1 ventilation every 1-1.5 seconds for a total of 40-60 BPM
        ii. Infants & Children, 1 ventilation every 3-5 seconds for a total of 12-20 BPM
        iii. Adult, 1 ventilation every 5-6 seconds for a total of 10-12 BPM
    b. With iGel or ET in place:
        i. Neonates, 1 ventilation every 1-1.5 seconds for a total of 40-60 BPM
        ii. Infants & Children, 1 ventilation every 6 seconds for a total of 10 BPM
        iii. Adult, 1 ventilation every 6 seconds for a total of 10 BPM
5. Attach SpO_2 and $EtCO_2$ monitoring device(s), if not already done, and assign crew member for constant monitoring.
6. Consider the application of PEEP, per Clinical Procedure - PEEP
7. **Titrate** oxygen LPM, ventilation rate, and PEEP if applied based on patient condition and target SpO_2 and $EtCO_2$ readings:
    a. Target SpO_2 92-99%
    b. Target $EtCO_2$ 35-45 mm Hg, unless suspected head injury then 30-35 mm Hg.
8. Monitor for signs of successful ventilation, patient's condition, lung sounds, and rate/forcefulness of BVM ventilations.
9. Watch for gastric distention, which if present then consider: repositioning the airway, slowing the rate of ventilations, and/or decreasing the force including PEEP used to ventilate the patient.
    a. Monitor the BVM manometer to maintain an airway pressure less than 20 cm H_2O when ventilating the patient, unless there is a clinical need to exceed 20 cm H_2O.
10. Do not override the pressure relief or pop-off valve unless there is a significant clinical need.
    a. These valves mitigate the risk of over inflation and are set to relieve pressures > 45 cm H_2O in the child and infant sized BVMs and > 60 cm H_2O in the adult BMV.

Beck Airway Airflow Monitor (≥ PL5)

Clinical Indications:

1. As an adjunct to blind nasotracheal intubation in a patient with spontaneous respirations.
2. As an aid to re-confirming airway placement or reassessing respiratory effort in the intubated patient with spontaneous respiratory effort.

Contraindications:

1. Apnea, or inability to hear device during endotracheal tube insertion due to ambient noise.
2. Not to be used as the primary method for assessing airway placement in the intubated patient.

Precautions

1. An unobstructed endotracheal tube with its tip located in the pharynx can also produce the whistle sound. Always confirm proper tube placement
2. Due to the narrow aperture of the BAAM® device, it is never to be left attached to the endotracheal tube for greater than 15 seconds at any one time for assessment of the previously intubated patient. Partial airway obstruction, hypoxia and increased airway pressure can occur if left in place for prolonged periods

Preparation for Use:

1. Pre-oxygenate and/or ventilate while preparing the patient for nasotracheal intubation.

Procedure:

1. Attach BAAM® device to the 15 mm adapter of the appropriately sized endotracheal tube. The device will attach to the tube only one way.
2. Proceed with nasotracheal intubation. As the ET tube nears the larynx an audible increase in whistling will be heard from the device, indicating that the tip of the endotracheal tube is near the entrance to the trachea.
3. Carefully advance the endotracheal tube through larynx, into the trachea when device and airway sounds are at their peak.
4. Quickly remove the BAAM® device and begin ventilating the patient.
5. Confirm tube placement by $EtCO_2$ and auscultation.

Bimanual Trachea Manipulation (≥ PL1)

Clinical Indications:

1. All patients in need of airway protection due to gastric insufflation and/or vomitus entering airway.
2. As needed during advanced airway procedures to aid intubation attempts.

Contraindications:

1. None in the emergency setting, unless the technique worsens the likelihood of a successful intubation attempt.

Precautions

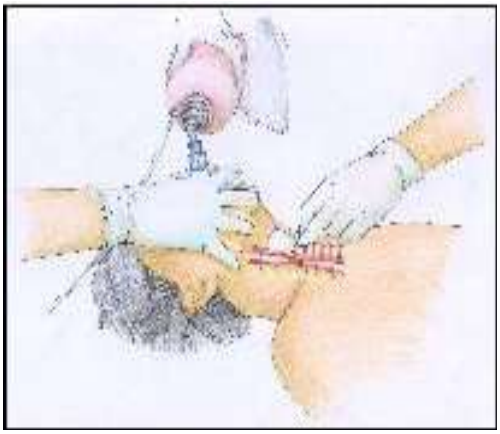
1. Caution should be exercised when utilizing this technique on children of any age. The cricoid cartilage is not as firm in children as adults. As a result, less pressure is needed to achieve the same effect.

Preparation for Use:

1. Pre-oxygenate and/or ventilate while before performing technique as part of advanced airway management.

Procedure:

1. Locate the cricoid cartilage by:
   I. Palpating the protuberant midline portion of the thyroid cartilage ("Adams Apple"), then
   II. Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage
2. When using to assist intubation the provider performing the intubation may place their fingers over those of the provider to direct the movement of the larynx backward, upward, rightward pressure (BURP)to allow visualization.
3. Once visualized the intubating provider may remove their hand requesting the assisting provider to hold that position while they introduce the endotracheal tube.



Blood Glucose Assessment (≥ PL1)

Clinical Indications:

1. Any patient with an altered mental status.
2. Patients with metabolic or endocrine disorders and presenting with non-specific complaints.
3. Bradycardia or hypothermia infants.
4. As part of stroke assessment.

Contraindications:

1. None

Preparation for Use:

1. Assemble glucometer and equipment, including chlorohexidine wipe.

Precautions:

1. Blood samples for performing glucose analysis should be obtained through a finger-stick (heel for infants).
2. Venous blood samples may produce artificially high blood glucose values and should be avoided.

Procedure:

1. Cleanse site with Chlorohexidine
2. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
3. Time the analysis as instructed by the manufacturer.
4. Document the glucometer reading and treat the patient as indicated by the analysis and guideline.
5. Repeat glucose analysis as indicated for reassessment after treatment and as per guideline.
6. If any clinically suspicious readings are noted perform quality assurance test immediately after the call and notify a supervisor as appropriate.

Blood Product Administration (≥ PL5)

Clinical Indications:
Shock criteria indicated in charts below with reasonable suspicion of shock being due to a **HEMORRHAGIC CAUSE** or

Witnessed cardiac arrest reasonably suspected to be from a hemorrhagic cause with **control of major hemorrhage,** and blood products are available for administration **within 5 minutes** of loss of pulses.

Contact OLMC if patient is < 3 years of age

Adult	Pediatric
Both of the following: 1. MAP < 65mmHg or SBP < 90mmHg 2. HR > 110bpm **OR** Any **one** of the following 1. EtCO2 < 30 mmHg 2. Shock Index ≥ 1 (SI = HR ÷ SBP) 3. Pulse pressure <40mmHg 4. OLMC approval	Any **one** of the following: 1. EtCO2 < 30 mm Hg 2. SBP < (70 + 2 x age) or < 90 3. Bradycardic or tachycardic heart rate: a. Neonate (<29 days) <100 or >180 b. Infant (1 to 12 months) <80 or > 160 c. Child (1 to 10 years) <60 or >130 d. Older Child (>10 years) <60 or >110 4. OLMC approval

Contraindications:
Personal or religious objection to receiving blood products.
Unable to establish patent IV or IO access.

Preparation for Use:
1. Ensure adequate personnel are on scene to appropriately manage all concurrent priorities.
2. Patent IV or IO access dedicated for blood product administration.
3. Ensure pre-transfusion vital signs of pulse rate, respiratory rate, blood pressure, EtCO2 & SpO2, and body temperature are obtained.
4. Only remove blood products from the cooler immediately prior to transfusion.
5. Ensure temperature indicator on the blood product bag is indicating appropriate temperature storage. If the product has reached unacceptable storage temperature, then do not transfuse the product.
6. Blood product has been warmed to ~ 37 C (95 F).

Procedure:
1. Gently agitate blood product bag and use only filtered blood tubing for administration. Set up and prime the line as required. Perform medication cross check then begin administering blood product to the patient.
   a. For pediatric patients, administer 10cc/kg. Call OLMC for additional volume if needed.
   b. For adult patients, titrate volume to sustain improvement in the clinical indications for administering blood products. Call OLMC for administration of more than one unit.
2. Administer Calcium Chloride - through a ***separate*** IV or IO line.

a. Should be administered during the first blood product bag and repeated every 4th bag.

3. Monitor for reactions to the blood product transfusion and vital sign trends.
    a. Presentations of transfusion reactions include common signs and symptoms of anaphylaxis or medication reaction, as well as fever, unexplained abdominal or back pain after administration.
    b. If the patient experiences a reaction:
        i. Immediately stop the blood product transfusion.
        ii. Call OLMC to discuss further management
            1. If mild reaction – febrile, mild allergic, etc… treatment will likely be symptomatic and continue transfusion
4. Document the total amount administered in the ePCR.
5. Prior to patient transfer, document the following on the Prehospital Blood Product Transfusion Record:
    a. Indicate whether the transfusion is complete or ongoing.
    b. Indicate whether a suspected transfusion reaction occurred. If a transfusion reaction is suspected, document actions taken in the "comments" section of the form.
    c. The name of the ground transport agency.
    d. Medic unit #.
    e. Receiving facility.
    f. Type of call.
6. Document the following on the Prehospital Blood Product Transfusion Record:
    a. Patient name
    b. Transporting agency run/case #.
    c. Product unit number. If a sticker from the back of the blood product bag is used, ensure additional stickers are placed on copy of the 3-part form.
    d. Product type
    e. Start time
7. Prior to leaving the hospital:
    a. Give product bag(s) and tubing to the receiving facility.
    b. Ensure a representative from the receiving hospital prints their name and signs the Prehospital Blood Product Transfusion Record indicating receipt of the blood product and form.
    c. Leave the yellow and pink copies of the form with the hospital representative who signed the form.
    d. Keep the white copy for EMS records.
8. Call We Are Blood at 512-206-1229 to arrange pickup of another unit of blood product.

Conscious Sedation (≥ PL6)

Clinical Indications:

1. Online Medical Control (OLMC) is required prior to providing conscious sedation.
2. Patient needing an acute intervention that is known to be painful but could help reduce the patient's overall pain, or there is risk for vascular or neurologic compromise:
   a. Fracture reduction with CSM compromise
   b. Dislocated joint reduction
   c. Field amputation
   d. Chemically facilitated extrication
   e. Synchronized cardioversion
   f. Facilitated primary wound closure (≥ PL7)

Contraindications:

1. Procedure is likely to be unsuccessful
2. Equipment or personnel not available to properly monitor patient
3. Patient's size and body composition is such that an adverse reaction would be difficult to manage (airway compromise)

Preparation:

1. Have ≥PL6 and at-least one additional ALS provider on scene (≥PL5).
2. Obtain patent vascular access
3. Ensure baseline vitals have been obtained
4. Apply high flow nasal cannula and/or nonrebreather at flush rate
5. Apply continuous EtCO2, 4-lead ECG and SpO2
6. Ensure airway, ventilation, and suction equipment are available and operational
7. Consult / receive consent as able, and/or OLMC as required
8. Providers must utilize the Conscious Sedation Checklist

Procedure:

1. Assign one provider to watch the patient's respiratory effort, SpO_2 and $EtCO_2$. Immediately inform the care team if: SpO_2 < 90%, or $EtCO_2$ > 45 or < 35, or patient has signs of insufficient respiratory effort or becomes apneic.
2. If conscious sedation is being performed to facilitate an elective procedure, rather than a lifesaving intervention, then verbal consent must be attained utilizing the verbal consent script on the Conscious Sedation Checklist.
3. Goal is escalating doses of medications to achieve sedation level appropriate for successful completion of procedure, maintaining patient's ability to control their own airway and hemodynamics.
4. There is strong evidence that utilization of multiple agents reduces the amount of each medication given and can reduce adverse events.
5. Although re-emergence reactions are infrequent with ketamine, benzodiazepines have been shown to reduce this risk. Start with a dose of midazolam; for the healthy adult 2.5 mg is a good starting dose. Can adjust based on age and patients' size etc.
6. Ketamine should follow 2 minutes after the benzodiazepine.
7. Monitor for signs of sedation: disassociation, non-verbal, slight increase in CO2, muscle relaxation. If sedation goal is not reached in 3 minutes after initial ketamine administration, can give repeat and escalating dosing of medications.

8. Escalating dosing options:

Medication		Dose	Time Interval	Max Dose
Versed	1st	2mg	Initial	
	2nd	0.5-2 mg	5 minutes	
	3rd	0.5-2 mg	Q5 minutes	10mg
Ketamine	1st	1 mg/kg	Initial	100mg
	2nd	0.5 mg/kg	3 minutes	
	3rd	0.5 mg/kg	Q3 minutes	400 mg
Fentanyl	1st	50 mcg	Initial	
	2nd	50 mcg or 1 mcg/kg	10 minutes	
	3rd	50 mcg or 1 mcg/kg	Q10 minutes	400 mcg

9. Once sedation is achieved, perform procedure as quickly as safely possible, if fracture/dislocation splint extremity immediately after procedure and preferably before the patient regains consciousness.
10. If there are any adverse reactions to sedation, such as hypoxia below 90%, immediately suspend procedure and address any life-threatening events: airway, blood pressure, medication reaction, ect.
11. May need to repeat dosing during procedure, use above table.
12. Needs to have continuous monitoring until patient has returned to baseline mental status. Vitals should be recorded every 5 minutes while sedated.
13. Document in ePCR: indications for procedure, start and stop time and any adverse events.

Clinical Pearls:

- Ketamine can cause laryngospasm, push the medication over 1 minute. If laryngospasm is noted, the initial treatment is positive pressure ventilation.
- The risk of aspiration with conscious sedation is low, however if patient had a large meal, specifically if associate with alcohol consumption, watch closely for aspiration.
- Even with initial dosing of benzodiazepine, if patient whom has not received subsequent benzodiazepine dosing yet high ketamine dosing is believed to be experience an emergence reaction, give a low dose of versed to relieve this event.
- If patient is clinically intoxicated, greatly reduced dosing is indicated. Increased risk of airway compromise in this population.
- Most times when patients are over-sedated, this can be managed with BLS airway maneuvers and time as ketamine's duration of action is short.

Contact Precautions (≥ PL1)

Clinical Indications:

1. Used when the organism is transmitted by direct contact with patient or environmental surfaces.
2. Patients with large infected ulcers and drainage that is not contained by dressing.
3. Any drug resistant organism, Clostridium difficile, Scabies, E. coli O157:H7, Noro type viruses, and the similar.

Contraindications:

1. None

Procedure:

1. Explain the need for Contact Precautions to the patient.
2. Everyone involved in direct patient care should wear clean gloves and gowns.
3. Gloves and gowns should be removed and hands washed with soap and water prior to leaving the treatment area or upon completion of patient transfer.
4. Additional protection (e.g. masks, face protection, goggles) should be added per Standard Precautions depending on the procedures done. (e.g. wear masks and eye protection for suctioning, intubation, or nebulized medication).

Continuous Positive Airway Pressure Ventilation (≥ PL2)

Clinical Indications:

1. Respiratory distress from the following etiologies: Congestive Heart Failure (CHF), Pulmonary Edema, Submersion or Drowning, Chronic Obstructive Pulmonary Disease (COPD), Acute Respiratory Distress

Contraindications:

1. Respiratory arrest or Agonal respirations
2. Unconsciousness
3. Hypoperfusion associated with cardiac insufficiency
4. Pneumothorax
5. Facial trauma, including burns

Preparation for Use:

1. Ensure all equipment is assembled, and connect CPAP to O_2 source and follow PEEP clinical procedure for settings.

Precautions:

1. Possible complications include: Gastric distention, Reduced cardiac output, Hypoventilation, Pulmonary barotrauma, Excessive secretions, and the similar

Procedure:

1. Ensure oxygen is flowing prior to placing device on the patient's face.
2. Fully explain the procedure to the patient.
3. Have the patient hold mask to face and instruct the patient to breath slowly and deeply.
4. Once the patient is comfortable with the mask, then securely attach the headpiece and tighten to fit.
5. Continuously monitor the patient's respiratory status/effort, SpO_2, and $EtCO_2$
6. The adjunctive delivery of a medication nebulizer with the CPAP is approved and should be considered. Patient presentation and distress should dictate the timing or use of this procedure. The delivery of nebulized medication should not delay the use of CPAP.
7. If the patient decompensates, then discontinue CPAP and manage the patient per the appropriate clinical guideline. The following are signs of decompensation:
   a. Decreased level of consciousness
   b. Decreased SpO_2 from initial reading with CPAP application
   c. Bradycardia with hypotension or signs of hypoperfusion with cardiac insufficiency
   d. Respiratory arrest, agonal respirations, or ineffective respiratory effort
   e. Pneumothorax

CPR Pit Crew Adult (≥ PL1)

Clinical Indications:

1. Cardiac arrest in adult patients or patients > 37 kg (80 lbs)

Contraindications:

1. None

Notes / Precautions:

1. Focus on:
   a. Minimizing interruptions of chest compressions
   b. Appropriate depth, quality, and recoil of chest compressions
   c. Rotating compressors to minimize fatigue
   d. Use of a consistent and uniform team approach
   e. Crew resource management and close looped communication
2. This procedure is based on a 4-person crew of providers.
3. If there is a 3-person crew (or Position 4 is not immediately available): Position 2 does the narration into the AED. And position 1 or 2 will help position 3 with OPA and O2 connections when they become available.
4. If there is only a 2-person crew, see modified procedure.
5. Exception for witnessed arrest where a manual defibrillator is immediately available.

Procedure:

1. Initial Actions:
   1.1. Upon arrival at patient's side, assess for/confirm cardiac arrest
   1.2. Ensure adequate personnel/resources, move patient to appropriate space before compressions
   1.3. Position 1 – Immediately begins compressions
   1.4. Position 2 or 4 – Immediately powers on AED, or on FRE3 press "CPR Button" when displayed, and places AED near position 2 at the patient's left shoulder. Position 4 begins narrating all actions.
   1.5. Position 4 – Assumes team leader role then performs each of the following throughout resuscitation:
      a. Assists position 3 with OPA, O_2 administration and connections, ventilations with airway management
      b. Narrates steps as they are being done
      c. Monitors compressors use of CPR quality feedback and monitor pause times
      d. Directs actions in response to CPR quality feedback from AED as needed – rate, depth, release/recoil, pauses/interruptions
      e. Directs actions based on Pit-Crew CPR Checklist

2. CPR/BVM/Nasal Cannula – 1st Set of 200 Compressions with Metronome
   2.1. Position 1 – Performs 100 manual compressions with metronome
   2.2. Position 2 – Place CPR feedback device between compressions as soon as ready for use
   2.3. Position 2 – Retrieves metronome, powers on and places on the patient's left side
   2.4. Position 2 – Both AED pads to patient's anterior chest and connect cables to AED
   2.5. Position 3 – Assembles BVM, places OPA, nasal cannula connected to O_2 source at 25 lpm, mask, and makes a two-handed mask seal with bag directed toward compressors. Position 3 turns on timing light.
   2.6. Position 2 - Squeezes bag using timing light.
   2.7. After 100 compressions, approximately 1 minute, Position 2 begins compressions.
   2.8. Position 1 – Squeezes BVM using timing light
   2.9. Position 1 – Resumes after 100 compressions until time for rhythm analysis after 200 total compressions. Position 2 squeezes BVM using timing light.

2.10. Continuously take actions to improve compression rate, depth, release and pauses based upon CPR quality feedback from the AED or manual cardiac monitor (Positions 1 & 2).

3. AED / Defibrillation - 1st AED Analysis & Defibrillation
- 3.1. AED auto-analysis or manual rhythm analysis and defibrillation/no defibrillation decision made
- 3.2. Position 1 – Check for carotid pulse during rhythm analysis
- 3.3. Position 2 – Be ready to deliver defibrillation; Position 1 is ready to resume compressions
- 3.4. Position 2 – Delivers defibrillation if indicated after quickly clearing patient
- 3.5. Position 1 – Immediately resumes chest compressions

4. CPR – 2nd Set of 200 Compressions with Metronome
- 4.1. Position 1 – Performs 100 manual compressions
- 4.2. Position 3 – Creates mask seal
- 4.3. Position 2 – Squeeze BVM using timing light
- 4.4. Position 2 – Prepares BIAD
- 4.5. After 100 compressions, approximately 1 minute, Position 2 immediately begins 100 compressions
- 4.6. Position 1 – Resumes after 100 compressions until time for rhythm analysis

5. AED / Defibrillation - 2nd AED Analysis & Defibrillation
- 5.1. AED analysis and defibrillation / no defibrillation decision made
- 5.2. Position 1 – Checks carotid pulse during rhythm analysis
- 5.3. Position 2 – Be ready to deliver defibrillation; Position 1 is ready to resume compressions
- 5.4. Position 2 – Delivers defibrillation, if indicated, after quickly clearly patient
- 5.5. Position 1 – Immediately resumes chest compressions

6. CPR / BIAD – 3rd Set of 200 Compressions with Metronome
- 6.1. Position 1 – Performs 100 manual compressions
- 6.2. Position 3 – Create mask seal
- 6.3. Position 2 – Squeeze BVM using timing light
- 6.4. Position 3 – Inserts and secures BIAD without stopping chest compressions
- 6.5. Position 3 – Squeeze bag using timing light
- 6.6. After 100 compressions, approximately 1 minute, Position 2 immediately begins 100 compressions
- 6.7. Position 1 – Resume after 100 compressions until time for rhythm analysis.
- 6.8. When time for AED / rhythm analysis, Position 3 holds BVM connected to airway device

Repeat steps 5 & 6 until ROSC or Termination of Resuscitation (TOR)

Modified Two (2) Person Version

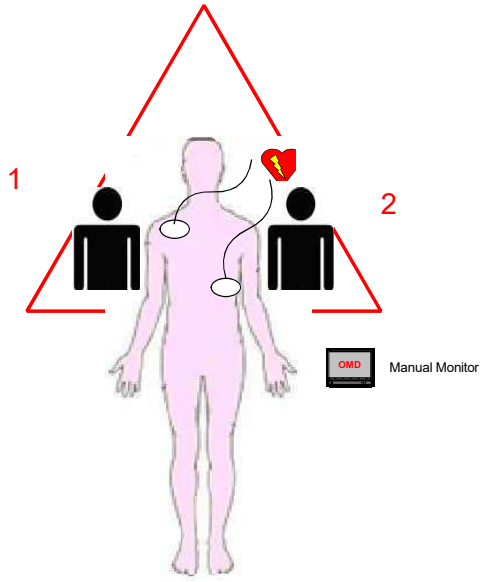
Clinical Indications:

1. First arriving providers establish the following pit crew positions.

Procedure:

1. Position 1 – Patient's right side
- 1.1. Assessing responsiveness and pulses
- 1.2. Initiates 100 chest compressions immediately if needed
- 1.3. Alternates 100 chest compressions with Position 2
- 1.4. If not completed by Position 2, assemble/place nasal cannula 25 lpm O_2
- 1.5. If Transport Provider, may reach over and charge manual monitor at the appropriate 70th compression cycle timelines at 2 minutes

2. Position 2 – Patient's left side
- 2.1. Activates metronome at 100 beats/minute
- 2.2. Brings and operates the AED or Manual Monitor. If AED power on and begin narration
- 2.3. Apply and connect pads if manual monitor or FRE3 AED
- 2.4. Connect pads to AED after 200 compressions if using FR1 or FR2 AEDs
- 2.5. Rhythm analysis after each 200 compression cycle
- 2.6. Open and clear airway, insert OPA, assemble and place nasal cannula 25 lpm O_2
- 2.7. Alternates 100 chest compressions with Position 1
- 2.8. Once additional trained providers arrive, return to normal Pit Crew operations



CPR Pit Crew Pediatric (≥ PL1)

Clinical Indications:

1. Cardiac arrest in non-adult patients > 5 days old and < 37 kg (81 lbs)
    a. Newborn < 5 days old, then use Obstetrical Clinical Guidelines / Newborn Care

Contraindications:

1. None

Notes / Precautions:

1. Focus on:
    a. Minimizing interrupting chest compressions
    b. Appropriate depth, quality, and recoil of chest compressions
    c. Rotating compressors to minimize fatigue
    d. Use of a consistent and uniform team approach
    e. Crew resource management and close looped communication
2. This procedure is based on a 4-person crew of providers.
3. If there is a 3-person crew (or Position 4 is not immediately available): Position 2 does the narration into the AED. And, position 1 or 2 will help position 3 with OPA and O2 connections when they become available.
4. If there is only a 2-person crew, see modified procedure.
5. Exception for witnessed arrest where a manual defibrillator is immediately available.

Procedure:

1. Initial Actions:
1.1. Upon arrival at patient's side, assess/confirm for cardiac arrest
1.2. Ensure adequate personnel/resources, move patient to appropriate space before compressions
1.3. Position 1 – Immediately begins compressions
1.4. Position 3 – Immediately assess airway, clears obstructions if found, places BVM and makes a one-handed mask seal, or preferably a two-handed with position 2 when available, and immediately begins to ventilate on room air.
1.5. Position 2 or 4 – Immediately powers on AED, or on FRE3 pressure "CPR Button" when displayed, and places AED near position 2 at the patient's left shoulder. Position 4 begins narrating all actions.
1.6. Position 4 – Assumes team leader role then performs each of the following throughout resuscitation:
    a. Assists position 3 with OPA, O_2 administration and connections, ventilations with airway management
    b. Narrates steps as they are being done
    c. Monitors compressors use of CPR quality feedback and monitor pause times
    d. Directs actions in response to CPR quality feedback from AED as needed – rate, depth, release/recoil, pauses/interruptions
    e. Directs actions based on Pit-Crew CPR Checklist

2. CPR/BVM/Nasal Cannular – 1st Set of 200 Compressions with Metronome
2.1. Position 1 – Performs 100 manual compressions with metronome
2.2. Position 2 – Place CPR feedback device between compressions as soon as ready for use
2.3. Position 2 – Retrieves metronome, powers on and places on the patient's left side
2.4. Position 2 – Pediatric AED pads to patient's anterior chest and connect cables to AED
2.5. Position 3 – Assembles BVM, places OPA, nasal cannula connected to O_2 source at 25 lpm, mask, and makes a two-handed mask seal with bag directed toward compressors. Position 3 turns on timing light.
2.6. Position 2 - Squeezes bag every 3-4 seconds.
2.7. After 100 compressions, approximately 1 minute, Position 2 begins compressions.
2.8. Position 1 – Squeezes BVM every 3-4 seconds

2.9. Position 1 – Resumes after 100 compressions until time for rhythm analysis after 200 total compressions. Position 2 squeezes BVM every 3-4 seconds.
2.10. Continuously take actions to improve compression rate, depth, release and pauses based upon CPR quality feedback from the AED or manual cardiac monitor (Positions 1 & 2).

3. AED / Defibrillation - 1st AED Analysis & Defibrillation
3.1. AED auto-analysis or manual rhythm analysis and defibrillation/no defibrillation decision made
3.2. Position 1 – Check carotid pulse during rhythm analysis
3.3. Position 2 – Be ready to deliver defibrillation; Position 1 is ready to resume compressions
3.4. Position 2 – Delivers defibrillation if indicated after quickly clearing patient
3.5. Position 1 – Immediately resumes chest compressions

4. CPR – 2nd Set of 200 Compressions with Metronome
4.1. Position 1 – Performs 100 manual compressions
4.2. Position 3 – Creates mask seal
4.3. Position 2 – Squeeze BVM every 3-4 seconds
4.4. Position 2 – Prepares BIAD if appropriate
4.5. After 100 compressions, approximately 1 minute, Position 2 immediately begins 100 compressions
4.6. Position 1 – Resumes after 100 compressions until time for rhythm analysis

5. AED / Defibrillation - 2nd AED Analysis & Defibrillation
5.1. AED analysis and defibrillation / no defibrillation decision made
5.2. Position 1 – Checks carotid pulse during rhythm analysis
5.3. Position 2 – Be ready to deliver defibrillation; Position 1 is ready to resume compressions
5.4. Position 2 – Delivers defibrillation, if indicated, after quickly clearly patient
5.5. Position 1 – Immediately resumes chest compressions

6. CPR / BIAD – 3rd Set of 200 Compressions with Metronome
6.1. Position 1 – Performs 100 manual compressions
6.2. Position 3 – Create mask seal
6.3. Position 2 – Squeeze BVM every 3-4 seconds
6.4. Position 3 – Inserts and secures BIAD without stopping chest compressions
6.5. Position 3 – Squeeze bag every 3-4 seconds
6.6. After 100 compressions, approximately 1 minute, Position 2 immediately begins 100 compressions
6.7. Position 1 – Resume after 100 compressions until time for rhythm analysis.
6.8. When time for AED / rhythm analysis, Position 3 holds BVM connected to airway device

Repeat steps 5 & 6 until ROSC or Termination of Resuscitation (TOR)

CPR Pit Crew Pediatric (≥ PL1)

Modified Two (2) Person Version

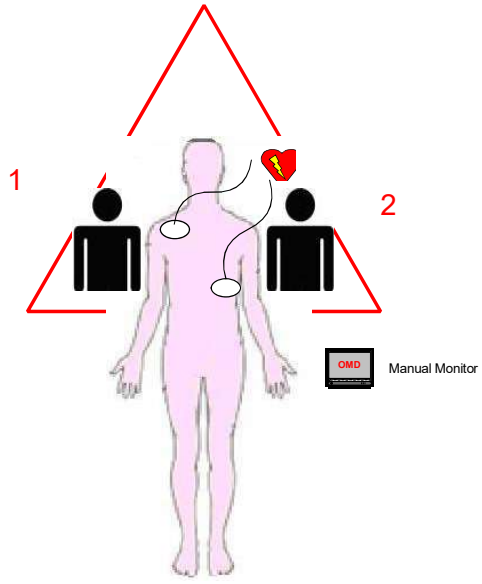
Clinical Indications:

1. First arriving providers establish the following pit crew positions.

Procedure:

1. Position 1 – Patient's right side
- 1.1. Assessing responsiveness and pulses
- 1.2. Initiates 100 chest compressions immediately if needed
- 1.3. Alternates 100 chest compressions with Position 2
- 1.4. If not completed by Position 2, assemble/place nasal cannula 25 lpm O_2
- 1.5. If Transport Provider, may reach over and charge manual monitor at the appropriate 70th compression cycle timelines at 2 minutes

2. Position 2 – Patient's left side
- 2.1. Activates metronome at 100 beats/minute
- 2.2. Brings and operates the AED or Manual Monitor. If AED power on and begin narration
- 2.3. Apply and connect pads if manual monitor or FRE3 AED
- 2.4. Connect Pediatric pads to AED after 200 compressions if using FR1 or FR2 AEDs
- 2.5. Rhythm analysis after each 200 compression cycle
- 2.6. Open and clear airway, insert OPA, assemble and place nasal cannula 25 lpm O_2
- 2.7. Alternates 100 chest compressions with Position 1
- 2.8. Once additional trained providers arrive, return to normal Pit Crew operations



Decontamination (≥ PL1)

Clinical Indications:

1. Any patient who may have been exposed to significant hazardous materials, including chemical, biological, or radiological weapons.

Contraindications:

1. None

Procedure:

1. Hazmat Command will establish hot, warm, and cold zones of operation.
2. Ensure that personnel assigned to operate within each zone have proper personal protection equipment and training.
3. In coordination with other public safety personnel, assure that each patient from hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
   a. Removal of patients from hot zone
   b. Simple removal of clothing
   c. Irrigation of eyes
   d. Passage through high-volume water bath (ex. Between two fire apparatus) for patients contaminated with liquid of certain solids. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay treatment and/or increase dermal absorption of the agent(s)
4. Initial triage of patients should occur after Step 3. Immediate life threats should be addressed prior to technical decontamination.
5. Assist patients with technical decontamination (unless contraindicated based on Step 3 above). This may include removal of all clothing and gentle cleansing with soap and water. All body areas should be thoroughly cleansed, although overly harsh scrubbing could break the skin should be avoided.
6. Place triage identification on each patient. Match triage information with each patient's personal belongings, which were removed during technical decontamination. Preserve these personnel affects for law enforcement.
7. Monitor all patients for environmental illness.
8. Transport patients to appropriate facilities.

Determination of Capacity (≥ PL1)

Clinical Indications:

1. To determine if a patient has present mental capacity to make an informed decision to accept or refuse care. All refusals should be conducted in accordance with the Refusal of Treatment / Transport standard and definition of a Patient standard.

Contraindications:

1. Unsafe scene or condition.

Procedure:

1. If the patient is suicidal or homicidal, then immediately contact police.
2. In order to have decision making capacity, then the patient must be 18 years of age or if a minor then be emancipated. Patient cannot suicidal or homicidal or have had their decision-making capacity removed by determination of a court of law.
3. If the above criteria have been met, then the patient must be assessed for the ability to demonstrate the following:
   a. Does the patient understand their illness or injury, and the benefits of treatment and/or evaluation; and
   b. Does the patient understand the consequences, including death, of not seeking treatment and/or evaluation for their illness or injury; and
   c. Does the patient understand the alternatives to immediate care by EMS; and
   d. Can the patient describe in their own words the above components and provide a defined reason for their decision to refuse treatment and/or transport?
4. Utilize the Determination of Capacity checklist. If there is any uncertainty about the patient's present mental capacity, then contact Online Medical Control.
5. Every individual who has demonstrated present mental capacity has a legal right to refuse medical treatment, even if that refusal is contrary to the beliefs of the provider or may result in potential harm to the patient. It is a healthcare provider's responsibility to provide the patient with information about the risks of refusal and the benefits of treatment and/or evaluation so that their decision is informed.
6. If it is determined that a patient who wishes to refuse care lacks the present mental capacity to so, then contact Online Medical Control and a Supervisor to assist with the process.
7. Document any allowed history and exam, the absence of suicidal or homicidal ideation, the components of the capacity assessment, and any contact with Online Medical Control.

Dislocated Joint Reduction (≥ PL6)

Clinical Indications:

1. Online medical control (OLMC) approval is required prior to performing a dislocated joint reduction.
2. ≤ 40 y/o wrist, elbow, shoulder, patella, knee, or ankle joint dislocation.
3. Neurovascular compromise noted distal to dislocated joint.

Contraindications:

1. Hip joint dislocation.
2. Age > 40 y/o is a relative contraindication
3. Traumatic injury and/or long bone fracture that may worsen by performing the procedure.

Preparation for Use:

1. Obtain full set of vital signs.
2. Apply capnography, 4 lead ECG, and O2 via n/c at 2 lpm.
3. Discuss the procedure with the patient and obtain consent, this includes risks, benefits, and alternatives in order for the patient to provide informed consent.
4. Obtain peripheral vascular access
5. Ensure appropriate splinting and stabilization equipment(s) are ready.
6. Administer Fentanyl, Midazolam, or Ketamine for anesthesia/sedation as appropriate per clinical guidelines and Conscious Sedation procedure & checklist.

Procedure:

1. Ensure adequate sedation/anesthesia has been reached – adequate pain control may be sufficient to complete many reductions without the need for full conscious sedation and attendant risks, it is appropriate to attempt the reduction after making the patient comfortable to see if they will tolerate reduction without full sedation.
2. Ensure respiratory and cardiac monitoring is in place to monitor the patient for signs of over sedation and respiratory/cardiac arrest.
3. Perform neurovascular exam before and after procedure.
4. Always perform any reduction with firm and steady traction or pressure. The procedure should not encompass any sudden or jerking movements.
5. Ideally, splinting should be applied while patient is still sedated.
6. Continue to monitor for airway depression before, during, and after procedure due to medications and probable loss of sympathetic pain response.
7. Documentation is to be thorough to include details of informed consent, assessment and procedure, and post procedure findings and patient response(s).

Wrist:

1. Place affected side elbow at 90 degrees and have assistant provide counter pressure to upper arm.
2. Place hands immediately proximal to deformity site, provide firm steady traction to achieve approximate normal anatomic alignment.
3. Wrap arm with soft material and apply sugar tong splint.

Elbow:

1. Have assistant provide counter traction on upper arm, provide linear traction to distal forearm.
2. Reduce elbow to 90-degree flexion.
3. Wrap with soft material any apply double sugar tong splint and sling.

Dislocated Joint Reduction (≥ PL6)

Shoulder

1. Often this can be accomplished with proper analgesia without the need for sedatives
2. Contradiction is age ≥ 65, due to risk of fracture.
3. Reduction is not to be attempted if any suspicion of fracture.
4. *Pectoral Deltoid Massage*:
    a. Have patient in semi-fowlers position.
    b. Have assistant provide gentle caudal on the arm.
    c. Firmly massage deltoid and pectoral muscles to encourage relaxation.
    d. A distant reduction in the shoulder should be felt, and palpate bi-lateral shoulders to ensure appropriate reduction has occurred.
    e. Apply sling.
5. *Fares Technique*:
    a. Place the patient supine.
    b. With the arm strengthen and pronated, grasp the wrist.
    c. Begin an oscillating anterior-posterior movement of the arm with slow abduction and externally rotated while providing continuous longitudinal traction on the arm.
    d. A distant reduction in the shoulder should be felt, and palpate bi-lateral shoulders to ensure appropriate reduction has occurred.
    e. Apply sling.
6. *Park Method*:
    a. Place the patient sitting upright at a 90-degree angle
    b. Bend the elbow 90 degrees with the forearm supinated
    c. Gently place a fist under the axilla of the affected shoulder
    d. With the opposite hand, apply a gently, constant, downward pressure to the elbow and pull the head of the humerus away from the lip of the glenoid fossa
    e. Apply a gentle, constant induction pressure to the lateral epicondyle of the elbow to lift the head of the humerus above the level of the glenoid fossa, using your fist as a fulcrum
    f. Apply sling

Patella

1. This procedure should require minimal pain control or sedation.
2. Knee is held in a flexed position, place hand behind knee, and provide gentle pressure with thumb against lateral edge of the patella.
3. Over the course of one second, straighten the knee completely. Reduction will be indicated by a distinctive movement of the patella back into normal anatomical position.
4. Apply ace wrap if needed and for patient comfort.

Knee

1. To be performed for evidence of neurovascular compromise.
2. Gently straighten the knee and leg into normal anatomical position.
3. Any patient with a posteriorly dislocated knee must be transported to a trauma center, regardless of reduction. This specific injury must be conveyed to receiving facility, even if reduced, for probable vascular compromise.

Ankle

1. Grasp one hand on instep of the foot with the other hand behind the calcaneus and achilles tendon.
2. Maintain 90-degree angle of the ankle joint.
3. Pull longitudinal traction on the foot until reduction is felt.
4. Wrap and apply posterior short leg and ankle stirrup splints.

Distribution of Naloxone Rescue Kit (≥ PL1)

Clinical Indications:

1. Patient on scene who admits to opioid use, is recognized to have used opioids, or is thought to have used opioids due to clinical assessment
2. Patient enrolled in Integrated Services Buprenorphine Bridge Program

Contraindications:

1. None

Notes/Precautions:

1. Provide the patient suffering from opioid use disorder and/or their acquaintance education on recognition of opioid use and overdose as well as training on use of the naloxone kit
2. Acceptance of substance use disorder (SUDS) care will not be a requirement to receive a naloxone rescue kit. The intent of the rescue kit is to enhance safety and reduce morbidity and mortality of opioid users.
3. A very large percentage of illicit opioid users began their use with medications prescribed to them. EMS providers should remain vigilant and attempt to identify patients who may be using prescription opioids in an unhealthy manner, connecting them with appropriate resources.

Procedure:

1. Providers who are properly stocked and trained may provide the **patient** suffering from opioid use disorder **or their acquaintance** a rescue kit to be used in the case of an opioid overdose.
2. Distribution of naloxone rescue kits should be documented in the patient care report
3. All patients and persons who receive a naloxone rescue kit and/or who describe or admit to opioid or other substance use disorders will be offered and encouraged to accept connection to care for Substance Use Disorder Syndromes

Donning & Doffing Airborne PPE for Infection Control (≥ PL1)

Clinical Indications:

Interacting with a patient suspected to be experiencing an infectious disease. This clinical procedure complaints the clinical procedure for respiratory precautions. This clinical procedure is focused on donning & doffing both standards PPE, respiratory protection, and gowns.

Contraindications:

Not Applicable

Notification:

All movements should be slow and methodical to reduce risk of contamination, an assistant should be used whenever possible.

Airborne Precautions – PPE Donning Procedure:

1. What is your plan for doffing?
2. Remove any item that could tear, rip, or puncture PPE.
3. Persons with long hair should tie hair back or secure to avoid contamination.
4. Secure glasses if worn and needed.
5. Examine PPE to ensure there are no rips or other defects.
6. Perform hand hygiene.
7. Don one pair nitrile exam gloves. These gloves will be under the gown.
8. Don disposable booties.
9. Don disposable gown, taking care to appropriately use wrist gauntlet, and tie in back.
10. Don second pair of nitrile exam gloves, over the gown ensuring gloves cover the sleeve cuff.
11. Don fitted N95 respirator.
12. Don eye protection.
13. Don "welders style" face shield, if available. (Has head band with full face protector) This is not the surgical mask with attached eye shield.

Donning & Doffing Airborne PPE for Infection Control (≥ PL1)

Airborne Precautions – PPE Doffing Procedure:

1. Review this procedure prior to doffing. Locate an appropriate space to do this. Make a plan!
2. Check PPE for visible contamination. If visible contamination is present wipe off with EPA approved disinfectant wipes. Wipe from body in a direction away from head/torso.
3. Perform hand hygiene on outer gloves with sanitizer.
4. Provider will remove gown:
    a. Note: Provider will keep chin raised and lean forward during following steps to help prevent accidental cross contamination.
    b. Grasp front of gown at the waist with both hands; gently pull forward, breaking the waist ties.
    c. Provider will cross hands, grab gown at opposite shoulders and pull away from body, tearing the gown behind the shoulders. Provider shall continue to pull the gown away from the shoulders, rolling in a slow steady, downward motion. Provider should pull the gown down the arms, gathering it into a small bundle.
    d. When gathered gown reaches the wrists, Provider shall remove it from the hands, removing outer gloves as well, and place into appropriate disposal receptacle.
    e. If outer gloves did not come off, remove gloves and place into disposal receptacle. Use glove in glove technique.
5. Perform hand hygiene on inner gloves with sanitizer.
6. Remove booties by rolling them downward and outward from the top cuff. When the heel of the shoe is reached, provider should lift heal slightly and continue rolling to arch of foot. Place heel back on ground and lift toe, continue to roll bootie forward and remove once completely rolled at toe. Place into disposal receptacle. Repeat for other foot.
7. Perform hand hygiene with sanitizer.
8. Remove eye protection. Reusable eye protection should be set in a safe area for cleaning later.
9. Perform hand hygiene with sanitizer.
10. Remove N95 mask taking care to touch only straps, pulling over head and forward.
11. Perform hand hygiene with sanitizer.
12. Clean reusable eye protection with disinfectant wipes.
13. Clean boots, with disinfectant wipe and/or spray boots with disinfectant spray to all surfaces.
14. Perform hand hygiene with sanitizer.
15. Clean any sanitizer bottles, spray cans or cleaning supplies with disinfectant wipes.
16. Perform hand hygiene with sanitizer.
17. Remove inner gloves. Use glove in glove technique.
18. Perform hand hygiene with sanitizer or soap/water.

Double Sequential Defibrillation (≥ PL5)

Clinical Indications:

1. Refractory to at-least 3 defibrillation attempts with pads placed Anterior / Anterior (Vector 1), and
2. Refractory to 1 additional defibrillation attempt with pads placed Anterior / Posterior (Vector 2), and
3. V-fib / pulseless V-tach never converted.

Contraindications:

1. None.

Procedure:

1. The Code Commander should complete the Cardiac Arrest Checklist to assure all interventions have been performed and causes of cardiac arrest have been considered.
2. Ensure high-quality CPR is being performed and the above criteria have been met.
3. Prepare the sites for attachment of additional sets of external defibrillation pads if needed by drying the sites and minimizing interference of hair or other obstacles to good pad conduction.
4. Place additional pads if needed, ensuring that new pads do not make contact with other set being used.
5. Ensure that controls for the second cardiac monitor are accessible to the Code Commander.
6. Select the maximum energy setting on both devices. Charge both devices 15 seconds in advance of the anticipated break in CPR. Assure chest compressions continue while the device is charging.
7. At the prescribed time in the compression cycle, discontinue compressions and assess the rhythm.
8. If a shock is indicated, then assertively state "*Clear"* and visualize from the patient's head to toes to assure no one is touching the patient and deliver the double sequential external defibrillation (DSED) by depressing both shock buttons simultaneously.
9. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly (< 10 seconds) to perform pulse check and analyze rhythm.
10. Repeat the procedure every 2 minutes as indicated by the patient's response and rhythm.

Equipment Failure (≥ PL1)

Clinical Indications:

1. Define a process for tracking, reporting, and evaluation of patient care equipment that has failed to function as it was intended while managing a patient.

Notes:

1. This includes single patient use disposables, in addition to reusable or affixed equipment.

Contraindications:

1. None

Procedure:

1. To minimize the risk of equipment failure each agency shall maintain a daily equipment check sheet and periodically test biomedical equipment in accordance with manufacturer recommendations. This does not apply to sterile/clean packaged single patient use items. These type items must be inspected and/or tested prior to patient application.
2. If there is a failure of equipment (including single patient use disposables) during patient care which is deemed essential to the ongoing care of the patient immediately contact the EMS communications center, advise them of the failure, and have the nearest appropriate resource dispatched. This may be a supervisor, an ambulance, or some other resource, depending upon patient need and availability of additional equipment (including single patient use disposables) readily available on scene.
3. Based on the condition of the patient request that the resource respond either emergency (Code 3) or non-emergency (Code 1). The decision to await the arrival of replacement equipment is at the discretion of the on-scene transport provider in charge and dependent upon how essential the equipment is to the ongoing management and/or monitoring of the patient.
4. Closely monitor and treat the patient to the best of your ability with the remaining functional equipment and supplies.
5. While it is appropriate to notify supervisory personnel of the failure care and transport should not be delayed while awaiting the arrival of a supervisor (unless the supervisor is responding as the nearest resource based on #2 above).
6. All equipment (including single patient use disposables) associated with the failure shall be gathered and secured for inspection by each responsible department/organization. This includes all cables, electrodes, tubing, masks, or any other equipment associated with the failure. This equipment shall not be utilized in patient care activity until the Office of the Medical Director has received documentation that the equipment was evaluated by the manufacturer or their approved service agent. Accessories such as those mentioned above should be left attached to the failed equipment in the manner that they were attached at the time failure was noted. Contaminated equipment or failed single patient use disposable items shall be secured in an appropriate biological container (sealed bag or sharps shuttle).
7. An **Equipment Failure Report Form** shall be completed by the provider and forwarded to the Office of the Chief Medical Officer and the Organization's designated PI Officer as soon as practical after the failure. **In all cases, this report shall be completed prior to the end of the provider's tour of duty**.
8. This procedure should be applied in addition to any process established by a System organization and is not considered a substitute for the organizational reporting requirements.

Escharotomy (≥ PL6)

Clinical Indications:

1. Online medical control (OLMC) approval is required prior to performing an escharotomy.
2. Impending or established respiratory compromise due to circumferential torso burns.

Contraindications:

1. Patient has signs of obvious death, such as incineration or other injuries incompatible with life.

Preparation for Use:

1. Don appropriate PPE & begin attempting ventilations.
2. Ensure all equipment is readily available: Scalpel, Chlorhexidine Sponge, Kerlix/gauze.
3. Position the patient, ideally supine.
4. If the patient is possibly conscious, then administer Fentanyl or Ketamine for anesthesia.

Procedure:

1. Prep the wound with chlorhexidine skin prep.
2. Cut with scalpel along lines as depicted in Figure 1; cuts are only through burned tissue and should not be through viable or superficially burned tissue.
    a. Chest – release bilateral mid-axillary lines, superior along clavicles and superior border of sternum, and inferior transverse elliptical below costal margin joining the vertical incisions.
    b. Only perform the series of cuts as needed to achieve adequate ventilation compliance, which may mean not performing all of the cuts as described.
3. Ensure incision is skin depth only, which should only expose fat and not muscle at base of the incisions.
4. Ensure adequacy of release and no more remaining tight bands. Run your finger along the wound and monitor for return of preservation of breathing.
5. Control minor bleeding with gauze as needed.

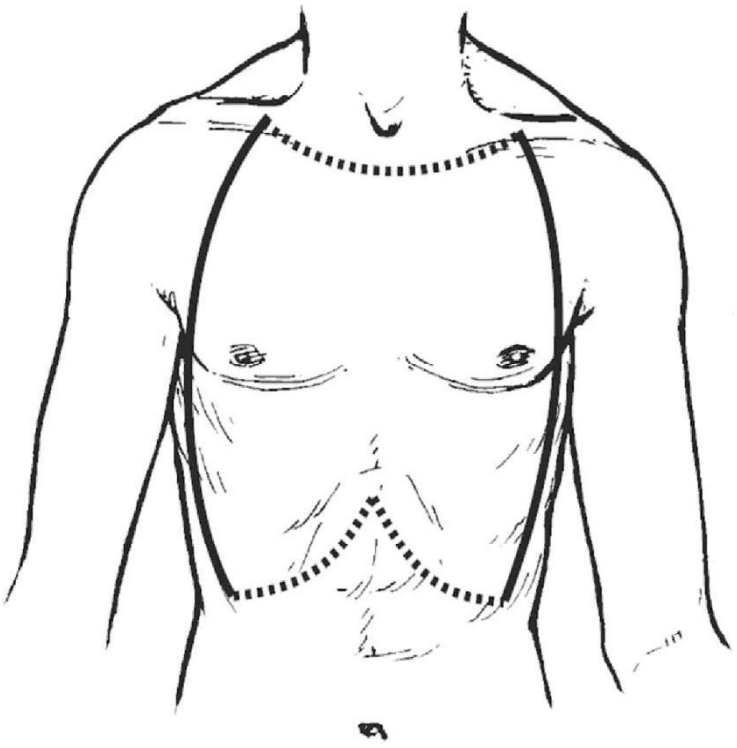


Figure 1. Escharotomy Lines

$EtCO_2$ – EZ Cap (≥ PL2)

Clinical Indications:

1. As an adjunct for initial confirmation of proper advance airway placement.
2. On intubated or BIAD patients until quantitative capnography becomes available or in the event of $EtCO_2$ device failure.

Contraindications:

1. Not used to detect main-stem bronchial intubation.

Precautions

1. Due to potential increased airway resistance, do not use Pediatric Cap on patients weight ≥ 15 kg (33 lbs).
2. Reflux of gastric contents, mucous, edema fluid, or nebulization can discolor detector. Contamination of this type may increase resistance, alter color changes, and effect ventilation. If this occurs, then discard the device.

Preparation for Use:

1. Select the appropriate detector according to patient size and weight.
   a. Patient ≥ 15 kg (33 lbs), then Easy-Cap
   b. Patient ≤ 15 kg (33 lbs), then Pedi-Cap

Procedure:

1. Remove detector from packaging.
2. Match initial color of indicator to the purple color labeled check around the detector window.
   a. If the purple color of the indicator is not the same color or darker than the area marked check, then do not use the detector.
   b. If the indicator color appears pink, the separate color chart for the fluorescent light must be used for accurate color matching.
3. Insert advance airway according to the appropriate procedure.
4. Attach detector to advanced airway then attach BVM to the detector.
5. Deliver six ventilations of moderate tidal volume, results before six ventilations may be false results.
6. After six ventilations, compare indicator color in the window on full end expiration. If CO_2 is detected, the purple check color will change to tan (Range C).
7. If the results are not conclusive and correct placement cannot be confirmed with certainty by other means, then the advanced airway should be immediately removed and BVM ventilations resumed.

$EtCO_2$ – Wave Form Monitoring (≥ PL3)

Clinical Indications:

1. All patients with a potential or actual change in metabolism, circulation, perfusion, and/or respiratory function
2. Hypoventilation states
3. Hypoperfusion / shock states
4. Shortness of breath / bronchospastic disease / reactive airway disease
5. Chest pain with respiratory distress
6. Congestive heart failure
7. All patients with advance airways or receiving CPR
8. Patients experiencing altered mental status
9. Any patient receiving or have received sedation medications or magnesium

Contraindications:

1. None

Precautions

1. A patient with a normal cardiac and pulmonary function will have an $EtCO_2$ level between 35-45 mmHg.
2. When no CO2 is detected, then 3 factors must be quickly evaluated for:
   a. Loss of airway function, improper tube placement, apnea
   b. Loss of circulatory function, massive pulmonary emboli, cardiac arrest, exsanguination
   c. Equipment failure, tube dislodgement or obstruction
3. All advanced airway patients will have $EtCO_2$ capnography applied and pre/post intubation readings documented in the ePCR.

Preparation for Use:

1. Turn on monitor and very $EtCO_2$ is on and functioning.

Procedure:

1. Connect $EtCO_2$ tubing to the monitor before connecting to the patient's airway.
2. Connect to the patient's airway or appropriate place nasal prongs.
3. Record and confirm waveform.
4. For patients meeting the indication for capnography, $EtCO_2$ monitoring should continue throughout care and transport.
5. Continuous capnography should be monitored as airway procedures are performed to aid in verification, identification, or correction of an airway problem.
6. Any loss of $EtCO_2$ or waveform should be immediately evaluated for loss of airway and/or circulation, or equipment failure and promptly addressed/resolved.
7. In all patients with a pulse, an $EtCO_2$ reading > 20 is expected.
8. In the pulseless patient, an $EtCO_2$ waveform with a value > 10 may be utilized to confirm the adequacy of an airway to include BVM and advance airway management.

External Jugular Access (≥ PL5)

Clinical Indications:

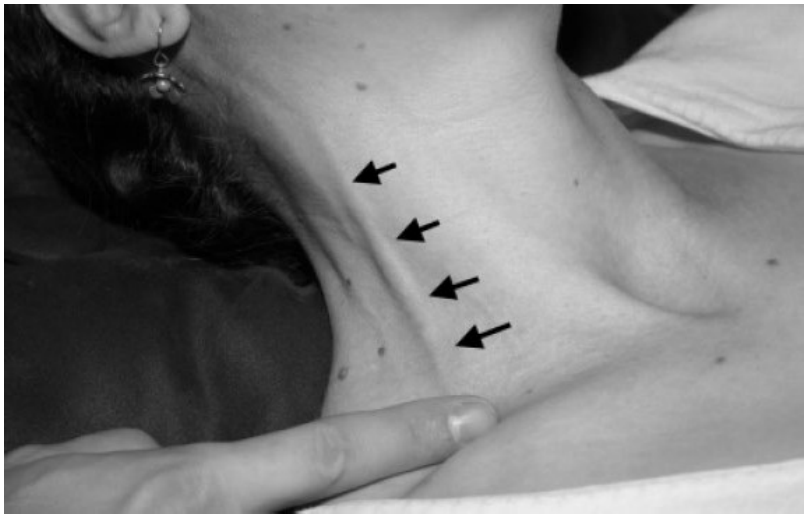
1. Critically ill patients who require intravenous access for fluid or medication administration, and in whom extremity veins are not obtainable.
2. External jugular cannulation may be the initial or preferred access in patients of all ages in **life threatening events** where no obvious peripheral site is noted and intraosseous access is contraindicated or undesirable.

Contraindications:

1. Inability to locate landmarks

Procedure:

1. Place the patient in a supine head down position where possible to distend the neck veins.
2. Turn the patient's head toward the opposite side if no risk of cervical injury exists.
3. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. "Tourniqueting" the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Avoid use of cervical collars with external jugular venous access. If needed, other methods of cervical motion restriction should be used.



Eye Irrigation (≥ PL1)

Clinical Indications:
1. Irrigation of eye after chemical exposure/burn.
2. Asist with removal of foreign material from eye.

Contraindications:
1. Impaled object in eye.
2. Trauma to globe of eye.

Notes/Precautions:
1. Care should be taken that the patient does not rub eyes as additional damage can occur.

Procedure:
1. Remove contact lenses, if present
2. Use isotonic crystalloid alone, or ≥ PL3 may mix 100 mg Lidocaine 5 mL of a 2% solution in 1 L of isotonic crystalloid
3. Initiate irrigation and direct the top of the IV tubing at the medical canthus (corner of the eye nearest to the nose) and allow to flow laterally. Do not allow irrigation to come in contact with the unaffected eye.
4. Continue irrigation throughout transport. All patients should receive transport to the ED to evaluate for corneal injury.

Field Triage (≥ PL1)

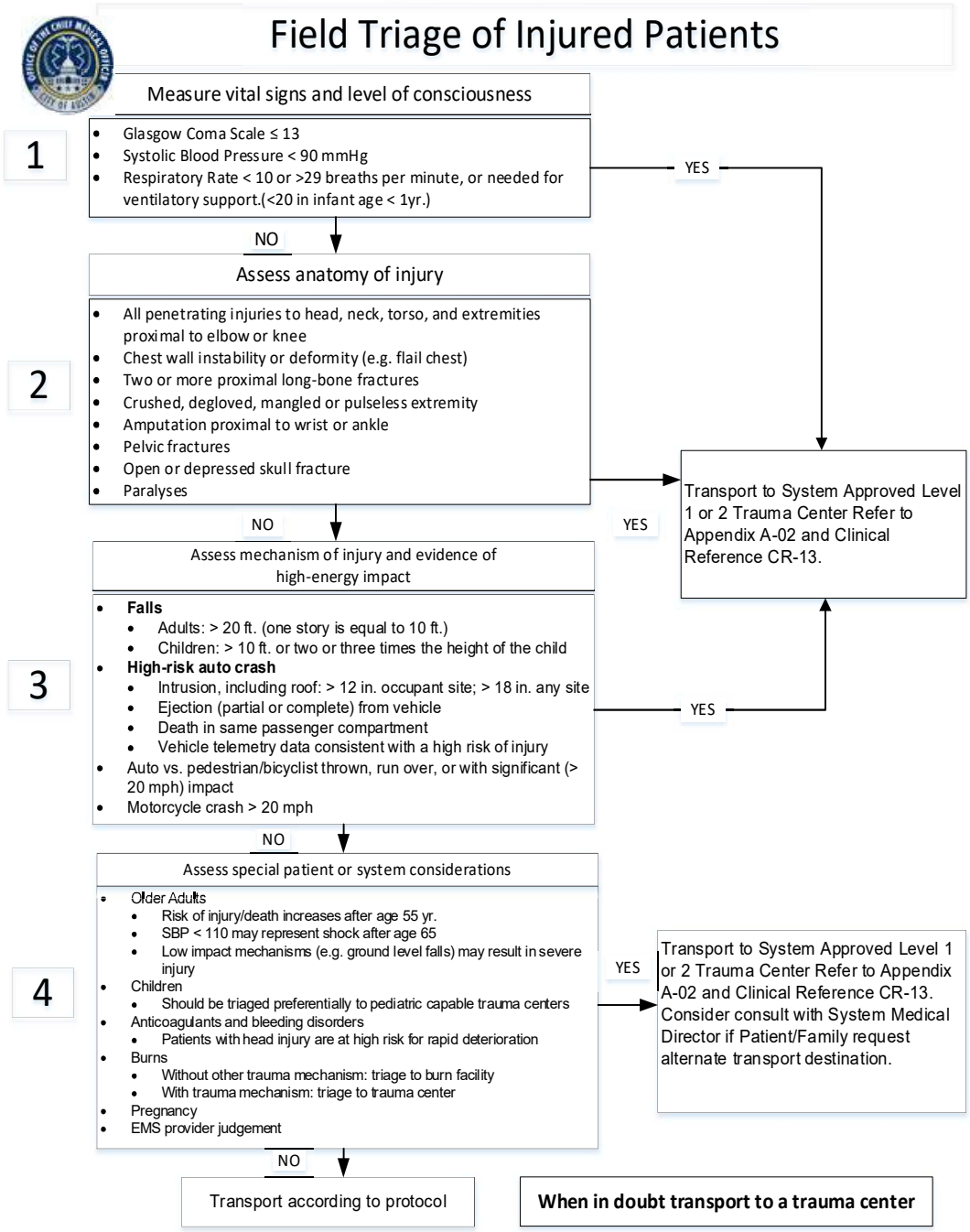
Clinical Indications:

1. Incident with multiple patients, such as a Mass-Casualty Incident.

Contraindications:

1. None

Procedure:



Flex Guide ETT Introducer (Gum-elastic Bougie) (≥ PL5)

Clinical Indications:

1. Must be used for each intubation attempt for direct laryngoscopy.
2. Any patient who meets clinical indication for orotracheal intubation.
3. Predicted difficult intubation.
4. Digital intubation.

Contraindications:

1. No absolute contraindications

Notes & Precautions:

1. Soft tissue damage or bronchial rupture may occur:
    a. During blind intubation
    b. Positioning past the carina
    c. If undue pressure is applied.
    d. If ET tube is passed over introducer without the use of a laryngoscope.
2. This is a single use patient device.
3. For optimal use, store flat in the same shape as packaging.

Procedure:

1. Prepare and perform an optimal direct laryngoscopy in accordance with the orotracheal intubation procedure.
2. Begin insertion of introducer.
    a. Tactical confirmation of tracheal *clicking* will be felt as the distal tip of the introducer bumps against the tracheal rings.
    b. If tracheal clicking cannot be felt, continue to gently advance the introducer until *hold up* is felt.
    c. Tracheal *clicking* and *hold up* are positive signs that the introducer has entered the trachea. Lack of tracheal *clicking* and *hold up* is indicative of esophageal placement.
3. While securely holding the introducer and without removing the laryngoscope, advance the endotracheal tube over the proximal tip of the introducer.
4. As the tip of the endotracheal tube passes beyond the teeth, rotate the tube 90 degrees counterclockwise so the bevel does not catch on the arytenoid cartilage.
5. Advance endotracheal tube to the proper depth and call aloud the depth.
6. While securely holding the endotracheal tube, remove the introducer.
7. Verify correct placement of endotracheal tube in accordance with clinical guidelines and standards.

Foreign Body Airway Obstruction – Conscious Patient (≥ PL1)

Clinical Indications:

1. Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign body obstruction of the upper airway.
2. Respiratory arrest where ventilation cannot be accomplished after repositioning of airway.

Contraindications:

1. No absolute contraindications

Procedure:

1. Assess the degree of foreign body obstruction of the upper airway.
   a. Do not interfere with mild obstruction, allow the patient to clear the airway by strong coughs.
   b. In severe foreign body airway obstructions, the patient may not be able to make a sound. The victim may clutch their neck in the universal chocking sign.
2. For *infants*, deliver five (5) back blows followed by five (chest thrusts) repeatedly until the object is expelled or the victim becomes unresponsive.
3. For *children*, perform a sub diaphragmatic abdominal thrust, also known as the Heimlich Maneuver, until the object is expelled or the victim becomes unresponsive.
4. For *adults*, a combination of maneuvers may be required.
   a. First, sub diaphragmatic abdominal thrusts should be used in rapid sequence until the obstruction is relieved or the victim becomes unresponsive.
   b. Chest thrusts should be used in obese patients and in patients who are in the late stages of pregnancy.

Foreign Body Airway Obstruction – Unconscious Patient (≥ PL1)

Clinical Indications:

1. Unconscious patient with foreign body airway obstruction.

Contraindications:

1. No absolute contraindications

Procedure:

1. If the victim is or becomes unresponsive, then safely lower the patient to a hard surface and initiate pit crew positions:
   1.1. Position 1 - Begin 100 Chest Compressions immediately with Metronome, alternates compressions, attempted ventilations and periodic pulse checks with Position 2.
   1.2. Position 2 - Activates Metronome, applies AED pads, and alternates 100 compressions, attempted ventilations and periodic pulse checks with Position 1.
   1.3. Position 3 - Reposition Airway with (head tilt chin lift or jaw thrust) Do not insert OPA or BIAD until Airway is opened. Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway. Look in the mouth before attempting each ventilation (10 – 12 per minute). If a foreign-body is visible, remove it and assess for a pulse. Continue cycle of Chest Compressions, visualization then attempted ventilations, until the airway is open/clear. Use suction as needed to assist in clearing the Airway.
   1.4. ≥PL5 credentialed providers should assume Position 3 upon arrival and visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign body using Magill forceps.
2. If the foreign body airway obstruction is removed and patient has pulses:
   2.1. Position 1 & 2 – Stop chest compression cycle and support the patient with 10-12 ventilations per minute as needed with oxygen, and provide ongoing periodic pulse checks.
   2.2. Position 3 – Secure and maintain the patient's open airway and continues to hold mask seal as needed during patient ventilations.
3. If the patient becomes pulseless with foreign body airway obstruction in place:
   3.1. Position 2 – Immediately activates AED and follow prompts.
   3.2. Position 1, 2, & 3 – Continue efforts indicated above to relieve continuing obstruction.
4. If the patient becomes pulseless and foreign body airway obstruction has been removed or relieved:
   4.1. Position 1, 2, & 3 – Activate Pit Crew CPR efforts including all airway adjuncts.

Gastric Tube Insertion (≥ PL5)

Clinical Indications:

1. Adult and pediatric cardiac arrest or coma following placement of advanced airway.
2. Patients who are vomiting or at risk for aspiration due to altered mental status.

Contraindications:

1. Actual or suspected laceration or perforation of the esophagus.
2. Suspected fractures of the cribiform plate as evidenced by severe maxillofacial trauma for nasal gastric tube placement.
3. Ingestion of a caustic substance.

Notes/Precautions:

1. Anticoagulant use (e.g. coumadin/warfarin) or disorders of coagulopathy (hemophilia) is a relative contraindication.

Procedure:

1. Select appropriately sized tube according to patient size and measure the correct length for insertion.
   a. To measure length: While holding the distal end of the tube, measure the distance from the patient's earlobe to the bridge of his/her nose, and from there to a point just below the xiphoid process
   b. Mark this length with a piece of tape to serve as a future guide point
2. In the unconscious or arrested patient with an advanced airway in place, the orogastric route of insertion may be preferred.
3. If an iGel is used the appropriate size gastric tube must be inserted through the gastric lumen of the iGel airway.
4. Lubricate distal 3 to 6 inches of the tube (preferably with Lidocaine jelly) and select the most widely patent nostril.
5. Support the back of the patient's head and gently advance tube straight back along the floor of the nasal cavity (in an anterior-to-posterior direction, not cephalad). If resistance is felt, rotate tube slightly to help advance it into position.
6. Continue to insert the tube past the glottic opening into the esophagus. Continue to insert the tube into the nose until the pre-measured mark reaches the front edge of the nostril.
7. After reaching the predetermined mark confirm that the tube has not curled up into the oropharynx or pharynx. While listening over the epigastrium, inject 20-30 mL of air into the tube and listen for "gurgling" to indicate proper placement. Aspirate and observe for gastric contents (may not always be present).
8. If no sounds are heard over the epigastrium, and you notice fogging or misting in the tube, or patient cannot cough or speak, immediately withdraw the tube and oxygenate the patient.
9. If tube placement has been confirmed, securely tape the proximal end where it enters the nostril to the bridge of the nose.
10. After tube is firmly secured, connect the proximal end to suction device and suction as needed.

i-gel Airway BIAD (≥ PL2)

Clinical Indications:

1. Cardiac arrest after assuring continuous compressions, defibrillation and BLS airway management has been completed.
2. Non-cardiac arrest patient without a gag reflex.
3. Intubation is difficult or impossible due to patient access or airway anatomy.

Contraindications:

1. Conscious patient.
2. Patient with present gag reflex.
3. Patients under/overweight for airway size used.
4. Patient with known esophageal disease – varices, alcoholism, cirrhosis, etc. – or ingestion of caustic substances.
5. Deforming facial trauma that prevents proper seating of the airway.

Pre-Procedure:

1. Select the appropriate i-gel by assessing the patient's anatomy and weight:

i-gel Resus Pack

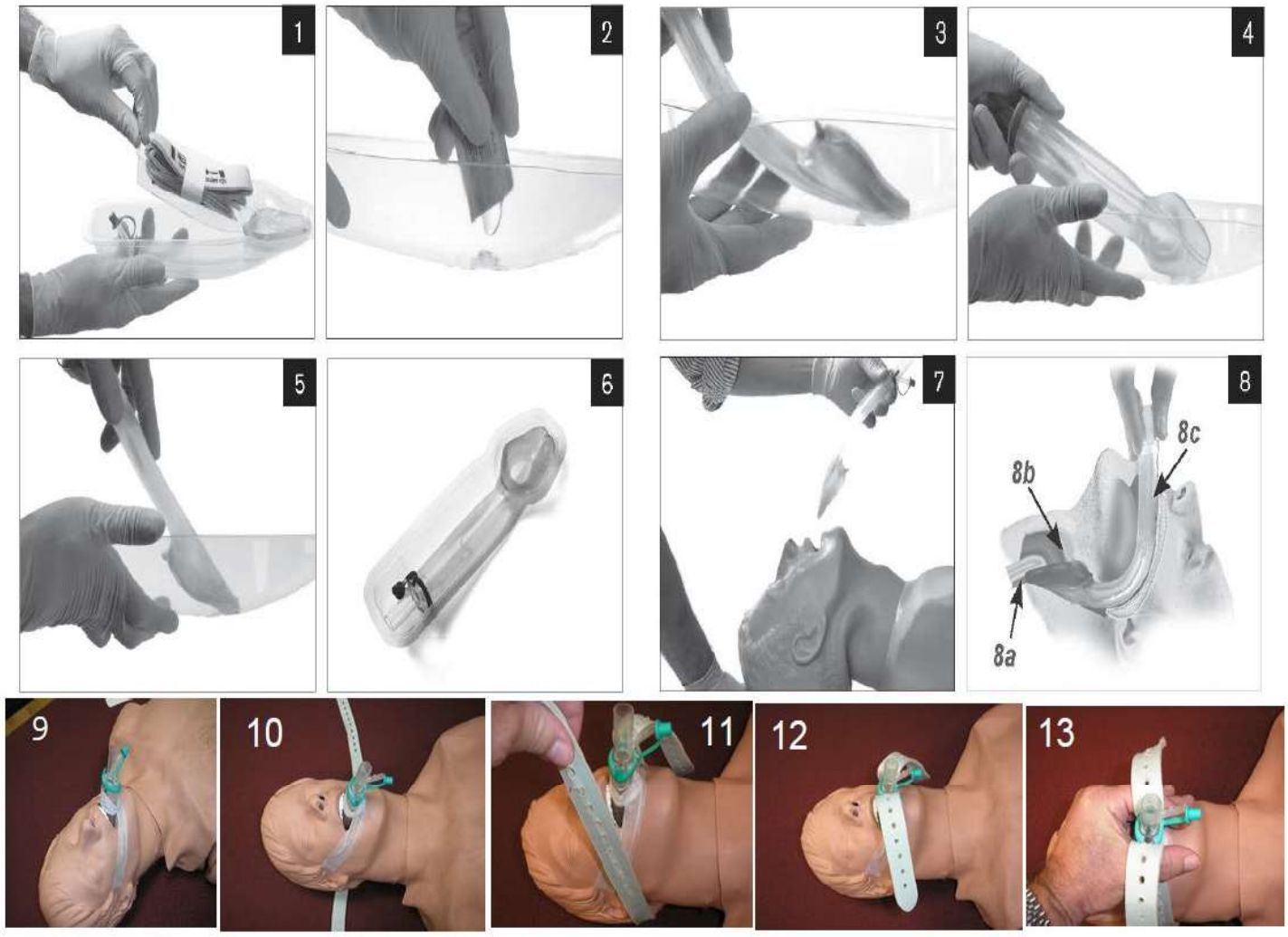
Color	Pink	Blue	Gray	White	Yellow	Green	Orange
Size	1	1.5	2	2.5	3	4	5
Weight	2 – 5 kg 5-11 lbs	5 – 12 kg 12 – 25 lbs	10 – 25 kg 22 – 55 lbs	25 – 35 kg 56 – 65 lbs	30 – 60 kg 66 – 132 lbs	50– 90 kg 110 – 198 lbs	> 90 kg > 198 lbs
OG Size	N/a	10	12	12	12	12	14

2. Inspect the packaging and ensure it is not damaged prior to opening.
3. Inspect the device carefully, check that the airway is patent and confirm there are no foreign bodies or liquid obstructing the distal opening of the airway or gastric channel.
4. Carefully inspect inside the bowl of the device ensuring surfaces are smooth and intact and also that the gastric channel is patent.
5. Discard the device if the airway tube or the body of the device looks abnormal or deformed.
6. Down appropriate PPE, including face/eye protection.
7. Ensure patient is being ventilated and oxygenated.
8. Open the i-gel package and remove the inner tray containing the airway, strap, and lubricant (Figure 1).
9. Lubricate the base of the inner side of the main shell (Figure 2).
10. Grasp the i-Gel along the bite block and lubricate the back sides and front of the cuff and repeat as needed. Make sure no lubricant is in the bowl of the cuff and avoid touching the cuff of the device with your hands (Figures 3-5).
11. Ensure the supplementary oxygen port is closed until needed.
12. Place the i-gel into the main shell of the packaging in preparation for insertion (Figure 6).
13. Remove dentures or removeable plates from the mouth just before attempting insertion.

Procedure:

1. Grasp the lubricated i-gel along the integral bite block and position the device so the i-gel cuff outlet is facing towards the patient's chin (Figure 7).
2. Place patient in sniffing position (Figure 7) before inserting the i-gel.
3. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.
4. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt.

5. At this point, the tip of the airway should be located into the upper esophageal opening and the cuff should be located against the laryngeal framework with the incisors resting on the integral bite block (Figure 8a-c).
6. i-gel should be secured with the strap provided or other appropriate means (Figures 9-12).
7. **Connect/apply $EtCO_2$ detection device along with appropriate BVM.**
8. **Confirm proper position by $EtCO_2$** and auscultation of epigastric (absent sounds) then chest (sounds of ventilation). Note presence of chest rise and fall
9. After placement confirmation, further secure the device as needed and continue to stabilize the i-gel.
10. Reassess confirmation with patient movements **utilizing $EtCO_2$** and auscultation of epigastric (absent sounds) then chest (sounds of ventilation).



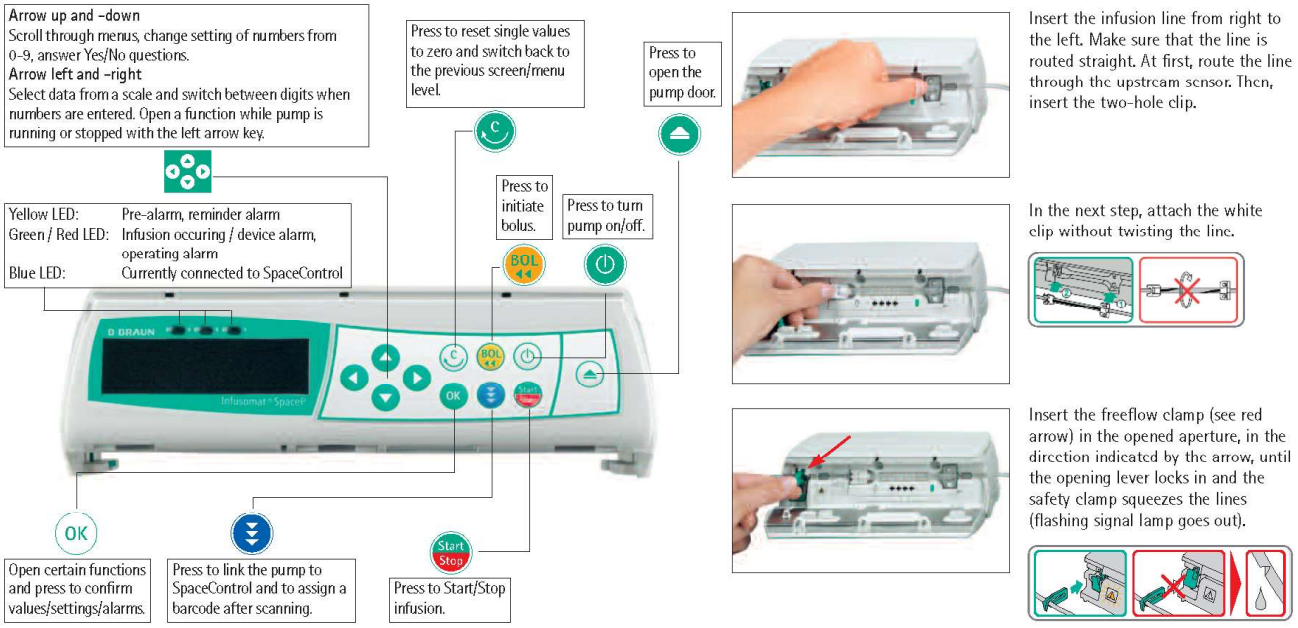
Infusion Pump (≥ PL5)

Clinical Indications:
Administer adult and pediatric medication infusions, and pediatric weight-based isotonic crystalloid volume resuscitation.

Contraindications:
None

Preparation for Use:
1. Establish patent vascular access.
2. Put the spike into the infusion bottle and fill the bottom part of the drop chamber no more than 2/3 full of the medication.
3. Fill the infusion line then close the roller clamp.
4. Hang medication above the level of the patient and infusion pump.

Procedure:
1. Perform medication crosscheck.
2. Turn on the infusion pump, which will likely perform a self-test.
3. Follow prompts to set therapy parameters.
4. Insert the line – *ONLY insert the line while the device is switched on*
    a. Insert the infusion line from right to left and make sure the line is routed straight.
    b. Route the line through the upstream sensor then inset the two-hole clip.
    c. Attached the white clip without twisting the line.
    d. Inset the freeflow clamp in the opened aperture in the direction of the arrow until the opening level locks and the safety clamp squeezes.
    e. Close the pump door and prime the as needed.
5. Establish patient connection
6. Ensure appropriate therapy is selected.
7. Ensure appropriate rate, Volume To Be Infused (VTBI), and Time are entered.
8. Start infusion and monitor patient for adverse events.



Inter-Facility Transfer with Precautions (≥ PL2)

Clinical Indications:

1. Maintaining uniform standards of isolation practices within a medical facility and beyond is essential to protect patients and Health Care Workers (HCW) from acquiring contagious diseases and to prevent colonization.
2. Isolation procedures are consistent with the recommendations of the Centers for Disease Control and Prevention Guideline for isolation precautions in hospitals.
3. These precautions are specific for the proper inter-facility transfer of all patients identified or suspected of being infected with communicable disease. The goal is to establish practical and effective measures for isolating the disease organism, not the patient.

Contraindications:

1. No absolute contraindications

Notes:

1. Patients with any communicable disease shall be transferred only when medically necessary and with the full knowledge and consent of the receiving facility.
2. Transport providers within the system are responsible for providing care in accordance with this policy.

Procedure:

1. All system providers are responsible for complying with isolation precautions, specifically standards and procedures for standard and contact precautions, respiratory precautions, and the similar:
   1.1. Precautions may be used in combination for diseases that have multiple routes of transmission.
   1.2. Providers will ensure the maximum level of PPE will be available and in sufficient quantity to safeguard providers during any required level of patient treatment.
   1.3. Providers will bring the appropriate number of sheets to properly undertake patient and stretcher covering.
   1.4. Providers will wear N95 respiratory masks, or greater, when transporting patients with probable, suspected or confirmed cases of serious illness with an airborne microbe including, but not limited to TB, smallpox, SARS, varicella, and measles.
   1.5. Appropriate hand hygiene before and after touching the patient.
   1.6. The application of precautions will be to a level indicated by the transferring facility. Any disagreement as to the appropriate level of PPE to be utilized will defer to the decision of the transferring facility Infection Preventionist or their designee.
2. Departing Transferring Facility
   2.1. Isolated patients are transported only for essential purposes and only using appropriate barriers to prevent transmission.
   2.2. Ensure transferring facility has notified the receiving facility of implementation of isolation precautions.
   2.3. Put on gown, gloves, and a mask if indicated before going into the patient's room.
   2.4. Help the patient on to the stretcher and cover patient with clean sheet. Cover the stretcher rails with sheets. Cover any other areas that will be touched during transport.
   2.5. Ensure drainage or infectious area is contained with fresh dressing(s) or impervious coverings prior to transport.
   2.6. Remove gown, gloves, and mask (if worn) as you exit the door of the patient's room.
   2.7. Wash hands or use alcohol based hand sanitizer.
   2.8. Begin movement to vehicle via the designated area by the least traveled route.
   2.9. There is no need for PPE precautions except as specified above.
   2.10. Place patient into the vehicle.
   2.11. Use Standard Precautions. Don appropriate PPE for anticipated procedures that may be initiated during vehicle transport.

2.12. Non-medical personnel should not be permitted in the patient care compartment during transport.

3. Arriving at Receiving Facility
   3.1. Re-apply a clean patient cover sheet. Re-cover the stretcher rails with clean sheets. Re-cover any other areas that will be touched during transport.
   3.2. Remove PPE upon exiting the vehicle and upon entrance into the receiving medical facility.
   3.3. Ensure PPE is disposed of in an appropriate container.
   3.4. Begin movement to the patient's destination traveling directly to the designated area by the least traveled route.
   3.5. Providers shall put on the appropriate PPE which may include gown, gloves, and mask when assisting the patient onto the receiving stretcher or bed.
   3.6. Cover the patient with another clean sheet.
   3.7. Remove linen from stretcher and dispose of in the appropriate container.
   3.8. Utilizing a disinfectant saturated cloth:
      3.8.1. Wipe down stretcher
      3.8.2. Stretcher handrails
      3.8.3. Other potentially contaminated stretcher mechanisms
      3.8.4. Mattress
   3.9. Remove gown, gloves and mask (if worn) at the door of the patient's room.
   3.10. Take stretcher into the hall.
   3.11. Wash hands or use alcohol based hand sanitizer.
   3.12. Clean contaminated environmental surfaces and equipment with approved disinfectant saturated cloth and allow to air dry.

Intramuscular Injections (≥ PL1)

Clinical Indications:

1. Route indicated by guideline when rate of absorption needs to be slower and/or prolonged in action.
2. When other administration routes are unsuccessful, unsafe, or unavailable.

Contraindications:

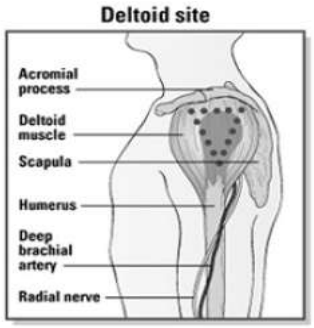
1. No absolute contraindications

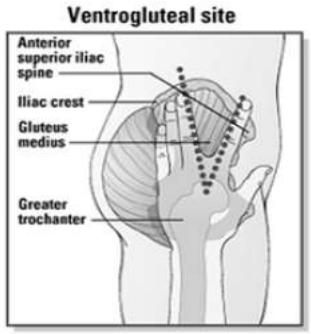
Notes & Precautions:

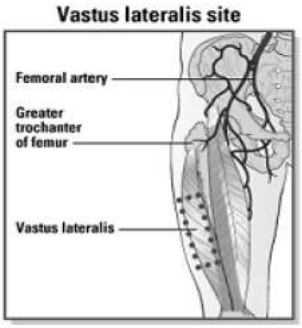
1. Prepare appropriate equipment:
   a. Needle size & length – ½ to 1 inch for deltoid, 1 to 1.5 inch for larger muscles
   b. 25 g for aqueous medications, 21 gauge for oily or thicker medications.
   c. Appropriately sized syringe to measure the administration volume.
   d. Chlorohexidine wipe and band aids
2. Appropriate injection sites:
   a. Posterior deltoid for injections of up to 2 mL in adults contingent upon muscle mass development.
   b. Vastus Lateralis for injections of 2 mL or less in children and adults.
   c. Ventrogluteal site for injections of 2 to 5 mL in adults, or 2 mL or less in children.

Procedure:

1. Prepare equipment, inspect medication, perform medication cross check – Right: patient, drug, dose, route, indication, time
2. Locate appropriate injection site:
   a. Deltoid: Identify the bony portion of the shoulder where the clavicle and scapula meet (acromioclavicular joint), then measure 3-4 fingers down the arm from the acromioclavicular joint, slide 1-2 fingers posteriorly on the arm.
   b. Vastus Lateralis: Locate on the anterior and lateral aspects of the thigh, then divide the area into thirds between the greater trochanter of the femur and the lateral femoral condyle, injection is given into the middle third.
   c. Ventrogluteal: Place heel of palm on patient's greater trochanter of the femur, then place index finger on the anterior superior iliac spine and spread other fingers posteriorly, injection is given in the V formed between the index finger and the second finger.







3. Cleanse site with Chlorohexidine
4. Stretch or flatten the skin over the selected site to allow for smoother entry of the needle.
5. Hold the syringe like a dart and quickly insert the needle into the tissue and muscle at a 90-degree angle.
6. Slowly inject the medication, once injected then quickly withdraw the syringe and properly dispose.
7. Gently massage the injection site to increase absorption and distribution.
8. Apply firm pressure and place band aid over site.

Intraosseous Infusion (≥ PL4)

Clinical Indications:

1. Cardiac Arrest
2. Critical patient where rapid vascular access is unavailable by other means in the following conditions:
   a. Multisystem trauma with severe hypovolemia
   b. Severe dehydration with vascular collapse and/or loss of consciousness
   c. Respiratory failure or respiratory arrest
   d. Patient is unstable.

Contraindications:

1. Fracture proximal to the proposed intraosseous site.
2. History of osteogenesis imperfecta.
3. Current or recent infection at proposed intraosseous site.
4. Previous intraosseous insertion at the identified site within 24 hours.
5. Joint replacement at or above the selected intraosseous site.

Notes/Precautions:

1. Any prehospital fluids or medications approved for IV use, may be given through an IO line.

Procedure:

1. Prepare EZ-IO assuring that complete needle set with trochar and needle are present, and the set is sterile and unused.
2. Identify landmarks for insertion:
   a. Humeral head - place the patient's palm on their umbilicus with the elbow on the ground or stretcher. Use your thumb to identify the humeral shaft. Slide thumb towards humeral head with firm pressure. Locate the tubercle by the prominent bulge. Use the opposite hand to pinch anterior and posterior humerus to assure midline position on the humerous.
   b. Proximal tibia - Identify anteromedial aspect of the proximal tibia palpated just below the inferior border of the patella. Insertion site is 1-2 cm (2 finger breadths) below this on the flat surface of the tibia.
   c. Distal tibia - Identify the anteriormedial aspect of the distal tibia (2 cm proximal to the medial malleolus).
   d. Distal femur - Place leg in perpendicular position with foot pointing up. Identify superior border of patella. Insertion site is 1-2 cm (2 finger breadths) above the patellar superior border.
3. Prep the selected insertion site with chlorohexidine.
4. Hold the intraosseous needle at 90-degree angle aimed away from the nearest joint. Power the driver until a *pop* or *give* is felt indicating a loss of resistance. Do not advance the needle further.
5. Remove the stylette and place in a sharps container.
6. Attach a syringe filled with at-least 5 mL of NS and aspirate to confirm placement. Inject 5 mL of NS to clear the needle while observing for infiltration.
7. Attach saline lock and/or IV tubing and adjust flow rate. A pressure bag may be used to enhance flow when appropriate.
8. Stabilize and secure the needle.
9. If the patient experiences pain with infusion or medication, then lidocaine may be administered. Wait 15 seconds to prior to re-administering infusion or administration of medications. Lidocaine may be repeated once if pain persists.
10. When administering medications via IOA, a 10 mL flush of NS should follow.
11. Document the procedure, time, and result in the ePCR.

Extremity Intravenous Access & Saline Lock (≥ PL4)

Clinical Indications:

1. Any patient where intravenous access is indicated due to significant trauma or traumatic mechanism, emergent or potentially emergent medical condition.
2. Patients requiring intravenous fluids or medications.
3. Patients in which a potential for hemodynamic compromise or vascular system instability exists.

Contraindications:

1. No absolute contraindications

Notes/Precautions:

1. In cardiac arrest patients, any preexisting dialysis shunt or external venous catheter may be used. Do not expose open end to air unless clamped.
2. Upper extremity IV sites are preferable to lower extremity sites, except cardiac arrest.
3. Lower extremity IV sites are contraindicated in patients with vascular disease or diabetes.
4. Vasoactive drops should be used through large bore IV catheter through the AC or larger vein.
5. In post-mastectomy patients, avoid IV in arm on affected side.

Procedure:

Extremity Intravenous Access:

1. Locate a suitable venipuncture site and place a venous constricting band above the chosen site.
2. Select a vein and an appropriate gauge catheter for the vein and the patient's condition. Appropriate sites include:
   a. Posterior hand
   b. Forearm
   c. Antecubital fossa
   d. Lower extremity
   e. Scalp vein for infants only
3. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
4. Connect IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing to bleed all air bubbles from the line.
5. Prep the skin with Chlorohexadine**.**
6. Insert the needle with the bevel up into the skin in a steady and deliberate motion until a pop is felt and venous flashback is visualized.
7. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose the needle into the proper container without recapping.
8. Remove the venous constricting band and connect the IV tubing or saline lock.
9. Open the IV to assure patent access and free flow of the fluid, then adjust to appropriate rate.
10. Cover the site with an appropriate dressing and secure the access site.
11. Document the details of the procedure.

Saline Lock:

1. Prepare and assess equipment.
2. Flush air from the saline lock.
3. Follow steps 1 through 8 as described for extremity intravenous access.
4. Remove protective cap on the luer lock device and carefully twice it onto the IV hub. Confirm that firm contact has been established and no fluid leaks exist.
5. Flush the saline lock with normal saline to assess for infiltration.
6. Secure with appropriate dressing.

King Vision Video Laryngoscopy (≥ PL5)

Clinical Indications:

1. Any adult patient who is a candidate for orotracheal intubation with conventional direct laryngoscopy.

Contraindications:

1. The diameter of the oral cavity will not accommodate the blade size:
   a. Channeled blade requires 18mm opening
   b. Non-channeled blade requires a 13 mm opening
2. Anytime a less invasive maneuver would allow oxygenation and ventilation of the patient.

Precautions:

1. During placement of the blade, maintain as anterior of an approach as possible to avoid pooled secretions in the posterior pharynx. Suction should be readily available to manage secretions, blood, and/or vomitus.
2. If suctioning is anticipated, then the provider may elect to utilize the non-channeled blade which can be more easily used in conjunction with suction.
3. Airway axis alignment is generally not necessary but may be employed as provider deems appropriate.
4. Device can be utilized with a c-collar in place.
5. Device should be held below the purple ring during use to avoid inadvertent disconnection, which can occur by lifting on display during use.
6. The following techniques can be utilized to avoid the chest in large body habitus patients:
   a. Insert blade sideways like an OPA and rotate into midline position.
   b. Insert blade without display attached, then attach and turn on while blade is in the mouth.
   c. Ramping may also be effective in these situations.
   d. Blade must be connected before powering device on.
   e. Channeled blade will accommodate 6.0 - 8.0 ET tube

Procedure:

1. Select blade style and attach to display.
2. Lubricate blade and ET tube keeping lubricant away from imaging sensor.
   a. Channeled blade - ET tube should be preloaded into the channel.
   b. Non-channeled blade - A preferred rigid stylet should be placed into the ET tube, or a malleable stylet if a rigid is unavailable as secondary option.
3. Power device on and check for a functional moving image.
   a. If image is static, frozen, or split then power the device off and check connections before turning back on.
4. Place patient's head in a neutral or sniffing position and pre-suction airway.
5. Utilizing a standard scissor technique to open the mouth, place blade in the oropharynx with a mid-line approach, follow the curvature of the tongue looking for the uvula and then epiglottis.
6. Place the blade tip into the vallecula while lifting straight up, displace the mandible anteriorly to expose the glottic aperture (Macintosh approach).
   a. Alternatively, lift the epiglottis directly to expose the glottic aperture (Miller approach).
7. Advance the ET tube through the vocal cords to the proper depth in the trachea.
   a. Channeled blade:
      7.a.1. ET tube can be twisted within channel for lateral adjustment.
      7.a.2. If ET tube impacts right arytenoids retract tube and twist to the left
      7.a.3. Bougie can be utilized for additional anterior deflection
   b. Non-channeled blade:
      7.b.1. Follow blade curve with ET tube tip to avoid losing tip in the oropharynx
      7.b.2. Align ET tube tip with vocal cords
      7.b.3. Retract stylet as ET tube is advanced

8. Stabilize and hold the ET tube laterally while withdrawing blade from the mouth.
9. Disconnect the blade from display. Then dispose of blade, and clean/disinfect display.
10. Cleaning and disinfecting:
    a. Blade is disposable
    b. Display should be cleaned and disinfected with appropriate wipes
    c. Display should not be submersed, and bottom electrical connections should be kept dry at all times.
    d. Stylet cleaning:
        10.d.1. Remove visible contaminants with germicidal wipes
        10.d.2. Allow stylet to air dry
        10.d.3. Rinse stylet with water
        10.d.4. Submerse stylet in Cidex or Sporox bath
        10.d.5. Allow to remain submersed 10-20 minutes
        10.d.6. Remove from bath and allow to air dry
        10.d.7. Rinse with water
        10.d.8. Return to King Vision kit

Legal Blood Draw (Phlebotomy Services Provider)

Clinical Indications:

1. Law enforcement has requested a blood draw for evidentiary purposes **AND** a legal blood draw equipment
2. Voluntary blood draw **OR** a warrant signed by a judge is provided by Texas Peace Officer

Contraindications:

1. No in date blood draw equipment available
2. Involuntary blood draw without a warrant
3. Taking of the specimen would impair or interfere with provisions of patient care

Notes/Precautions:

1. *Texas Transportation Code 724.017 (a)(5)*: Paramedics may perform legal blood draws for evidentiary purposes
2. Legal Blood draw must be observed by a Texas Peace Officer who shall immediately take possession of the specimen to establish a chain of custody.
3. Legal blood draw equipment must be available and within date

Procedure:

1. Legal blood draws may only be performed in a sanitary environment

2. Check the date of the blood draw equipment

3. Correctly complete the agency-specific lab and affidavit forms.

4. Don appropriate personal protective equipment (PPE)

5. Cleanse the venipuncture site with approved non-alcoholic wipes

6. Make venipuncture with a needle
    - **a.** Using a needless vacutainer, withdraw blood into blood tubes
    - **b.** Discontinue venipuncture and control bleeding
    - **c.** Slowly invert the tubes at least 8 times to ensure proper mixing of blood and anticoagulant

7. Write the time of collection on the tube labels using a ballpoint pen (if using a DPS kit) and the agency-specific form, place the tube labels properly on the tubes

    OR

    Clearly verbalize time of blood flow so that Texas Peace Officer can write time of collection appropriately

8. Hand tubes back to requesting Texas Peace Officer or place in a bag held by Texas Peace Officer
    - **a.** If the Texas Peace Officer requests, cleaning wipes may be handed over for inclusion into evidence collection.

Limb Amputation (≥ PL6)

Clinical Indications:

1. Online medical control (OLMC) approval is required prior to performing a limb amputation on a live or viable patient.
2. An immediate and real risk to the patient's life due to a scene safety emergency.
3. A deteriorating patient physically trapped by a limb when they will almost certainly die during the time taken to secure extrication.
4. A completely mutilated non-survivable limb retaining minimal attachment, which is delaying extrication and evacuation from the scene in a non-immediate life-threatening situation.
5. The patient is dead and their limbs are blocking access to potentially live casualties.

Contraindications:

1. Entrapment of a limb at a proximal location so as to not allow proper placement of a tourniquet to control bleeding.
2. Environmental or situational consideration as to make the procedure unsafe for the provider.
3. Having blood products on scene or brought to scene to enable trauma resuscitation and possibly extend field time to allow for the patient to be disentangled without amputation, this is a relative contraindication to be discussed with OLMC.

Preparation for Use:

1. Don appropriate PPE
2. Reach consensus on extrication plan with rescue personnel.
3. Apply appropriate respiratory and cardiac patient monitoring.
4. Ensure all equipment is readily available: Scalpel or sharp knife, Chlorhexidine or betadine, Kerlix/gauze, 2 tourniquets, large trauma dressing, elastic wrap for application of trauma dressing, and a device such as a gigli saw, reciprocating saw, or hydraulic cutter to divide bone.
5. If the patient is conscious, then discuss the procedure with the patient and obtain consent if possible.
6. If the patient is possibly conscious, then administer Fentanyl or Ketamine for anesthesia.

Procedure:

1. Ensure appropriate sedation/anesthesia has been reached and ensure respiratory and cardiac monitoring is in place to monitor the patient for signs of over sedation and respiratory/cardiac arrest.
2. Apply 2 tourniquets proximal to the amputation site.
3. Clean the amputation site with chlorhexidine or betadine.
    a. It is understood that limitations of the environment may prevent this from being an entirely sterile or clean procedure.
4. Stabilize the joint and structures related to the amputation to the best of your and partner(s) ability.
5. Make an incision around the limb as distal as possible cutting through all layers of soft tissue and bone.
6. Evaluate the stump for bleeding, take additional bleeding control measures as needed, and keep site as clean as possible.
7. Radio & document time of amputation(s).
8. Amputated parts should be secured, wrapped in clean dressing, and placed in a cool environment to the best ability of the crew. Amputated parts should then be transported to the receiving facility with the patient or in a secondary response vehicle as feasible based on patient and scene conditions.

Manual Defibrillation (≥ PL5)

Clinical Indications:

1. Cardiac arrest with ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT).

Contraindications:

1. No absolute contraindications.

Procedure:

1. Ensure that chest compressions are adequate and interrupted only at two-minute pause per the pit-crew model.
2. Apply hands-free defibrillation pads on the patient's chest per the manufacturer's instructions.
3. Clinically confirm the patient's condition is consistent with the rhythm and the need for the defibrillation exists. This is a SHOCK or NO SHOCK interpretation only.
4. Select energy level to be delivered per clinical guideline and charge defibrillator to the desired energy level. Ensure chest compressions continue while the device is charging.
5. Discontinue manual chest compressions, assertively state *CLEAR* and visualize from the patient's head to toe to assure no one is touching the patient.
6. Deliver the manual defibrillation by depressing the shock button.
7. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly for less than 10 seconds to perform a pulse check and analyze the rhythm.
8. Repeat the procedure every 2 minutes as indicated by the patient's response and rhythm.

Mechanical Non-Invasive Ventilation (≥ PL6)

Clinical Indications:

1. Respiratory distress from the following etiologies: Congestive Heart Failure (CHF), Pulmonary Edema, Submersion or Drowning, Chronic Obstructive Pulmonary Disease (COPD), Acute Respiratory Distress, Inhalational Injury

Contraindications:

1. Respiratory arrest or Agonal respirations
2. Unconsciousness
3. Hypoperfusion associated with cardiac insufficiency
4. Pneumothorax
5. Facial trauma, including burns
6. Inability to cooperate with fitting and wearing mask
7. Significantly altered mental status
8. Inability to protect airway

Relative Contraindications:

1. Nausea and vomiting
2. Agitation
3. Significant chest trauma
4. Cardiac ischemia or acute MI
5. Patient weight ≤10 kg (Call OLMC)

Preparation for Use:

1. Ensure ventilator is connected to oxygen
2. Turn ventilator on
3. Ensure inspiratory and expiratory limbs of the tubing are connected to the side of the ventilator appropriately.
4. Run circuit test
5. Attach mask to ventilator circuit
    a. **(Optional)** add filter and nebulizer "T" valve in between ventilator and mask
6. Set mode to "NIV"
7. Set initial parameters

FiO2: 100%
P Support: 7
PEEP: 5
Flow trigger: 5.0L/min

Precautions:

1. Possible complications include: Gastric distention, Reduced cardiac output, Hypoventilation, Pulmonary barotrauma, Excessive secretions, claustrophobic reaction
2. If assuming care of a patient who is already in non-invasive ventilation, ensure that the patient is not dependent on backup rate since NIV mode on the Hamilton does not have a back-up rate. Contact OLMC for any concerns.

Procedure:

1. Ensure oxygen is flowing prior to placing device on the patient's face.
2. Fully explain the procedure to the patient.
3. Have the patient hold mask to face and instruct the patient to breathe slowly and deeply.
4. Once the patient is comfortable with the mask, then securely attach the headpiece and tighten to fit.

5. Continuously monitor the patient's respiratory status/effort, SpO_2, and $EtCO_2$

6. Continuously monitor mask leak and tidal volumes. Mask leak should be <25%

7. The adjunctive delivery of a medication nebulizer with the NIV is approved and should be considered. Patient presentation and distress should dictate the timing or use of this procedure. The delivery of nebulized medication should not delay the use of NIV. When using a nebulizer with the Hamilton ventilator, connect the oxygen intake of the nebulizer to the port on the side of the ventilator and press the nebulizer button on the ventilator to ensure that oxygen delivery to the nebulizer is timed with breaths. **Note- This is the yellow port on the side of the ventilator.**

8. If the patient decompensates, then discontinue NIV and manage the patient per the appropriate clinical guideline. The following are signs of decompensation:
   a. Decreased level of consciousness
   b. Decreased SpO_2 from initial reading with NIV application
   c. Decreasing tidal volumes
   d. Bradycardia with hypotension or signs of hypoperfusion with cardiac insufficiency
   e. Respiratory arrest, agonal respirations, or ineffective respiratory effort
   f. Pneumothorax

9. Titrate Pressure Support to ventilation and EtCO2.
   Remember that PS is the additional support given on top of PEEP during inspiration to provide the IPAP, thus a PEEP 5 + PS 7 = IPAP 12.
   IPAPs higher than 20 are very high, could cause barotrauma, and are unlikely to be tolerated by patients.

10. Titrate PEEP/FiO2 to as needed to ensure adequate oxygenation.

Consult OLMC with any questions.

For circuit setup instructions, see: Mechanical Ventilation Procedure

Mechanical Ventilation (PL≥6)

Clinical Indications:

Patient with a pulse requiring airway management by an advance airway and mechanical ventilation.

Contraindications:

Cardiac arrest or untreated pneumothorax.

Pediatric patients weighing < 5kg (Must discuss use with any patient <12 years with OLMC)

Notes:

A BVM is to be used to confirm advanced airway placement.

A BVM with mask are to always be within reach of provider responsible for continuous monitoring of the airway and mechanical ventilation.

The ≥PL6 is provider responsible for continuous monitoring of the airway, $ETCO_2$, and mechanical ventilation.

All mechanical ventilation parameters need to be documented in ePCR.

Follow manufacturer guideline for disinfecting and cleaning after every use.

Procedure:

1. Set up the ventilator and circuit and run pre-op checks, then input initial ventilator settings, then place patient onto ventilator:
   a. Interfacility transports with mechanical ventilation already applied: Discuss with the patient's provider (MD/DO or PA/NP) or Respiratory Therapist at the sending facility regarding current ventilator settings. Modifications from the prescribed ventilator settings may be made based on changes in patient condition and response to ongoing mechanical ventilation. Consult OLMC as needed.

	SCMV/ASV
1.	Set mode to SCMV or ASV
2.	Target Minute Ventilation (Ve): Adult *without* acidosis: 6 - 8 L/min Adult *with* acidosis: 9.0 L/min Pediatrics: 4.0 – 5.0 L/min Infants: 1.5 – 3.0 L/min **ASV –** Start with 105% Minute Volume – skip to step 6
3.	Set Tidal Volume (Vt) - Vent is programed to 6 ml/kg based on IBW. Adults - See Table 3; based on height & IBW. Pediatrics – See Table 4; use HandTevy weight
4.	Set Respiratory Rate: 12 – 20 based on etiology Adjust Vt & Rate to target $ETCO_2$ Pediatrics – Set RR to low end of normal range.
5.	Set I time for I:E Ratio of 1:2
6.	Set PEEP to 5cmH_20 Then adjust in increments of 2-3 cmH_2O to achieve SpO2 ≥ 94%
7.	Set FiO2 to 100% Then titrate down to achieve SpO2 ≥ 94%

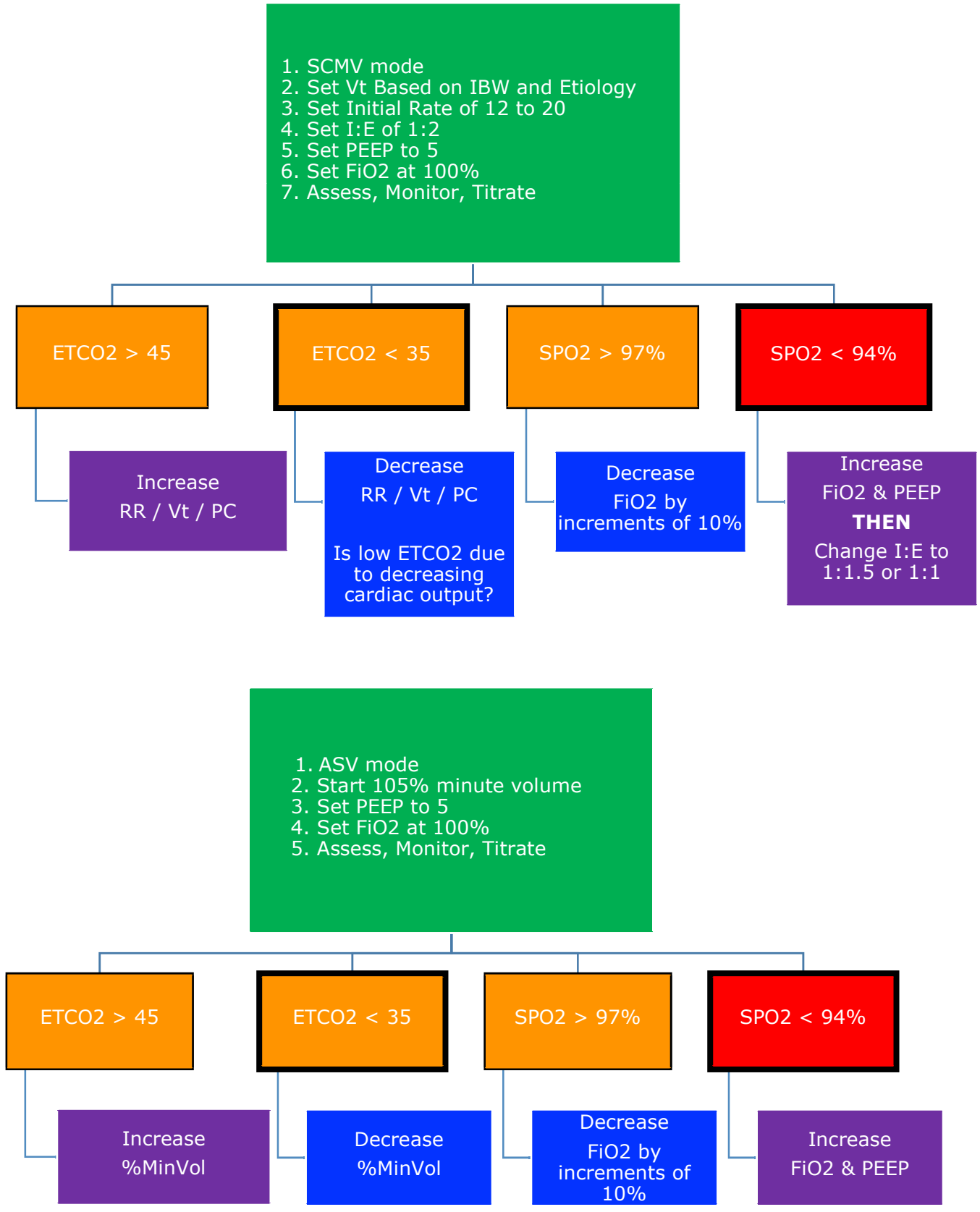
- Titrate settings and provide continuous patient monitoring based on changes to ongoing physiological data and assessment.

If the patient has an acute change resulting in progressive clinical decline, then disconnect the patient from the mechanical ventilator and provide manual bag-valve ventilation.

Table 1. Response to Changes in Parameters

Parameter	Level	Corrective Action			
		FiO2	Rate	PEEP	Other
$ETCO_2$	High		↑	↑	
	Low		↓		Check BP
SpO_2	Low	↑		↑	
Peak Inspiratory Pressure	High	1. Assess for plateau pressure 2. Rule out **DOPES**: **D**islodgement or misplaced ETT **O**bstruction or secretions in tube/circuit **P**neumothorax **E**quipment, check connections **S**edation, consider additional sedation, and analgesics if indicated			
	Low	1. Reassess all connections of the entire circuit, starting at ETT and working back to O2/wall connection. 2. Check for cuff leak 3.. Increase Vt			
BP	Low	1. Fluid or pressor therapy 2. Consider tension pneumothorax 3. Check for over breathing			
Rate	High	Consider sedation if patient is over breathing the set ventilator rate.			
Exhaled Vt	Low	1. Rule out air trapping – is flow waveform returning to baseline? 2. Rule out small leaks, check pilot bulb 3. Assume dead space problem, ↑ Vt while maintaining a PIP < 35 cmH_2O			
AutoPEEP	High	*If air trapping noted* – provide a longer E time by adjusting I:E ratio from 1:4 to 1:6 or 1:7. Also consider a bronchodilator to allow for increased exhalation.			

Figure 1. Summary of Main Approach for (>5kg) Patients



Initial Mechanical Ventilation Checklist

- Ensure an adequate BP (SBP > 90 & MAP > 60) capable of producing a distal pulse
  Treat BP if SBP < 90 or MAP < 60

- Identify Minute Ventilation (Ve) needs of the patient
  Normal VE: 100 mL/kg/min;
  If YES to any of the following, then VE = 9.0L/min Adults | 4-5 L/min Peds | 1.5-3 L/min Infants
    - Presence of Kussmaul breathing or other metabolic cause of increased minute ventilation such as sepsis or salicylate OD?
      - Adults: > 30 breaths per minute
      - Pediatrics: > 40 breaths per minute
      - Infants: > 50 breaths per minute
    - Abnormal $ETCO_2$?
      - High = potentially respiratory & mixed disturbance
      - Low = potentially metabolic acidosis or hypoperfusion

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- Obtain Tidal Volume (Vt)
  Adults - based on Ideal Body Weight (IBW) using Table 3
  Peds – Use actual weight and Table 4

- Set Mode to SCMV or ASV
  Synchronized Continuous Mandatory Ventilation (SCMV)
  Appropriate for most patients. Provides tightest control of minute ventilation (Ve). Easy to adjust individual components as needed, good for respiratory pathology patients.
  Adaptive Supportive Ventilation (ASV)
  Appropriate for most patients, especially if there is no significant respiratory component (ie, asthma, COPD, etc)

- Set I:E Ratio
  1:4 for non-air trapping patients
  1:2 for patients with bronchoconstriction, **asthma**, COPD, ***and pediatric patients <15 years old*** that have reduced ability to exhale inspired gas out of their lungs – see section for **Modifications to Standard Settings.**

- Set FiO_2 to 1.0 (100%) then titrate down to maintain $SpO_2 \geq 94\%$

- Set PEEP to 5 cmH_2O

- Input all settings ***then*** connect the set ventilator to your patient.

Ongoing Mechanical Ventilation & Problem-Solving Checklist

- Evaluate measured minute ventilation (Ve) and if it does not closely match to targeted Ve, then proceed to evaluate frequency/rate (f) and exhaled tidal volume (Vte) to identify cause of missed Ve target.

- Evaluate frequency/rate (f), which is the number of times the patient's lungs are ventilated. CAN differ from the respiratory rate, but should closely match the set RR rate within 1 breath
  If f > RR then rule out vibration trigger and increase sensitivity – OR – rule out under sedation

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- Evaluate Vte, which should closely match the set Vt.
  If there is a discrepancy, then rule out circuit/cuff leak – OR – assume dead space problem

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- Evaluate the Peak Inspiratory Pressure (PIP), which should remain < 35 cmH_2O
  If PIP > 35 cmH2O, then complete DOPE to identify quick solutions

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Modifications to Standard Settings:

1. Cellular / Metabolic Acidosis (eg. DKA)

a. These patients typically need higher minute ventilation (Ve) in excess 10 L/min.
b. Best practices include:
    i. **Do NOT use ASV mode**
    ii. If available, target a minute ventilation (Ve) to achieve the patient's pre-intubation $ETCO_2$
    iii. Administer a minute ventilation (Ve) to achieve an $ETCO_2$ of 25 mmHg
    iv. Special Note: Increasing Vt, PEEP, and ultimately PIP can cause hypoperfusion and hypotension. Aggressive monitoring of the patient's BP is required, and corrective actions should immediately occur with any hypotension (MAP < 60).

2. Hypotension Approach

a. There are times where hemorrhagic/hypovolemic shock patients will have worsened cardiac output by positive pressure ventilation. You must appreciate how each positive pressure ventilation inhibits, to some extent, venous return to the thorax and heart causing decreased cardiac output.
b. To prevent this, an approach has been developed to target **lower set respiratory rates and higher tidal volumes**. This approach limits the total amount of time the alveolar capillaries are tamponaded and helps to prevent reduced blood pressure from positive pressure ventilation.
c. Typical Vt settings are 8 – 12 mL/kg

3. ARDS Approach

a. Focus on lower volumes and higher rates to achieve an effective minute ventilation (Ve).
b. **Do NOT use ASV mode**
c. Target 4 – 6 ml/kg of Vt then set respiratory rate to achieve an effective minute ventilation (Ve).

4. **Infant & Pediatric Ventilation (>5kg)**
   a. **Must consult with OLMC prior to initiating ventilation on any patient <12 years of age.**
   b. Should keep pediatric patients spontaneously breathing (not paralyzed) whenever possible
   c. Can use SCMV/ASV on pediatric patients.
   d. Respiratory rate should be at low end of age appropriate range and tidal volume should be increased by 5-10% to compensate for dead space

5. **Asthmatic and Severe Bronchoconstriction**
   a. Permissive hypercarbia is appropriate for these patients in excess of $ETCO_2$.
   b. **Do NOT use ASV mode**
   c. Initial ventilator settings should be:
      PEEP: 0
      FIO_2: 1.0
      Vt: 5 mL/kg
      f: 10
      I:E: 1:2
   d. Continuous monitoring of respiratory waveform to ensure it returns to baseline with immediate intervention by increasing I:E and increasing sedation.
   e. These patients should be heavily sedated, likely paralyzed, and closely monitored.
   f. These patients are prone to mucous plugging, consider saline nebulizer to help loosen. Likely need to continue albuterol nebulizer as well for underlying condition.
   g. If the patient becomes hemodynamically unstable, then disconnect the patient from the ventilator, provide manual chest wall compression, and consider bilateral pleural decompression.

Specific Invasive Mechanical Ventilation Abbreviations:

Abbreviation	Long Form
AC	Assist Control
f	Frequency of Mechanical Ventilation
FiO_2	Fraction of Inspired Oxygen
I:E	Inspiratory: Expiratory Ratio
IBW	Ideal Body Weight
PC	Pressure Control
PEEP	Positive End Expiratory Pressure
PIP	Positive Inspiratory Pressure
Pplat	Plateau Pressure
RR	Respiratory Rate
VC	Volume Control
Ve	Minute Ventilation
Vt	Tidal Volume
Vte	Exhaled Tidal Volume

Table 2: Male and Female Adult IBW in Kg for Vt

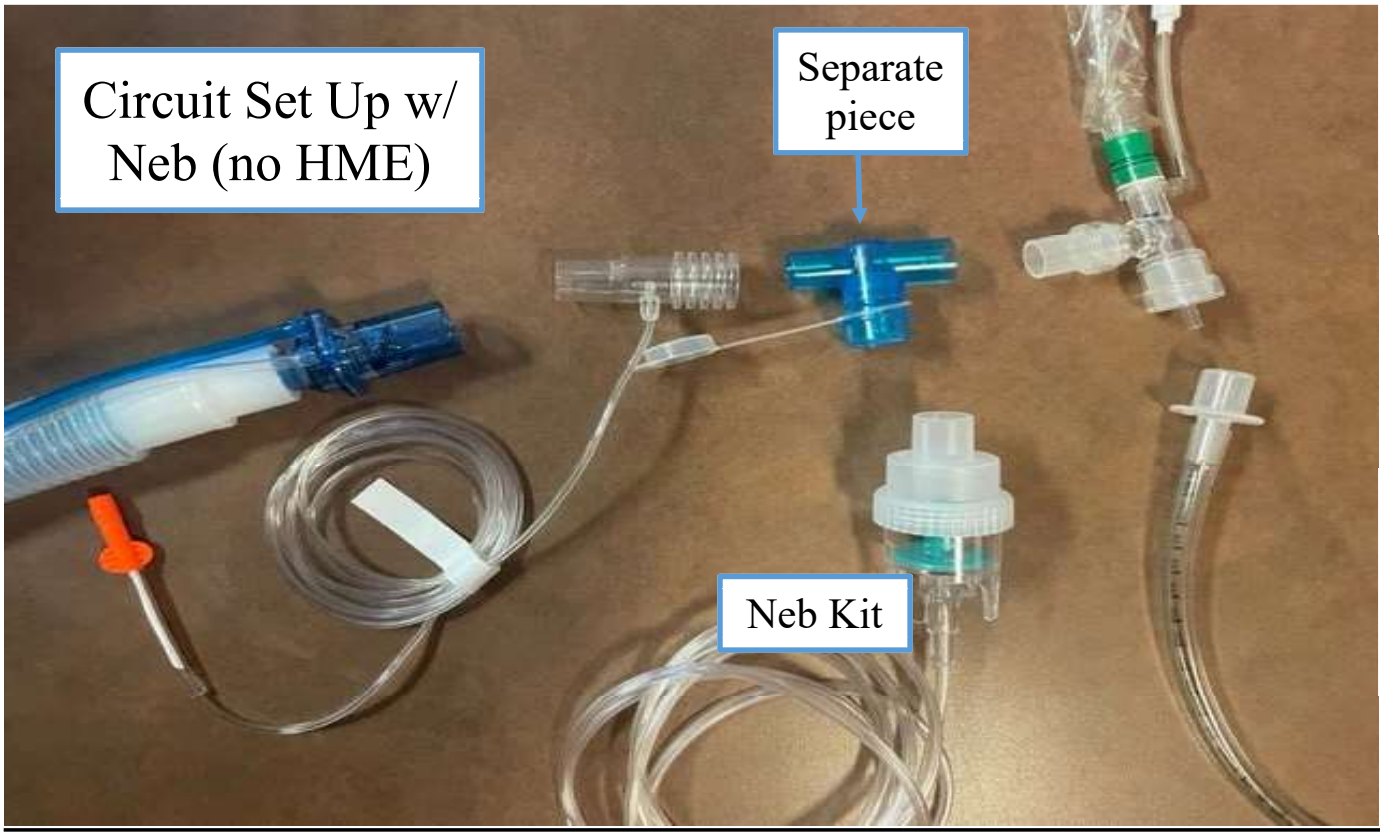
Adult Male Patients							
		Lung-Protective		Hypotensive		Metabolic	
		6 mL/kg		10 mL/kg		8 mL/kg	
Height	IBW Kg	Vt	Initial RR	Vt	Initial RR	Vt	Initial RR
5' 0"	50	300	16	500	12	400	20
5' 3"	57	340	16	570	12	455	20
5' 6"	64	385	16	640	12	510	20
5' 10"	73	440	16	730	12	585	20
6' 0"	78	465	16	775	12	620	20
6' 3"	85	510	16	845	12	675	20
6' 6"	91	550	16	915	12	730	20

Adult Female Patients							
		Lung-Protective		Hypotensive		Metabolic	
		6 mL/kg		10 mL/kg		8 mL/kg	
Height	IBW Kg	Vt	Initial RR	Vt	Initial RR	Vt	Initial RR
5' 0"	45	275	16	455	12	365	20
5' 3"	52	315	16	525	12	420	20
5' 6"	60	355	16	595	12	475	20
5' 10"	70	410	16	685	12	550	20
6' 0"	73	440	16	730	12	585	20
6' 3"	80	480	16	800	12	640	20
6' 6"	87	520	16	870	12	695	20

Table 4: Pediatric Tidal Volume Based on Patient Weight

Pediatric Patients < 60"							
	Pt IBW	Lung-Protective		Hypotensive		Metabolic	
	(Utilize HandTevy)	6 mL/kg		10 mL/kg		8 mL/kg	
AGE	Kg	Vt	Initial RR	Vt	Initial RR	Vt	Initial RR
4MO	6KG	35	Use Vent Preset	60	Use Vent Preset	50	40
6MO	8KG	50		80		65	
1Yr	10KG	60		100		80	30
2Yr	12KG	70		120		95	
3YR	15KG	90	Use Vent Preset	150	Use Vent Preset	120	
4YR	17KG	100		170		135	
5YR	20KG	120		200		160	
6YR	22KG	130	Use Vent Preset	220	Use Vent Preset	175	
7YR	25KG	150		250		200	
8YR	27KG	160		270		215	
9YR	30KG	180	Use Vent Preset	300	Use Vent Preset	240	
10YR	35KG	210		350		280	
11YR	40KG	240		400		320	
12YR	50KG	300		500		400	
13YR	60KG	360		600		480	

Figure 2: Set-up Guides



Medication Administration and Cross Check (≥ PL1)

Clinical Indications:

1. Before administering any medication, then the provider should know:
   a. Why is this medication indicated?
   b. What is the safe and effective dose?
   c. What is the correct administration route?
   d. Does the patient have an allergy or other contraindication to this medication?
   e. What are the expected effects, side effects, and adverse effects?
   f. Is the medication expired?

Contraindications:

1. None

Notes:

1. Medication formulary and dosing charts in addition to the Medication Administration Cross Check are required for each medication administration.
2. The *Six Rights* of medication administration:
   a. Right Patient - indicated for this patient, no contraindications, no allergies
   b. Right Drug - the correct name (trade vs. generic name), correct concentration
   c. Right Dose - per system formulary
   d. Right Route - oral, topical, nebulized, IV, IO, IN, IM
   e. Right Time - slow or rapid IVP, or infusion over time
   f. Right Documentation - preceding 5 rights documented in the ePCR.
3. Pre-filled syringe medications must remain in their original box/package until prepared for patient administration.

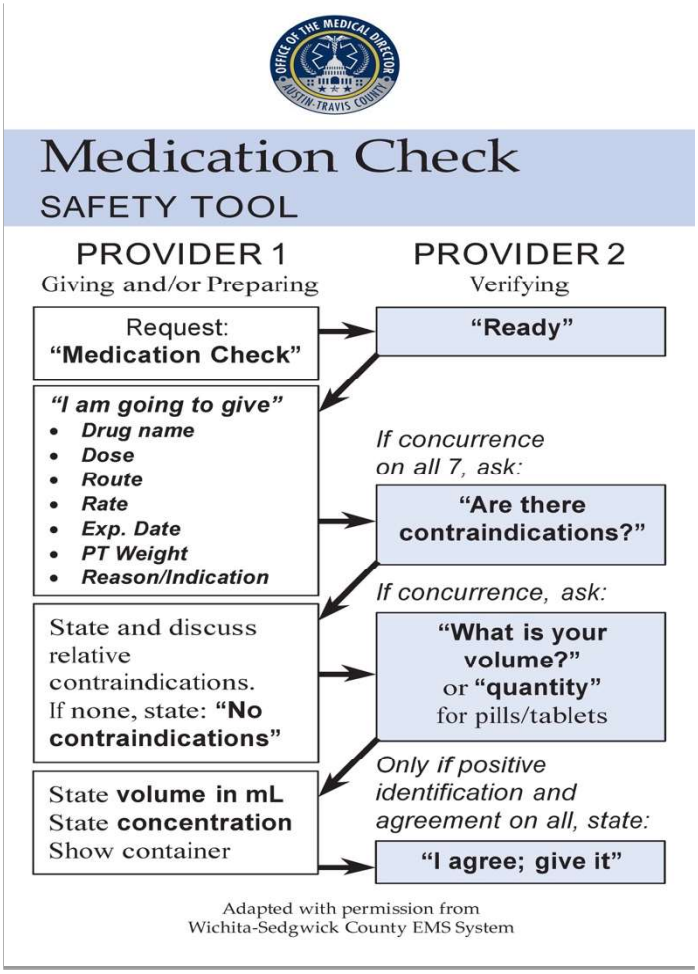
Procedure:

1. Assemble required delivery device to measure and administer the medication.
2. Tap vial or ampule gently until all medication is at the bottom as needed.
3. Remove sterile cap to access the vial or safely snap the ampule neck at the scored line to access the medication.
4. Cleanse ampule with chlorohexidine prep pad.
5. With the appropriately sized needle and appropriately sized syringe, *draw up only the amount of medication to be administered in a single dose* per system clinical guidelines and formulary.
6. Perform System Medication Safety Cross Check prior to administration of the medication.
7. Administer the medication via the determined route and time.
8. Dispose of the medication delivery devices in approved sharps containers.
9. Document medications administered, which includes:
   a. Time of medication administration
   b. Route of administration
   c. Site or location for IM medication
   d. Dose and volume administered
   e. Name of provider that administered the medication
   f. Any medication related complications and steps taken to correct
   g. Patient's response to medication treatment

Medication Administration Cross Check is on Page 2

Medication Administration Cross Check

- ☐ **Provider 1** initiates the procedure by stating, *Cross check* or *Med check*
- ☐ **Provider 2** responds they are *Ready*. It is important to avoid using ambiguous responses such as *okay* since they may be interpreted many different ways and do not effectively reflect the provider's condition.
  - It is essential that Provider 2 participate in an engaged manner and not passively participate. This is a known weakness of the procedure, and human factors/ patient safety literature and research has demonstrated that when an effective attentional capture does not occur by those participating in such a procedure, errors may penetrate the barrier and ultimately reach the patient.
- ☐ **Provider 1** states the phrase, *I am going to give* and using the clinical guidelines and formulary provide the dose, name, route, rate, patient weight, and the reason.
  - If any only if there is concurrence on Provider 2's behalf does the cross-check procedure continue. Provider 2 then verifies using the clinical guidelines and formulary. If provider 2 does not agree that the drug, dose, route, rate, patient weight or reason are appropriate, then he or she will need to resolve the conflict and make corrections as necessary and provider 1 will need to begin again. Other reasons why provider 2 may not agree include perhaps contraindications that he is aware of, but provider 1 has not been made aware of yet.



- ☐ If **Provider 2** agrees, then they respond with the question, *are there contraindications?* or simply *contraindications?* This can be colloquial, it does not have to be robotic or verbatim, but the specific questions must be asked.
- ☐ **Provider 1** must check the expiration date if they have not already done so, verify that the patient's vital signs are appropriate and any medication allergies. Provider 1 should respond either by saying *no contraindications* or by stating any relative contraindications present.
- ☐ If **Provider 2** concurs, then they response with the question *what's your volume?* or simply *volume?*
- ☐ **Provider 1** should state the drug concentration, the volume they intend to deliver, and should show the vital to provider 2. If it is safe to do so, such as the other provider is not driving, etc.
- ☐ If **Provider 2** agrees after making a positive visual verification, then they respond with the phrase, *sounds good* or *I agree* and the order to *give it* in some form or another; again, avoiding ambiguous words.

If the patient condition changes before the medication is administered and/or an interruption occurs during the cross-check, then return to the beginning of the cross-check.

Modified Valsalva Maneuver (≥ PL5)

Clinical Indications:

1. Alert and stable patients with a symptomatic narrow complex supraventricular tachycardia (SVT), and not believed to be sinus tachycardia.

Contraindications:

1. Should not be attempted in patients with a history of sick sinus syndrome, carotid bruits, cerebrovascular disease, or when digitalis toxicity exists.
2. Pediatric patients.
3. Carotid sinus massage.
4. Ice water emersion of the face.

Notes/Precautions:

1. Syncope, altered mental status, CVA, sinus arrest, high degree AV blocks, prolonged asystole or sinus arrest, and ventricular tachycardia in patients with digitalis toxicity.

Procedure:

1. Place patient on the ECG monitor.
2. Run a continuous rhythm ECG tracing throughout the procedure.
3. Have a patient blow into a 10 mL syringe until the plunger begins to move.
4. Lay the patient flat and simultaneously raise the legs approximately 45 degrees.
5. If converted, lower legs and raise patient back into seat position.
6. May repeat x2 as needed.
7. Document all changes in ePCR.

Nasal Drug Delivery Device (≥ PL1)

Clinical Indications:

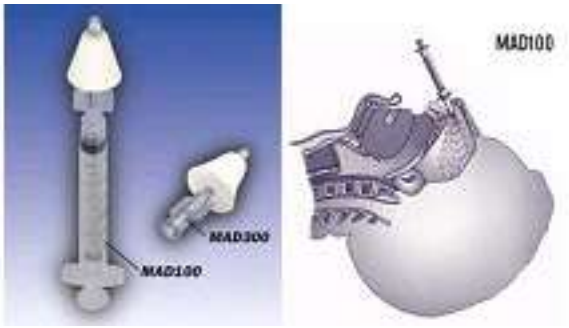
1. Patients requiring rapid medication administration in accordance with clinical guideline and other route(s) of medication administration are not immediately available.

Contraindications:

1. None in the emergency setting

Procedure:

1. Airborne PPE should be worn when administering a medication via this route.
2. Dose appropriate should be drawn up into the syringe.
3. Attach system approve MAD device to the syringe.
4. Perform medication administration cross check.
5. Administer medication by aerosolizing medication in patient's nostril(s), limit 1 mL per nostril.
6. Due to fluid contamination, dispose in an approved sharps container.



Nasopharyngeal and Oropharyngeal Swab Collection (≥ PL2)

Clinical Indications:

Upon the request or in coordinated efforts with health officials, nasopharyngeal and/or oropharyngeal swabs may be collected from patients under monitoring for an infectious disease.

Contraindications:

Patient is in severe cardio or pulmonary distress.

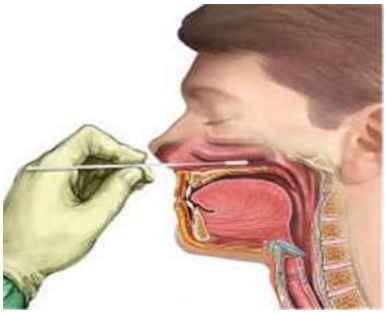
Notes/Precautions:

Collecting diagnostic respiratory specimens are likely to induce coughing or sneezing. Individuals within 6 feet of the patient during and shortly after the procedure should ideally be limited to the healthcare provider obtaining the specimen. Appropriate respiratory precautions and PPE is to be utilized at all times.

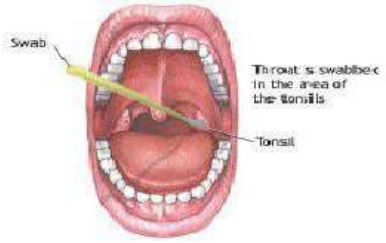
Repeat collection if there is doubt in the quality of the specimen, for example if unable to advance the nasopharyngeal swab or patient excessively moved their head.

Procedure:

1. All swabs should be synthetic fibers and plastic shafts with a medium in a container for transport, unless otherwise directed. Nasopharyngeal and oropharyngeal swabs/specimens must be kept in separate containers.
2. All swabs should be collected one at a time and labeled.
   Labeling needs to include type of swab - nasopharyngeal or oropharyngeal, patient's name and date of birth, as well as collection date and time with your initials.
3. Utilize appropriate respiratory precautions and PPE protection.
4. Communicate the procedure to the patient and likelihood for some discomfort.
5. Nasopharyngeal swab:
   a. Gently insert a swab into the nostril parallel to the palate until you feel resistance. This will cause discomfort to the patient. Slightly twist the swab then leave in place for a few seconds to absorb secretions.
      Gently retract the swab and place into the medium and close the container. Do not touch the fibers after performing the collection.
      Label, initial, and place specimen into the appropriate biohazard bag or tote.



6. Oropharyngeal swab:
   a. Ensure the oropharynx is free of any food or liquids. Consider using of a tongue depressor if unable to visualize posterior pharynx. Swab the posterior pharynx avoiding the tongue. This may cause the patient some discomfort. Leave the swab in place for a few seconds to absorb secretions.
      Gently retract the swab and place into the medium and secure close the container. Do not touch the fibers after performing the collection.
      Label, initial, and place the specimen into the appropriate biohazard bag or tote.



7. Coordinate with department command and/or public health officials to document and transport specimens for analysis.

Nasotracheal Intubation (≥ PL5)

Clinical Indications:

1. A spontaneously breathing patient in need of intubation due to inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection.
2. Rigidity or clenched teeth prohibiting other airway procedures.

Contraindications:

1. Non-breathing or near apneic patient.
2. Patient less than 12 years of age.
3. Known or likely fracture or instability of mid-face secondary to trauma.
4. Anytime a less invasive maneuver would allow oxygenation and ventilation of the patient.

Relative Contraindications:

1. Blood clotting abnormalities
2. Anticoagulant use
3. Nasal polyps
4. Upper neck hematomas or infections
5. Acutely hypertensive patients
6. Patients suspected of experiencing elevated intracranial pressure

Procedure:

1. Prepare, position and oxygenate the patient with 100% oxygen.
2. Choose proper ET tube about 1mm less than for oral intubation.
3. Two sprays of Neo-Synephrine (phenylephrine) should be applied to the appropriate nostril. If needed Hurricane topical anesthetic, ½ second spray may be instilled in the posterior pharynx and repeated x 1.
4. Lubricate ET tube generously with water-soluble lubricant such as Lidocaine Jelly.
5. Pass the tube in the largest nostril, perpendicular to the facial plate following the curvature of the airway.
6. Use forward, lateral back and forth rotating motion to advance the tube. Never force the tube.
7. Continue to advance the tube noting air movement through it; use the BAAM whistle to assist.
8. Apply firm cricoid pressure; advance the tube quickly past the vocal cords during inspiration.
9. Inflate the cuff with 5 - 10 cc of air.
10. Apply $EtCO_2$ monitor. After 3 ventilations, $EtCO_2$ must be >10. If less than 10 check for adequate circulation and check equipment. Remove the ET tube if $EtCO_2$ remains <10 in the absence of a physiologic explanation. Record initial, ongoing, and final $EtCO_2$ values.
11. Auscultate for absence of sounds over epigastrium and presence of equal bilateral breath sounds. If present unilaterally/unequal, adjust tube position and consider whether this may be patient's baseline. If unsure of placement, remove tube and ventilate with bag-valve mask.
12. If $EtCO_2$ equipment failure occurs, use other means for confirmation.
13. Secure the tube to the patient's face.
14. Reassess airway, breath sounds, and $EtCO_2$ after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
15. Complete the airway verification form on arrival at destination.
16. Document ETT size, depth of insertion, time of successful intubation and number of attempts. Document confirmation of the ETT by presence of breath sounds, absence of sounds over the epigastrum, $EtCO_2$, and any/all additional methods of confirmation. Reconfirm correct placement after each patient movement.
17. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
18. Providers may continue to use backboards to assist in patient movement as needed.
19. Document in ePCR confirmation indications of successful intubation.

Nebulized Medication (≥ PL2)

Clinical Indications:

1. Patients requiring medication administration via nebulized route in accordance with the appropriate clinical guideline and formulary documents.

Contraindications:

1. Hypersensitivity to medication.
2. Medications not approved for nebulized delivery.

Relative Contraindications:

1. Blood clotting abnormalities
2. Anticoagulant use
3. Nasal polyps
4. Upper neck hematomas or infections
5. Acutely hypertensive patients
6. Patients suspected of experiencing elevated intracranial pressure

Procedure:

1. Ensure all required pieces are available.
   a. T-piece
   b. 6" tubes X 1
   c. Mouthpiece and/or face mask
   d. Medication chamber
   e. Oxygen tubing
2. Assemble nebulizer.
3. Attach larger female port of T-piece firmly to male adapter on medication chamber.
4. If face mask is being used, the female fitting on the bottom of the mask is connected directly to the male adapter on the medication chamber.
5. Attach 6" tube to the male ports on the T-piece.
6. Firmly attach threaded portion of mouthpiece to opposite female end of the T-piece.
7. If patient is not intubated, then the nebulizer chamber is to be upright to insure proper aerosol dispersal
8. If patient is intubated, attach 90-degree endotracheal tube adapter to endotracheal tube and other end to the 6" tube.
9. Attach oxygen supply tubing to oxygen port located on bottom of medication chamber.
10. Do Medication Administration Cross Check
11. Unscrew top of medication chamber, add total amount of medication to be nebulized, and replace top.
12. Set oxygen flow rate based on equipment specifications.
13. Ensure that medication is flowing prior to giving mouthpiece to patient or placing face mask on patient.
14. Place mouthpiece in patient's mouth or position face mask on patient, instructing him/her to inhale as deeply as possible and hold as long as possible prior to exhaling.
15. If patient is intubated.
16. Attach non-rebreathing patient valve of bag-valve-mask to free 6" tube.
17. Ensure suctioning port on 90-degree adapter is closed.
18. Begin ventilating patient.
19. Nebulized medications may be used with CPAP device. Refer to CPAP device instructions for appropriate assembly and administration.
20. Treatment should be provided until medication is depleted.
21. Monitor patient for medication effects including reassessment of vital signs and breath sounds.
22. Document the medication administration including dose and time as well as any observed patient response in the patient care record.

Needle Cricothyrotomy (≥ PL5)

Clinical Indications:

1. Patients < 10 years of age.
2. With obstructed airway or in whom all conventional methods of oxygenation have failed.

Contraindications:

1. Anytime a less invasive maneuver would allow oxygenation of the patient.
2. Tracheal transection.

Notes/Precautions:

1. Cricothyroid membrane is located by:
   a. Palpating the protuberant midline portion of the thyroid cartilage - *Adams Apple*
   b. Move the fingertip inferiorly until it rests in the soft flat depression between the thyroid cartilage and the cricoid cartilage.
2. In order to minimize the risk of dislodgement:
   a. The individual completing the procedure should direct any/all patient movement.
   b. BVM is to be disconnected from the ET tube adapter any patient movement.
   c. The catheter is to be reassessed following any patient movement.
3. Appropriately sized angiocath is generally 14-18 gauge, depending on the size of the patient.

Procedure:

1. Position patient supine with head slightly extended unless contraindicated due to suspected cervical spine injury.
2. Prepare anterior surface of the neck with Chlorohexidine.
3. Locate the cricothyroid membrane.
4. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
5. Connect appropriately sized angiocath to a ≥ 10cc syringe.
6. Pierce the skin and cricothyroid membrane at a 45-degree angle, directing the catheter tip inferiorly while pulling suction on the syringe until air is aspirated freely.
7. Advance the catheter to the skin and withdraw needle.
8. Connect catheter to 3.0 mm pediatric ET tube adapter.
9. With a BVM attached to 100% oxygen begin ventilating and confirm proper placement.
10. With hub of catheter snug against the neck, tape catheter firmly in place.
    a. Catheter and ET tube adapter are to be secured at all times by hand
    b. Catheter should be secured with tape and benzoin to prevent slipping
11. Providers may continue to use backboards to assist in patient movement as needed.

Newborn Delivery & Complications (≥ PL1)

Clinical Indications:

1. Imminent delivery with crowning.

Contraindications:

1. None in the emergency setting for a normal delivery.

Relative Contradictions:

1. Refer to each complication for further guidance and use of OLMC is encouraged.

Procedure:

1. Delivery should be controlled so as to allow a slow, controlled delivery of the infant. This will prevent injury to the mother and infant.
2. Consider additional resources as there will be two potential patients.
3. Support the infant's head as it delivers.
4. If the umbilical cord is around the neck, slip it over the head. If unable to free cord from the neck, double clamp the cord and cut between the clamps.
5. Suction the airway with a bulb syringe.
6. While continuing to support the head, gently lower the head to encourage delivery of the anterior shoulder.
7. Once the anterior shoulder delivers gently lift the head and anterior shoulder to allow delivery of the posterior shoulder.
8. Be prepared to support the infant while delivering the remainder of the body.
9. Clamp the cord 6 inches and place second clamp 9 inches from the abdomen and cut the cord between the clamps.
10. Record APGAR scores at 1 and 5 minutes.
11. Follow the Newborn Care Guideline for further treatment.
12. The placenta will deliver spontaneously, usually within 5-25 minutes of the infant. Do not force the placenta to deliver or pull on the umbilical cord.
13. Massage the uterus and/or initiate breast feeding (as infant and/or maternal condition allows) to stimulate uterine contractions, decrease bleeding and initiate delivery of the placenta. If the placenta delivers it should be retained for inspection. For post-partum hemorrhage refer to guideline Obstetrical Emergency.

Complications are on the following pages of the Clinical Procedure

Complications of Labor:

Breech Delivery:
The largest part of the fetus (head) is delivered last. In general, breech presentations include buttocks presentation and/or extremity presentation. An infant in a breech presentation is best delivered in the hospital setting since an emergency cesarean section is often necessary. However, if it is necessary to perform a breech delivery in a pre-hospital setting, the following procedures should be performed:

Treatment: Breech Presentation

1. Position mother with her buttocks at edge of bed, legs flexed.
2. Allow the fetus to deliver spontaneously up to the level of the umbilicus. If the fetus is in a front presentation, gently, extract the legs downward after the buttocks are delivered.
3. After the infant's legs are clear, support the baby's body with the palm of the hand and the volar surface of the arm.
4. After the umbilicus is visualized, gently extract a 4"-6" loop of umbilical cord to allow for delivery without excessive traction on the cord. Gently rotate the fetus to align the shoulder in an anterior-posterior position. Continue with gentle traction until the axilla is visible.
5. Gently guide the infant upward to allow delivery of the posterior shoulder.
6. Gently guide the infant downward to deliver the anterior shoulder.
7. During a breech delivery, avoid having the fetal face or abdomen toward the maternal symphysis.
8. The head is often delivered without difficulty. However, be careful to avoid excessive head and spine manipulation or traction.
9. As the head passes the pubis, apply gentle upward pressure until the mouth appears over the perineum. Immediately suction mouth, then nose.
10. If the head does not deliver immediately, action must be taken to prevent suffocation of the infant.
    a. Place a gloved hand in the vagina with the palm toward the babies face.
    b. Form a "V" with the index and middle fingers on either side of the infant's nose.
    c. Gently push the vaginal wall away from the infant's face, so that the infant can breathe, until the head is delivered.
    d. If unable to deliver infant's head within three (3) minutes, maintain the infant's airway with the "V" formation and rapidly transport to the hospital.

Shoulder Dystocia:
This occurs when the fetal shoulders impact against the maternal symphysis, blocking shoulder delivery. Delivery entails dislodging one shoulder and rotating the fetal shoulder girdle into the wider oblique pelvic diameter. The anterior shoulder should be delivered immediately after the head.

Treatment: Shoulder Dystocia

1. Position mother on her left side in a dorsal-knee-chest position to increase the diameter of the pelvis or position mother with buttocks off the edge of the bed and thighs flexed upward as much as possible.
2. Apply firm, open hand pressure above the symphysis pubis.
3. Attempt to guide the infant's head downward to allow the anterior shoulder to slip under the symphysis pubis.
4. Gently rotate the fetal shoulder girdle into the wider oblique pelvic diameter. The posterior shoulder usually delivers without resistance.
5. Complete the delivery as above.
6. If delivery does not occur, maintain airway patency as best as possible and immediately transport.

Prolapsed Umbilical Cord:
This occurs when the cord slips down into the vagina or presents externally after the amniotic membranes have ruptured. Fetal asphyxia may rapidly ensue if circulation through the cord is not re-established and maintained until delivery.

Treatment: Prolapsed Umbilical Cord
1. If the umbilical cord is seen in the vagina, insert two gloved fingers into the vagina and gently elevate the presenting part to relieve pressure on the cord and restore umbilical pulse. DO NOT attempt to reposition or push the cord back into the uterus.
2. Position the mother in Trendelenburg or knee-chest-position to relieve pressure on the cord.
3. Instruct the mother to "pant" with each contraction to prevent her from bearing down.
4. If assistance is available, apply moist sterile dressings to the exposed cord.
5. Maintain hand position during rapid transport to the receiving hospital. The definitive treatment is an emergency cesarean section.

Uterine Inversion:
This is a turning *"inside out"* of the uterus. Signs and symptoms include postpartum hemorrhage with sudden and severe abdominal pain. Hypovolemic shock may develop rapidly.

Treatment: Uterine Inversion
1. Do not attempt to detach the placenta or pull on the cord.
2. Make one (1) attempt to reposition the uterus:
    a. Apply pressure with the fingertips and palm of a gloved hand and push the uterine fundus upward and through the vaginal canal.
    b. If procedure is ineffective, cover all protruding tissues with moist sterile dressings and rapidly transport to hospital.

Postpartum Hemorrhage:
This is defined as the loss of 500 ml or more of blood in the first twenty-four (24) hours following delivery. The most common cause is the lack of uterine muscle tone and is most frequently seen in the multigravida and/or multiple birth mother. However, any other obstetrical malady may cause hemorrhage.

Treatment: Significant hemorrhage following delivery or delayed placenta delivery
1. Unless multiple births are anticipated, begin fundal massage.
2. Administer TXA.

Orotracheal Intubation (Direct Laryngoscopy) (≥ PL5)

Clinical Indications:

1. Inability to adequately ventilate a patient with a BVM or prolonged EMS transport.
2. An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.
3. Risk to benefit or orotracheal intubation to BIAD insertion favors orotracheal intubation.
4. Inability to adequately oxygenate/ventilate a patient after attempted BIAD insertion.
5. Concern for impending airway loss due to inhalation injury, anaphylaxis, expanding hematoma.

Contraindications:

1. None in the presence of the need for definitive airway management.
2. Anytime a less invasive maneuver would allow oxygenation & ventilation of the patient.

Procedure:

1. Prepare, position, and oxygenate the patient using appropriate BLS maneuvers and 100% oxygen.
2. Use High Flow Nasal Cannula at 25 LPM for Apneic Oxygenation during intubation.
3. Select proper endotracheal tube (ETT) size and have all equipment ready, including suction.
4. Using laryngoscope visualize vocal cords using cricoid pressure/BURP maneuver as needed.
5. Limit each intubation attempt to less than 30 seconds. Utilize BVM between attempts.
6. If unable to visualize the cords change patient position, or blade size/type.
7. Begin insertion of a Flex Guide ETT Introducer (Bougie). Must be used for each attempt.
8. Tactile confirmation of tracheal clicking will be felt as the distal tip of the introducer bumps against the tracheal rings.
9. If tracheal clicking cannot be felt, continue to gently advance the introducer until *hold up* is felt.
10. Tracheal *clicking* and *hold up* are positive signs that the introducer has entered the trachea
11. Lack of tracheal clicking or hold-up is indicative of esophageal placement.
12. While holding the introducer securely, and without removing laryngoscope, advance ETT over the proximal tip of the introducer.
13. As the tip of the ETT passes beyond the teeth, rotate the tube 90 degrees counterclockwise (1/4 turn to the left) so tube bevel does not catch on the arytenoid cartilage.
14. Advance ETT to the proper depth. While visualizing the ETT passing through vocal cords.
15. Holding ETT securely, remove introducer.
16. Inflate ETT cuff with 3-10 mL of air.
17. Apply $EtCO_2$ monitor. After 3 ventilations $EtCO_2$ should be > 10 or comparable to pre-intubation values. If < 10 check for adequate circulation, equipment failure and ventilatory rate. If no cause can be found remove the ETT and resume BVM ventilation.
18. Auscultate for absence of breath sounds over epigastrum and presence of bilateral breath sounds. If unilateral or unequal breath sounds adjust tube position and/or consider causes for this finding. If unsure of placement at any time remove the ETT and resume ventilations with BVM.
19. Record initial, ongoing and final $EtCO_2$ values in the PCR/ePCR.
20. Secure the ETT using commercial device whenever possible or other available method.
21. Document ETT size, depth of insertion, time of successful intubation and number of attempts. Document confirmation of the ETT by presence of breath sounds, absence of sounds over the epigastrum, end tidal CO2 and/or capnography and any/all additional methods of confirmation. Reconfirm correct placement after each patient movement.
22. Continuously monitor $EtCO_2$ to detect tube dislodgement or obstruction. Reconfirm correct placement after each patient movement.
23. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
24. Document in ePCR confirmation indications of successful intubation.

Pain Assessment & Documentation (≥ PL1)

Clinical Indications:
1. Any patient.

Contraindications:
1. None.

Notes & Definitions:
1. Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
2. Pain is subjective and is whatever the patient says it is.

Procedure:
1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient's self-report.
2. Pain should be assessed and must be document in the ePCR during initial assessment, before starting pain control treatment, and with each set of vital signs after a pharmaceutical pain management intervention, and with vital signs until transfer of care.
3. Three pain scales are available:
   a. 0-10 Scale
      i. The most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
   b. Wong-Baker "FACES" Scale
      i. This scale is primarily for use with pediatrics but may be also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.

   c. FLACC Scale
      i. This scale has been validated for measuring pain in children with mild to severe cognitive impairment and in pre-verbal childing, including infants.

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

Pelvic Binder (SAM Sling®) (≥ PL1)

Clinical Indications:
1. Potential unstable pelvic fracture.

Contraindications:
1. The patient is not the appropriate size for the size of SAM Sling® available.

Notes/Precautions:
1. Anytime application of the SAM Sling® is considered, then application of the Spinal Restriction Algorithm should be considered as well.
2. The SAM Sling® is a force-controlled device that will not allow the belt to be over tightened as the auto-stop buckle has spring-loaded prongs that lock the buckle in place when the right amount of force is applied.
3. Except for two small metal springs in the buckle, the SAM Sling® is transparent to x-rays.
4. Once properly applied, the SAM Sling® should be removed only under the supervision of a physician.
   a. If necessary to remove, do not cut, instead release orange pull handle in order to remove.

Procedure:
1. Unfold SAM Sling® with white surface facing up.
2. Place white side of SAM Sling® beneath patient at level of buttocks along a line drawn between greater trochanters and the symphysis pubis.
3. Firmly close SAM Sling® by placing black Velcro side of flap down on blue surface of sling.
4. Fold back material as needed.
5. Try to place buckle close to midline.
6. Grab orange handle on outer surface of flap and release from flap by pulling upward.
7. With or without assistance, pull both orange handles in opposite directions to tighten sling.
8. Keep pulling until the buckle clicks and the free handle stops.
9. Maintain tension and firmly press orange handle against the blue surface of the sling.

Pleural Decompression (≥ PL5)

Clinical Indications:

1. Patients with suspected tension pneumothorax as evidenced by:
   a. Hypotension of SBP < 90, clinical signs of hypoperfusion, and at least one of the following:
      i. Jugular vein distention
      ii. Absent or decreased breath sounds on the affect side
      iii. Hyper-resonance to percussion on the affected side
      iv. Increased resistance when ventilating a patient
      v. Tracheal deviation away from the side of injury, which is a late sign
2. Patient in traumatic arrest with chest or abdominal trauma in whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.
3. Asthma patient in Cardiac Arrest, perform bilateral decompression

Contraindications:

1. None in the emergency setting.

Procedure:

1. Administer high flow oxygen.
2. Prepare equipment and don appropriate PPE.
3. Identify and prep the site:
   a. Lateral placement at the fourth intercostal space in the mid-axillary line.
   b. Locate the second intercostal space in the mid-clavicular line.
4. Prepare the site with chlorohexidine.
5. Insert the appropriate catheter perpendicular to the chest wall over the top of the inferior rib.
6. Advance the needle-catheter assembly through the parietal pleura until a pop is felt and air or blood exists the catheter. Advance only the catheter until the hub is in contact with the chest wall.
7. Remove the needle leaving the plastic catheter in place.
8. Secure the catheter hub to the chest wall.
9. A 60cc syringe may be used to aspirate air to confirm access.
10. Consider placing a one-way valve or creating a flutter valve from the finger of an exam glove. This should not delay the pleural decompression procedure.

Positive End Expiratory Pressure (PEEP) (> PL1)

Clinical Indications:

1. Pulmonary edema, poor lung compliance due to respiratory pathology, and/or reactive airway emergency.

Contraindications:

Cardiac arrest, pneumothorax, MAP < 60, and/or isolated acute traumatic head injury.

Preparation for Use:

1. Ensure appropriately sized airway and ventilation equipment was selected.
2. Oxygen cylinder(s) are readily available.
3. Patient is appropriately positioned.

Procedure:

1. Set PEEP to 5 to 10 cm H_20 based on patient history and severity of presenting signs of respiratory arrest or failure.
2. Increase PEEP by 5 cm H_20 every 3-5 minutes if needed to achieve targeted SpO_2 and $EtCO_2$ readings as well as lung sounds and patient condition.
    a. Adults and children, do not exceed 20 cm H_20 without OLMC approval.
    b. Pre and full term newborns as well as some neonates may specifically require PEEP > 20 cm H_20, call OLMC for approval.
3. Consider administering medications as indicated for reactive airway or pulmonary edema concurrent with positive pressure ventilation per COGs or OLMC.

Pearls:

Following the application of PEEP:

1. If patient becomes hypotensive with a MAP < 60, then consider decreasing PEEP or removing the device and reassess patient condition and care plan.
2. If the patient has increased difficulty breathing, worsening respiratory failure, or increased resistance, then assess for a pneumothorax and adjust care plan.

Pressure Infusion Bag (≥ PL3)

Clinical Indications:

1. Inadequate gravity flow of IV/IO fluid.

Contraindications:

1. Controlled drip rates required for fluid or medication administration.
2. IV/IO access with questionable line patency.

Procedure:

1. Assure patency of established IV/IO access.
2. Place IV bag into the net pocket of the pressure infusion bag and inflate infusion bag until the desired amount of pressure has been applied.
3. Once the patient has been delivered to the receiving facility, consider deflating the infusion bag and remove the IV fluid bag.

Pulse Oximetry (≥ PL1)

Clinical Indications:

1. As an adjunct to patient assessment.
2. Any patient who receives a narcotic, sedative, or paralytic medication.
3. Before, during, and after advance airway management, CPAP, or other airway intervention(s).

Contraindications:

1. None.

Notes/Precautions:

1. Special circumstances that may result in inaccurate pulse oximetry readings:
   a. States of decreased peripheral perfusion - hypotension, hypothermia, hypoperfusion
   b. Carbon monoxide poisoning, methemoglobinemia, cyanide poisoning
   c. Excessive ambient light on the pulse oximeter probe - sunlight, florescent lights
2. Remember to treat the patient and not the pulse oximeter reading. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress.

Procedure:

1. Apply probe to finger or other site as recommend by the device manufacturer.
2. Allow device to register initial saturation level and record the time and result on the ePCR. Initial readings should be on room air when possible and patient condition allows.
3. Correlate patient pulse with oximeter pulse.
4. Monitor cortical patients continuously throughout care.

Rapid Sequence Induction (≥ PL6)

Clinical Indications:

1. Inability to maintain airway patency on their own or even with basic airway adjuncts.
2. Inability to protect the airway against aspiration.
3. Failure to ventilate and/or oxygenate despite basic airway adjuncts or less invasive interventions.
4. Anticipation of a deteriorating course that will likely lead to respiratory failure in a patient with an intact gag-reflex.

Contraindications:

1. Anticipated difficulty ventilating with a bag-valve mask after paralysis.
2. Entrapped patients with inadequate airway access.
3. Ventilation and oxygenation improve with basic airway management or less invasive airway interventions, for example a BIAD, with no likely patient deterioration leading to respiratory failure.
4. A second ALS provider ≥ PL5 is not directly involved in patient care, unless OLMC authorizes otherwise.

Notes/Precautions:

1. Rapid Sequence Induction Airway Checklist must be used for each RSI procedure.
2. This procedure is not to be rushed and should occur in a controlled setting to the best ability of the providers with respiratory and cardiac monitoring in place to be set up for success on first attempt.
3. Reminder to resuscitate then intubate and monitor/address risks of hypotension, hypoxia, and hypoventilation/acidosis.
4. Closed loop communication and delegation of airway monitoring, patient monitoring, and leading the scene is a must. The ≥ PL6 performing the RSI procedure must only be focused on performing the RSI procedure and is responsible for the airway thereafter successful RSI intubation.

Procedure:

1. Access Rapid Sequence Induction Airway Checklist and begin to delegate roles and responsibilities as described above and in the checklist. The ≥ PL6 provider ensures adherence to each step of the Rapid Sequence Induction Airway Checklist.
2. Begin to perform 1st Step of the Checklist, which is focused on making your equipment and team ready.
    a. This includes the ability to delegate some tasks to ≥ PL2 providers. ETT and DL/VL is reserved for ≥ PL5 providers.
3. Only after 1st Ready Equipment and Team is completed and verified may the second step, 2nd Set for Procedure occur. All tasks in this section must be completed by a ≥ PL5 provider and the ≥ PL6 provider is responsible for administering the sedative then paralytic medications.
    a. Sedating medication must be allowed to reach onset of action prior to administering Rocuronium.
        i. Patients with sufficient pre-oxygenation prior to administration of Ketamine may undergo Rapid Sequence Induction (RSI) and receive Ketamine over 1 minute immediately followed by Rocuronium.
        ii. Patients with persistent hypoxia despite pre-oxygenation should receive Delayed-Sequence Induction (DSI) with Ketamine administration followed by 3 minutes of NIPPV (BVM or BiPAP) prior to Rocuronium.
4. Only after 2nd Set for Procedure is completed and verified may the 3rd Go and Perform occur.
    a. A ≥ PL5 may perform the intubation at the discretion of the ≥ PL6.
    b. Confirmation of successful intubation by waveform $EtCO_2$ and other means is required and should be thoroughly documented in the ePCR.

Respiratory Precautions (≥ PL1)

Clinical Indications:

1. In cases where infectious agents transmitted by airborne route are prevalent in the community or have reached pandemic status a provider pre-alert system may be implemented in the communication center. In these cases, providers will be advised of the potential need for increased precautions at the time of dispatch.
2. In the absence of pre-arrival notification, respiratory precaution should be considered when confronted by any patient presenting with an acute febrile respiratory illness, which may include fever plus one or more of the following: Nasal congestion/rhinorrhea, sore throat, or cough.

Contraindications:

1. None

Notes/Precautions:

1. EMS providers should be aware of the signs and symptoms of infectious respiratory diseases and the procedures necessary for protecting themselves. Not all respiratory infections are transmitted in the same way. Transmission can occur from direct or indirect contact, large droplets, or small droplet nuclei. The mode of transmission will depend on the etiological agent. Providers must be familiar with PPE application (donning) and removal (doffing) procedures.
2. Certain procedures can also impact transmission of infectious agents by producing aerosols. These are deemed "high risk respiratory procedures" and include intubation, extubation, deep tracheal suctioning, and nebulized respiratory treatments. Fitted N95 mask is recommended for any "high risk respiratory procedure" in the setting of suspected acute febrile respiratory illness.
3. More often in the field of emergency medicine, the etiologic agents of infections are unknown.

Procedure for Droplet Precautions:

Droplet precautions should be employed for patients with febrile respiratory illness as defined above. Examples include influenza, meningitis and pertussis as well as common respiratory viruses such as adenovirus and rhinovirus.

1. Utilize the incident information provided by Communications that alerts providers to a possibly symptomatic patient (when applicable).
2. Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement.
3. For patients who cannot wear a surgical mask in addition to any medical treatment being provided, consider application of oxygen via non-rebreather face mask to limit dissemination of airborne particles.
4. Providers should wear a surgical mask and adhere to the Standard Precautions Procedure - the use of gown, gloves and eye protection if contact with bodily secretions or a contaminated environment is anticipated.
5. High risk respiratory procedures which include intubation, extubation, deep tracheal suctioning, and nebulized respiratory treatments, require the highest level of respiratory protection which is a fitted N95 respirator mask. Perform a "fit check" by molding the mask to the face and checking for air leaks after donning N95 respirators.
6. Continue to use droplet precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.
7. Be attentive to minimizing the transfer of any potentially infectious materials acquired during patient contact to medical equipment, stretchers, and other ancillary tools so as to lessen the chances of cross contamination and infection.
8. Exercise caution in the removal of PPE to prevent inadvertent self-inoculation in the event the PPE has been contaminated with potentially infectious materials.

9. Initiate hand hygiene as soon as feasible after doffing your PPE.

Procedure for Airborne All Hazard Precautions:
Airborne precautions include Standard Precautions, contact precautions and the droplet precautions outlined above. Airborne precautions should be employed in cases where the infectious agent is spread via an airborne vector which forms small particles that may remain airborne for an extended period of time. Examples include tuberculosis, measles, chicken pox, smallpox and pandemic illness. In addition, airborne precautions may be called for in the early phases of pandemic illness when the exact mechanism of transmission is unknown.

Tuberculosis should be considered when the patient exhibits the following symptoms:

a. A protracted cough lasting 3 weeks or longer
b. Cough productive of bloody sputum
c. Cough in conjunction with the following:
    a. Fever/chills and
    b. Night sweats and/or
    c. Weight loss

1. Utilize the incident information provided by Communications that alerts providers to a possible symptomatic patient requiring this level of protection.
2. Providers should limit the number of personnel who have initial contact with the patient by conducting the *View from the Door*, which can provide the necessary impression that will assist to determine the need for extensive medical intervention requiring multiple providers.
3. Should such an impression not be clearly evident, then only 1 first responder in the appropriate PPE should make patient contact and conduct the initial patient assessment.
4. Providers should done a fitted N95 mask or equal/greater protection and perform a fit check by molding the mask to the face and checking for air leaks after donning.
5. Provider surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement.
6. For patients who cannot wear a surgical mask in addition to any medical treatment being provided, consider application of oxygen via non-rebreathing face mask to limit dissemination of airborne particles.
7. Continue to use airborne precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

Restraints (≥ PL1)

Clinical Indications:

1. Any patient who may harm to self or others, may be gently restrained to prevent injury to the patient or crew.

Contraindications:

1. None in the emergency setting.

Notes/Precautions:

1. Physical restraint or sedation must be humane and used only as a last resort.
2. Other means to prevent injury to the patient or crew must be attempted first, and could include:
   a. Reality orientation
   b. Distraction techniques
   c. Verbal distraction
   d. Less restrictive therapeutic means
3. Use of the Restraints Checklist is required.

Procedure:

1. Attempt less restrictive means of managing the patient.
2. Request law enforcement assistance.
3. Ensure that there are sufficient personnel available to physically restrain the patient safely.
4. Restrain the patient in a lateral or supine position. No devices such as backboards, splints, or other devices will be placed on top of the patient. The patient will never be restrained in the prone position.
5. The patient's upper extremities should be restrained with 1 arm at or above the level of the head and 1 arm at or below the waist level if possible; unless clinically inappropriate.
6. The restrained patient must be under constant observation by a ≥ PL4 credentialed provider at all times. This includes direct visualization of the patient as well as cardiac and pulse oximetry monitoring.
7. The extremities that are restrained will have a circulation check at least every 15 minutes. The first of these checks should occur as soon after placement of the restraints as possible. This MUST be documented on the PCR.
8. Documentation on the patient care report (PCR) should include the reason for the use of restraints, the type of restraints used, and the time restraints were placed. Use of the Restraint Checklist is required.
9. If the above actions are unsuccessful, or if the patient is resisting the restraints, sedation should be utilized in accordance with the Behavioral/ Hyperactive Delirium with Severe Agitation Clinical Guideline. At this time the patient must be constantly monitored by a ≥ PL5 Credentialed Provider with ECG, $EtCO_2$, SPO2 capabilities.
10. If a patient is restrained by law enforcement personnel with handcuffs or other devices EMS personnel cannot remove, a law enforcement officer must accompany the patient to the hospital in the transporting EMS vehicle or be immediately available.

Safe Injection Practices (≥ PL2)

Clinical Indications:

1. To ensure adherence to basic principles of infection control and aseptic technique to prevent or diminish the risk of disease transmission during the initiation of IV access, IM/SQ injections, drawing of medications, and preparation and delivery of parenteral medications.

Contraindications:

1. None

Notes/Precautions:

1. The primary breaches in infection control practice that contribute to potential disease transmission include, but not limited to: Reinsertion of used needles into multiple dose vial or solution container and use of a single needle/syringe to administer IV medication to multiple patients.
2. Adherence to basic principles of aseptic technique includes the use of sterile, single use, disposable needle and syringe for each injection given and prevention of contamination of injection equipment and medication.
3. Whenever possible, use of a single dose vial is preferred over multi dose vials, especially when medications will be administered to multiple patients.

Procedure:

1. Initiate the use of chlorhexidine skin preparation prior to the application of a sharp appliance including, but not limited to venous catheters, intraosseous infusion needles, lancets, and the delivery of medications or immunizations through syringes either intramuscular, dermal, or subcutaneous.
2. Use aseptic technique to avoid contamination of sterile injection equipment.
3. Do Medication Administration Cross Check prior to injection
4. Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient.
5. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.
6. Use single-dose vials for parenteral medications whenever possible.
7. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use.
8. If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile.
9. Multidose vials should be stored in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable.
10. All sharps should be properly disposed into a puncture resistant container as soon as possible.

Simple Thoracostomy (≥ PL5)

Clinical Indications:

1. Traumatic cardiac arrest with known or suspected injury to the chest/abdomen (≥PL5).
2. Hemodynamically unstable patient with clinical presentation of a tension pneumothorax (≥PL6).

Contraindications:

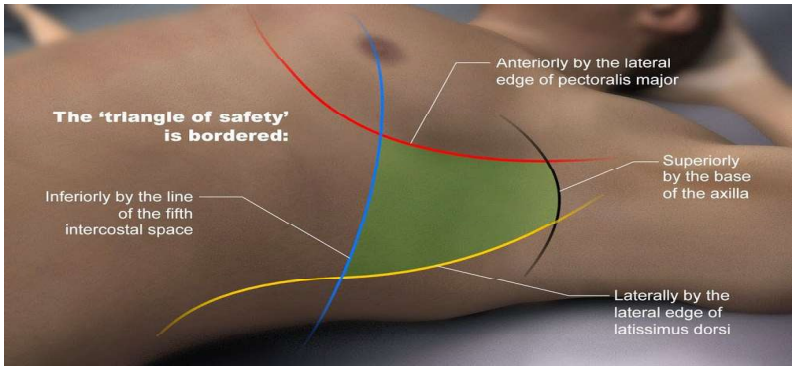
1. Definitive loss of pulse for > 10 minutes prior to arrival of first unit.
    a. May consider the procedure if PEA is present at a rate ≥ 60
2. Any patient that has adequate cardiac output.
3. Injuries incompatible with life.
4. Any pediatric patient that appears too small for simple thoracostomy.

Preparation for Use:

1. Don appropriate PPE
2. Ensure all equipment is readily available: Scalpel, Curved Kelly Forceps, Chlorhexidine (preferred) or alcohol swab stick, Permanent Marker, Chest Seals
3. Ventilation, oxygenation, and IV access should be performed by other crew members and not delay thoracostomy.

Procedure:

1. Ensure patient is in the supine position and begin on the side most likely to be affected by a tension pneumothorax. Abduct the patient's arm on the same side of the procedure.
2. Identify lateral chest wall site directly over 5th or 6th rib between anterior axillary and midaxillary lines.
3. Cleanse the site with Chlorohexidine or alcohol swab stick
4. Using a scalpel, make a 1-2 inch incision directly over the 5th or 6th rib, between the anterior axillary line and midaxillary line.
   It is important not to extend or make incisions in or through penetrating wounds when at all possible.



5. Use scalpel for skin only, there after use blunt dissection to pass through the intercostal muscles.
6. Utilizing curved forceps, penetrate into the thoracic cavity over the rib making sure to control the depth by grasping the forceps near the curved portion while inserting.
7. Following penetration into the thoracic cavity and with the tips of the forceps, open the forceps maintaining control of the depth and withdraw to create an adequate opening sufficient to place your finger in the chest.
8. Insert finger into pleural space. Ensure the lung is palpated and, if possible, feel caudally for the diaphragm.
9. Allow the soft tissues to fall back over the wound to act as a flutter valve.
10. Repeat the procedure on the opposite side.

Post Procedure:

1. If ROSC, then place an occlusive dressing over the wound.
    a. Pediatric defib pad, Vented chest seal, etc.
2. If no ROSC, then prior to pronouncement circle simple thoracostomy site and/or other incisions made by EMS. Label each with "EMS" to aid in identification for postmortem examination.

3. If evidence of tension pneumothorax occurs, including cardiac arrest following ROSC, then remove occlusive dressing(s) and re-insert finger to relieve tension.

Spinal Motion Restriction (≥ PL1)

Clinical Indications:

1. Potential need for Spinal Motion Restriction (SMR) as determined by patient presentation and assessment.

Contraindications:

1. SMR is not indicated or likely to worsen neuro injury and/or patient condition.

Notes/Precautions:

1. The purpose of this guideline is to assist in determining if SMR is to be used for the patient during transport.
2. The use of a C-Collar may be appropriate and / or necessary based upon patient complaint/condition.
3. If there are any doubts the default is to apply SMR including C-Collar.
4. SMR may be achieved by using any of the following currently approved devices: Ambulance Stretcher or Long Spine Board (LSB) or Scoop Device.
5. The decision to not implement SMR is the responsibility of all providers/responders.
6. In patients that are ≤ 5 and ≥ 65, a normal exam may not be sufficient to rule out spinal injury.
7. Patient's Range of Motion (ROM) should NOT be assessed if patient has midline spinal tenderness.

Procedure:

Required Exam:

1. Mental status, skin condition, neck, heart, lungs, abdomen, back, extremities, and neuro.

Indications for SMR Following *Blunt* Trauma:

1. Acutely altered level of consciousness, defined as GCS < 15, evidence of intoxication; for pediatric patients: agitation, apnea, hypopnea, somnolence.
2. Torticollis, patient is unable to move back from abnormal position to normal position.
3. Midline neck or back pain and/or tenderness.
4. Focal neurologic signs and/or symptoms, including numbness or motor weakness.
5. Anatomic deformity of the spine.
6. Distracting circumstances or injury, including long bone fracture, degloving, crush injuries, burns, etc; or any similar injury that impairs the patient's ability to contribute to reliable examination.
7. Involvement in a high-risk motor vehicle collision, high impact diving injury, or has substantial torso injury.
8. Communication barrier caused by emotional, language, and/or cognitive impairment.

IF SMR is Indicated **and** Requires LSB or Scoop Device

1. Gather the device, straps, c-collar appropriate for patient's size, tape, and head rolls or similar device to secure the head. Explain the procedure to the patient.
2. Second rescuer should maintain the head in a neutral position using in-line stabilization, not traction. Place the patient in an appropriately sized c-collar while maintaining in-line stabilization of the c-spine. If the c-collar will not fit the patient towels or other such materials should be used to stabilize the patients c-spine in lieu of the c-collar.
3. Assess peripheral motor/sensory function and distal pulses.
4. Once the collar is secure, the second rescuer should continue to maintain stabilization.
5. Move patient to a long board using a technique appropriate for the patient position which maximizes maintenances of in-line spinal stability - log roll, four-man lift, rapid extrication, etc.

6. Secure the body to the long board followed by the head using straps and head rolls/tape or another similar device. Once the head is secured to the backboard, the second rescuer may release manual in-line stabilization.
7. Place padding in void spaces under and around patient, if time permits.
8. Assess peripheral motor/sensory function and distal pulses.
9. Some patients, due to size or age, will not be able to immobilized through in-line stabilization with standard backboards and c-collars. Never force a patient into a position to immobilize them. Such situations may require a second rescuer to maintain manual stabilization throughout the transport to the hospital and continual assessment of distal peripheral motor/sensory function and distal pulses.
10. Long spine boards are only to be used to move the patient to position of transport or during extrication. The patient must be removed from the LSB or scoop stretcher prior to transport.
11. Document the time of the procedure in the ePCR.

Pearls:

1. If ROM is assessed, the patient should touch his chin to his chest, extend his neck (look up), and turn his head from side to side (shoulder to shoulder) without pain.
2. A LSB may be used to assist in patient movement and extrication. It's use as a patient movement tool alone does not necessarily indicate a requirement for SMR. Provider/Responder judgement and application of this Guideline will determine the need for SMR.
3. Utilization of the LSB should occur in consideration of the individual patient's benefit vs. risk.
4. Whether or not a LSB is utilized, spinal precautions are STILL VERY IMPORTANT to perform and document in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a cervical collar and ensuring that the patient is secured tightly to the stretcher, ensuring minimal movement and patient transfers, and manual in-line stabilization during any transfers.
5. If the Provider or First Responder has a concern for spinal cord injury not addressed by these criteria; patients may be SMR at the Provider's/Responder's discretion.
6. If a C-collar will not fit the patient, towels or other such materials should be used to stabilize the patients C-spine in lieu of the C-collar.

Splinting (≥ PL1)

Clinical Indications:

1. Immobilization of an extremity for transport, either due to suspected fracture, dislocation, sprain or injury.
2. Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters.

Contraindications:

1. None

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, reposition to restore pulses and splint the limb.
2. Remove all clothing and jewelry from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed. In the case of suspected fracture, the splint should immobilize the joint above and the joint below the injury whenever possible.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with straps or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Assess pulses, sensation, and motor function before and after placement of the splint. If there has been deterioration in any of these 3 parameters due to splinting, remove the splint and reassess.
7. Consider analgesia per Pain Guideline prior to or after procedure as needed.
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report.

Standard Precautions (≥ PL1)

Clinical Indications:

1. Standard precautions are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent. Implementation of standard precautions constitutes the primary strategy for the prevention of healthcare-associated transmission of infectious agents among patients and healthcare personnel.

Contraindications:

1. None

Notes/Precautions:

1. Standard precautions are based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents.
2. The application of standard precautions during patient care is determined by the nature of the provider-patient interaction and the extend of anticipated blood, body fluid, or pathogen exposure. For some interactions, only gloves may be needed (e.g. performing venipuncture); during other interactions (e.g. intubation) use of gloves, gown, and face shield or mask and goggles is necessary.

Procedure:

Wear the appropriate level of PPE based on the mode of transmission of the suspected infectious agent when the nature of the anticipated patient interaction indicates contact with blood or body fluids may occur. Where respiratory vectors are considered employ PPE in accordance with the Respiratory Precautions Procedure.

Gloves:

1. Wear ear gloves when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, non-intact skin, or potentially contaminated intact skin (e.g., of a patient incontinent of stool or urine) could occur.
2. Remove gloves after contact with a patient and/or the surrounding environment (including medical equipment) using proper technique to prevent hand contamination.
3. Do not wear the same pair of gloves for the care of more than one patient.

Gowns:

1. Wear a gown, that is appropriate to the task, to protect skin and prevent soiling or contamination of clothing during procedures and patient-care activities when contact with blood, body fluids, secretions, or excretions is anticipated.
2. Wear a gown for direct patient contact if the patient has uncontained secretions or excretions.
3. Remove gown and perform hand hygiene before leaving the patient's environment.
4. Do not reuse gowns.

Mouth, Nose, Eye Protection:

1. Use PPE to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions. Select masks, goggles, face shields, and combinations of each according to the need anticipated by the task performed.
2. During aerosol-generating procedures (e.g., suctioning of the respiratory tract, advanced airway maneuvers) in patients who are not suspected of being infected with an agent for which respiratory protection is otherwise recommended (e.g. M. tuberculosis, SARS or hemorrhagic fever viruses), wear one of the following: a face shield that fully covers the front and sides of the face, a mask with attached shield, or a mask and goggles (in addition to gloves and gown).

Staple/Suture Removal (Integrated Services)

Clinical Indications:

1. Adequate closure of skin
2. OCMO order to remove staples/sutures

Contraindications:

1. Wound is highly contaminated
2. Environment does not allow for aseptic technique
3. Unable to contact OCMO
4. Evidence of wound dehiscence

Notes/Precautions:

1. If wound becomes red, painful, or drainage is noted, contact OCMO – these changes may indicate infection
2. Scarring related to sutures is normal, this can take upwards of one year to heal

Procedure:

1. Gather appropriate supplies
2. Position patient appropriately and ensure adequate working position for provider
3. Perform hand hygiene
4. Prepare the field and add necessary supplies in an organized manner
5. Remove dressing and inspect the wound using non-sterile gloves
    a. Consult with OCMO to ensure wound is adequate for suture removal
6. Remove non-sterile gloves and perform hand hygiene
7. Apply clean non-sterile gloves
8. Clean incision site

Sutures

9. Grasp a knot of suture with forceps and gently pull knot up while slipping the tip of the scissors under the suture near the skin.
10. Cut under the knot as close as possible to the skin at the distal end of the knot
    a. Never cut both ends of the knot as this will prevent you from removing the suture
    b. Do not pull the suture that was above the skin through the skin
11. Grasp the knotted end with forceps and pull suture out of the tissue in one continuous action
12. Remove every second suture
13. Reassess to ensure wound remains closed
    a. If wound opens, apply steri-strips to location of every removed suture and contact OCMO
14. If wound remains closed, remove remaining sutures
15. Apply steri-strips to ensure wound remains closed as needed
16. Clean, bandage, and educate patient on wound care

Staples

9. Place lower tip of staple extractor beneath the staple, close the handle, then gently move the staple from side to side to remove.
    a. The closed handle depresses the middle of the staple causing the staple to bend outward and up. Do not pull up while depressing the handle before you see the sides of the staple above the skin.
10. When both ends of the staple are visible, keeping the handle depressed, move the staple extractor away from the skin and place the staple on a gauze pad by releasing the handle.
11. Remove every second staple
12. Reassess to ensure the wound remains closed
    a. If wound opens, apply steri-strips to location of every removed staple and contact OCMO
13. Remove remaining staples
14. Clean, bandage, and educate patient on wound care

Suctioning - Advanced (≥ PL2)

Clinical Indications:

1. Obstruction of the airway secondary to secretions, blood, and or any other substance in a patient currently being assisted by an airway adjunct such as a naso-tracheal tube, endotracheal tube, tracheotomy tube, or a cricothyrotomy tube.

Contraindications:

1. None.

Notes/Precautions:

1. Special circumstances that may result in inaccurate pulse oximetry readings:
   a. States of decreased peripheral perfusion - hypotension, hypothermia, hypoperfusion
   b. Carbon monoxide poisoning, methemoglobinemia, cyanide poisoning
   c. Excessive ambient light on the pulse oximeter probe - sunlight, florescent lights
2. Remember to treat the patient and not the pulse oximeter reading. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress.

Procedure:

1. Ensure suction device is in proper working order.
2. Pre-oxygenate the patient.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the proximal opening of the airway and the suprasternal notch and the endpoints, measure the depth desired for the catheter. Judgement may be used regarding the depth of the suctioning with cricothyrotomy and tracheostomy tubes.
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth has been reached, occlude the thumb port and remove the suction catheter slowly.
8. Small volume (< 10 mL) of normal saline lavage may be used as needed to help dissolve obstructions due to mucus plugging of the suction catheter.
9. Reattach ventilation device and ventilate the patient.
10. Document time and result in the ePCR.

Surgical Cricothyrotomy (≥ PL5)

Clinical Indications:

1. Patient ≥ 10 years of age with a failed airway

Contraindications:

1. Anytime a less invasive maneuver would allow adequate oxygenation and ventilation of the patient.
2. Tracheal transection.
3. Fractured larynx, significant damage to cricoid cartilage or larynx, or inability to identify appropriate landmarks.

Preparation for Use:

1. Don appropriate PPE
2. Position patient supine with head slightly extended, unless contraindicated due to suspected cervical spine injury.
3. Apply appropriate respiratory and cardiac patient monitoring.
4. Ensure all equipment is readily available: Scalpel, Chlorhexidine or betadine, Kerlix/gauze, endotracheal tubes (ETT) and Bougie, device or tape to secure ETT.
5. If the patient is possibly conscious, then administer Fentanyl or Ketamine for anesthesia as time allows and per Conscious Sedation clinical procedure & checklist.

Procedure:

1. Locate and palpate landmarks then prepare anterior surface of the neck with chlorohexidine as time allows.
2. Place thumb and index finger of non-dominant hand on either side of the tracheal cartilage to stabilize the trachea and anchor and stretch the skin slightly.
3. Palpate the tracheal cartilage and locate the cricothyroid (CT) membrane, perform a vertical incision over the CT membrane midline beginning ½ - 1 inch superior and extending ½ - 1 inch inferior.
4. Visualize the CT membrane and perform a horizontal punch incision through the CT membrane. Upon completion of this incision, activate the blade safety component.
5. After blade safety activation place finger of non-dominant hand into the incision to dilate the incision and serve as a landmark.
6. Advance the angled end of an Bougie past your finger through the incision. Remove your finger once the tip of the Bougie is confirmed inside the incision. The bougie should advance easily until "hold-up".
7. Advance an appropriately sized cuffed endotracheal tube (ETT) over the bougie (1-2 cm past cuff) and remove the bougie.
8. Maintaining control of the proximal end of the ETT, inflate the cuff and confirm placement of the ETT.
9. Secure the ETT with tape maintaining continuous stabilization by hand. ETT is to be secured by hand at all times.
10. Providers may continue to use backboards to assist in patient movement as needed.

Synchronized Cardioversion (≥ PL5)

Clinical Indications:

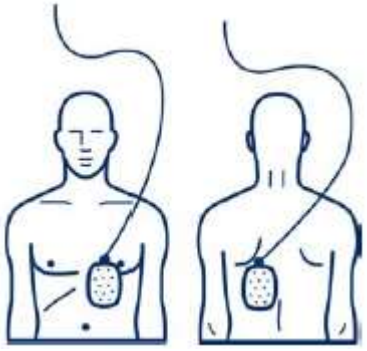
1. Unstable tachydysrhythmia with a pulse in accordance with the appropriate tachydysrhythmia guideline:
    a. Monomorphic regular ventricular tachycardia, Supraventricular tachycardia (SVT), Atrial Fibrillation or Atrial Flutter with Rapid Ventricular Response (RVR), etc.

Contraindications:

1. Repetitive, self-terminating, or short-lived tachycardia
    a. Example: runs of non-sustained ventricular tachycardia
2. Sinus tachycardia

Preparation for Use:

1. Confirm that the rhythm on the monitor coincides with a patient in an unstable condition.
2. Place defibrillation pads, preferably anterior and posterior chest.
3. Set the cardiac monitor to synchronized cardioversion and confirm markers are synchronized with R wave of each QRS complex.
    a. If the R wave markers do not appear, or appear elsewhere on the ECG, adjust the ECG size or gain up or down until they appear on each R-wave.
        i. If markers still do not appear, select another lead or reposition the ECG electrodes
        ii. If these methods are ineffective unsynchronized cardioversion may be required



Precautions:

1. Do not delay emergent synchronized cardioversion in a hemodynamically unstable patient to administer pain or sedation medications.

Procedure:

1. If the patient is conscious, explain the procedure to the patient within reason.
2. Ensure firm pad contact with patient's skin.
3. Consider the use of pain/sedating medications.
4. Charge device to appropriate energy level per patient care guidelines and clear all personnel from direct patient contact.
5. Depress and hold discharge buttons until electrical charge is delivered. There may be substantial delay between pressing the button and the actual discharge of energy.
6. Reassess the patient.
7. If rhythm deteriorates into VF/pulseless VT, switch to asynchronous mode and immediately defibrillate per Patient Care Guidelines.
8. Document the procedure, time performed and patient response in the patient care report.

Tourniquet (≥ PL1)

Clinical Indications:

1. Life threatening extremity hemorrhage that cannot be controlled by other means.
2. Serious or life-threatening extremity hemorrhage where conditions, patient location, tactical, or Hazmat environment, etc. prevent the use of standard hemorrhage control techniques.
3. Life threatening condition(s) that require immediate attention and significant extremity hemorrhage where the use of a tourniquet is more expedient than standard hemorrhage control.

Contraindications:

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

Notes:

1. Guiding principle is place it high and tight.

Procedure:

1. Place tourniquet proximal to wound - axillary area for upper extremities and inguinal area for lower extremities.
2. Tighten until loss of distal pulses. Failure to adequately tighten the tourniquet to the loss of pulses may cause restriction of venous return and result in a compartment syndrome.
3. Secure tourniquet. Tourniquet should be easily visible on the affected limb.
4. Note time of tourniquet application and communicate this to receiving care providers.
5. Dress wounds per standard wound care guideline.
6. May loosen tourniquet if other bleeding control measures have worked. Do NOT remove the tourniquet. If bleeding returns re-tighten the tourniquet until the bleeding stops. If there is no ongoing bleeding leave the tourniquet in place but assure it is loosened to prevent venous occlusion.
7. Provide pain control per Pain Management Guideline as needed.
8. An additional tourniquet may be placed just distal to the 1st one if, the hemorrhage is unable to be controlled with 1 tourniquet.
9. Frequently reassess, with increased MAP from resuscitation the patient may re-bleed.

Tracheostomy Tube Change / Replacement (≥ PL5)

Clinical Indications:

1. Dislodgement of tracheostomy.
2. Tracheostomy obstruction that will not clear with suction.
3. Inability to oxygenate and/or ventilate the patient without other obvious explanation.

Contraindications:

1. None in the emergency setting.

Notes/Precautions:

1. Always talk to family and/or caregivers as they have specific knowledge and skills.
2. Important to ask if patient has undergone laryngectomy. This does not allow mouth/nasal ventilation by covering stoma.
3. Use patient's equipment if available and functioning properly. Estimate suction catheter size by doubling the inner tracheostomy tube diameter and rounding down.
4. Suction depth: Ask family / caregiver. No more than 3 to 6 cm typically. Instill 2 – 3 mL of NS before suctioning. Do not suction more than 10 seconds each attempt and pre-oxygenate before and between attempts.
5. DO NOT force suction catheter. If unable to pass, then tracheostomy tube should be changed.
6. Always deflate tracheal tube cuff before removal. Continual pulse oximetry and EtCO2 monitoring if available.
7. DOPE: **D**isplaced tracheostomy tube / ETT, **O**bstructed tracheostomy tube / ETT, **P**neumothorax and **E**quipment failure.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment of orotracheal intubation and failed airway.
2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shilley, then have a 6.0 and a 5.5 tube).
3. Lubricate the replacement tube(s) and check the cuff.
4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.
5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to lose pressure.
7. Remove the tracheostomy tube.
8. Insert the replacement tube. Confirm placement via standard measures.
9. If there is any difficultly placing the tube, re-attempt procedure with the smaller tube size.
10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation. More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheotomy sites.
11. Document procedure, confirmation, patient response, and any complications in the ePCR

Transcutaneous Cardiac Pacing (TCP) (≥ PL5)

Clinical Indications:

1. Adult patient with unstable bradycardia, defined as heart rate < 60 and signs of hypoperfusion such as SBP < 90 mmHg or MAP < 65, change in mental status, chest pain, CHF.
2. Pediatric patients with unstable bradycardia unresponsive to treatable causes with SBP < 70 + (age in years x 2) mmHg). Unresponsive to aggressive oxygenation and ventilation attempts.

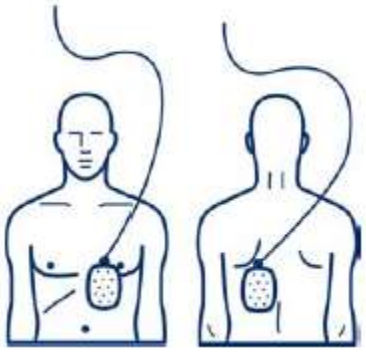
Contraindications:

1. Hypothermia with a temperature < 86 degrees F.

Procedure:

1. Attach standard four lead monitor.
2. Apply defibrillation/pacing pads assuring clean dry contact surface (shave/dry):
   a. One pad to anterior left mid chest next to sternum. (medial/inferior to pectoral muscle)
   b. One pad to posterior left mid chest next to spine. (medial/inferior to scapula)
3. For pediatric patients use correct size and type pads for pacing and patient weight.
4. Select pacing mode on the monitor.
5. Adjust heart rate to 80 BPM (adult) or 100 BPM (child).
6. Note presence of pacer spikes.
7. Increase output until electrical capture of the rhythm on the monitor.
8. If unable to capture at maximum output discontinue pacing immediately.
9. If capture observed, check for corresponding pulse and assess vital signs.
10. Increase pacing rate to improve perfusion until SBP > 90 mmHg
11. Consider the use of sedation or analgesia.
12. Document the procedure, time of intervention and response in the patient care report.

Anterior-Posterior Placement for Pacing (Standard)



Ultrasound (≥ PL5)

Clinical Indications:

1. Determining presence of cardiac activity during CPR pulse checks.
2. Extended Focused Assessment by Sonogram for Trauma (EFAST) to diagnose potentially correctable serious injury.
3. Diagnosis of suspected pneumothorax.
4. Determination of fetal cardiac activity in 2nd or 3rd trimester pregnancy, in lieu of doppler heart tones.
5. Ultrasound is an assessment tool that may be utilized at any time. Additional diagnostic procedures such as aortic measurement, soft tissue examination, or endotracheal tube placement confirmation may be performed by trained providers.

Contraindications:

1. None

Notes/Precautions:

1. Do not delay immediately necessary lifesaving procedures to perform ultrasound exam.
2. Do not interrupt CPR just to perform an ultrasound exam. Perform the ultrasound exam during regular pulse check intervals.

Procedure:

1. Ensure proper body substances isolation precautions.
2. Explain procedure to the patient if possible, that you are performing a limited ultrasound exam which involves some gel and will not be painful.
3. Turn on ultrasound.
4. Select appropriate exam present:
   a. Abdominal: EFAST, cardiac activity, fetal cardiac activity.
   b. Cardiac: Cardiac activity
   c. Lung: Pneumothorax
5. Perform ultrasound exam.
6. Clean the probes, cord, screen, and gel bottle with germicidal wipes.
7. Document ultrasound findings and procedure in the ePCR.
   a. Examples:
      i. "EFAST indicated no pericardial effusion, intraperitoneal fluid, or pneumothorax."
      ii. "Fetal cardiac activity confirmed by visualization on ultrasound."
      iii. "Patient in PEA. During pulse check, no mechanical cardiac activity observed with ultrasound."

Vacuum Immobilizer (≥ PL2)

Clinical Indications:

1. When guidelines indicate a patient needs to be packaged for transport.
2. The vacuum mattress can be used as a spinal restriction device and/or full body splint.
3. Pelvic fractures.
4. Situations where a patient will be packaged supine for an extended period of time.

Contraindications:

1. None

Notes/Precautions:

1. Vacuum mattress drastically reduces pressure points compared to a ridged backboard.
2. The vacuum mattress is an excellent insulation barrier:
   a. Can help with managing hypothermia for patients in cold weather or with trauma.
   b. On extremely hot days the vacuum mattress can become hot on the patients back. Consider placing a sheet between the patient and the vacuum mattress. Also consider applying cold packs.
3. If the vacuum mattress loses vacuum, impermeable tape can be used as a *quick fix* solution to temporarily repair an abrasion/puncture site.
4. The vacuum mattress has a built-in pelvic binder that can be used in lieu of the pelvic binder. If a patient has a pelvic binder applied prior to being placed in the mattress, do not apply the built-in binder.

Procedure:

1. Prepare equipment.
2. Apply any needed patient care items, splints, c-collar, bandages/dressings, etc.
3. Lay vacuum mattress out next to patient with straps extended.
4. Transfer patient to the vacuum mattress.
   a. Multiple providers placing hands under patient to lift up and then laterally move patient onto the vacuum mattress.
   b. Position patients head even with the top of the vacuum mattress.
5. Secure torso straps first (yellow) followed by the head strap (red) and lower extremity straps (green).
6. Adjust position of pelvic straps, if needed, and secure Pelvic straps.
   a. If Pelvic binding is indicated, ensure the Pelvic straps are on the lower 2/3 of the pelvis and apply enough pressure to sufficiently bind Pelvis to stabilize fracture.
7. **Prior to evacuating air**, place hands under patient into void spaces created by the patient's anatomical position. Common void spaces for a supine patient include: small of back and behind knees.
   a. Leave hands in place until air has been evacuated and the vacuum mattress is ridged
8. **Prior to evacuating air**, if spinal restriction is required have a provider wrap the vacuum mattress head "flaps" around the patient's head.
   a. Hold flaps in place until air has been evacuated and the vacuum mattress is ridged.
9. Ensure air valve is closed (clockwise rotation).
10. Attach hose from vacuum pump, rotating in a clockwise direction (thus continuing to tighten valve) as the nipple is inserted into the air valve.
11. Vacuum air with vacuum pump until vacuum mattress is ridged.
    a. The internal beads will be visible through the vacuum mattress material.
12. Remove vacuum hose nipple from valve by rotating clockwise as the nipple is pulled out of valve.

Vagus Nerve Stimulator (≥ PL2)

Clinical Indications:

1. Patient with an implanted Vagus Nerve Stimulation (VNS) device used in the management of seizures and a magnet for increasing stimulation or temporarily disabling the device.

Contraindications:

1. Use of magnet for any other condition other than activating the VNS device.

Notes/Precautions:

1. The patient and/or family should be familiar with the device and are usually able to help manage the patient and device.

Procedure:

1. Assist the patient and/or family in using the device as they have been instructed.
2. In the absence of a known procedure the stimulation may be increased in the presence of a seizure:
    a. Pass the magnet over the vagal nerve stimulator generator for 1-2 seconds,
    b. Repeat process in 60 seconds,
    c. May repeat up to total of 3 times.
3. Transport patient to the appropriate hospital.

Ventricular Assist Device (≥ PL2)

Clinical Indications:

1. Emergency response to a patient with a Ventricular Assist Device (VAD), Left Ventricular Assist Device (LVAD).

Contraindications:

1. None.

Notes/Precautions:

1. A VAD is a mechanical pump that is used to support heart function and blood flow in people who have weakened hearts. Some common reasons for VAD implantation are MI, Heart Failure, myocarditis, cardiomyopathy and heart surgery.
2. The device takes blood from a lower chamber of the heart and helps pump it to the body and vital organs, just as a healthy heart would.
3. The basic parts of a VAD include: a small tube that carries blood out of your heart into a pump; another tube that carries blood from the pump to your blood vessels, which deliver blood to your body; and a power source.
4. The power source is either batteries or AC power. The power source is connected to a control unit that monitors the VAD functions. The batteries are carried in a case usually located in a holster in a vest around the patient's shoulders.
5. The control unit gives warnings or alarms if the power is low or if it senses that the device is not functioning properly.
6. VAD patients are preload dependent, a fluid bolus can often reverse hypoperfusion.
7. Most patients have a tag located on the controller around their waist that lists the type of device, the institution that put it in and a number to call.
8. Be careful removing or cutting clothing so you do not dislodge or cut the drive line.
9. Questions to ask:
    a. Does the patient have a DNR?
    b. Can the patient be cardioverted or defibrillated if needed?
    c. Can chest compressions be performed in case of pump failure?
10. If a VAD patient is unresponsive and pulseless with a non-functioning pump and has previously indicated a desire for resuscitative efforts, begin compressions. Contact the VAD coordinator and OLMC.
11. Call the VAD Coordinator early as they are available 24/7.

Procedure:

1. Assess patient's airway and intervene per airway clinical guidelines.
2. Auscultate heart sounds to determine if the device is functioning and what type of device it is. If it is a continuous flow device you should hear a whirling sound.
3. Assess the device for any alarms.
4. Look at the controlled located around the patient's waist or in their VAD PAK to see what device it is.
5. Intervene appropriately based on the type of alarm and patient guide.
6. You may follow standard cardiac arrhythmia guidelines, except:
    a. Do not perform chest compressions, unless directed by OLMC.
    b. Do not administer thrombolytics
7. Defibrillation and cardioversion are the standard processes.
8. Assess vital signs, use mean BP with doppler if available. The first sound you hear is the mean arterial pressure. If no doppler, then use the NIBP cuff.
9. Transport to closest VAD Center. Call the number listed on the device for advice.
10. Bring all of the patient's equipment and paperwork to the ED.
11. Allow the trained caregiver to ride in the patient compartment when possible. They may be able to serve as an expert on the device if the patient is unconscious or unable to answer for themselves.

Pearls:

1. Always talk to family and caregivers as they may have specific knowledge and skills.
2. Deciding when to initiate chest compressions is difficult. Consider that chest compressions may cause exsanguination if the device becomes dislodged. However, if the pump has stopped the heart will not be able to maintain perfusion and the patient will likely die. Ideally, plan the decision advance with a responsive patient, the VAD coordinator, and OLMC.
3. Common complications in VAD patients include Stroke and TIA, bleeding, dysrhythmia, and infection.
4. The cardiac monitor and 12-lead ECG are not affected by the VAD and will provide important information.
5. Defibrillate and/or cardiovert as normal and do not place the pads over the device.
6. Keep in mind it may be difficult to obtain an accurate SpO_2
7. Transport patients with all device equipment including any instructions, hand pumps, backup batteries, primary and secondary controllers, as well as any knowledgeable family members or caregivers.

Wound Care (≥ PL1)

Clinical Indications:

1. Protection and care for open wounds prior to and during transport.

Contraindications:

1. None

Procedure:

1. If active bleeding, then hold direct pressure.
2. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate, which does not apply to a packed wound.
   a. Avoid if bleeding is difficult to control.
   b. Consider analgesia per pain guideline prior to irrigation.
3. Cover wounds with sterile gauze/dressings. Check distal pulses, sensation, and motor function to ensure the bandage is not too tight.
4. Monitor wounds and/or dressings throughout transport for bleeding.

Wound Packing for Penetrating Junctional and Extremity Trauma (≥ PL1)

Clinical Indications:

1. Uncontrolled hemorrhage for penetrating junctional and extremity trauma.

Contraindications:

1. None

Procedure:

1. Stop the bleeding. Now! Immediately apply direct pressure to the wound, using gauze or clean cloth to slow or stop the hemorrhage-until you have time to get out your wound packing supplies. Place your gloved fingers-with or without a dressing-into the wound to apply initial pressure to the target area (with your target being the vein, artery or both) and compress the source of bleeding. Keep in mind that the body's anatomy presents with major vessels running close to bones. So, whenever possible, utilize a bone to assist with vessel (i.e., bleeding) control. This will also give you an idea of which direction the wound travels and you can insert the gauze accordingly.
2. Pack the wound with gauze or gauze with an impregnated hemostatic agent. Tightly! Your goal is to completely and tightly pack the wound cavity to stop hemorrhage. Begin packing the gauze into the wound with your finger, while simultaneously maintaining pressure on the wound. When no more gauze can be packed inside the wound, hold direct pressure on the wound for 3 minutes. It's critical that the gauze be packed as deeply into the wound as possible to put the gauze into direct contact with the bleeding vessel. By doing so, you're simultaneously putting direct pressure onto the bleeding vessel and allowing the hemostatic agent to do work its magic.
3. Keep packing! The key to successful wound packing is that the wound be very tightly packed, applying as much pressure as possible to the bleeding vessel. This pressure against the vessel is the most important component of hemorrhage control. This explains why plain gauze (without an impregnated hemostatic agent), when tightly packed, is also quite effective.
4. Apply very firm pressure to the packed wound for 3 minutes. This step pushes the packing firmly against the bleeding vessel and aids in clotting.
5. Secure a snug pressure dressing and transport. After applying pressure for 3 minutes, place a snug pressure dressing over the wound. You may consider splinting or immobilizing the area, if possible because movement during transport can dislodge the packing and allow hemorrhage to restart.
6. Should the bleeding continue, hemostatic gauze manufacturers recommend removal of the original packing and repacking with fresh gauze. The rationale for this is that they assume it wasn't packed properly the first time, or perhaps the packing didn't quite get to the bleeding vessel.
7. Prior to repacking, another option is to pack more gauze into the wound, if possible. If no further packing is possible, you must decide whether to remove the gauze and start over or simply apply as much direct pressure to the wound as possible and get the patient to a trauma center quickly. This decision should be made during transport; transport shouldn't be delayed for extensive packing and repacking of the wound.
8. Apply a tight pressure dressing to the packed wound. Once the bleeding is controlled, consider splinting or immobilizing the area to avoid dislodging the packing during transport.
9. Monitor wounds and/or dressing throughout transport for bleeding.
10. Wound edges should be cleared of blood.
11. Beware of the *trickle* of blood, which may lead to slow exsanguination.
12. Document the wound and assessment in ePCR.

Acetaminophen (APAP) (Tylenol) (Ofirmev)

Indications: Fever with or without seizures, or pain

Contraindications: Allergy, hypersensitivity, severe hepatic impairment, or severe active liver disease. IV route is not approved for pediatric patients.

Concentration: 1 tablet = 325mg

1G in 100ml (10mg/ml)

ADULT DOSING			
Indication	**Dose**	**Route & Rate**	**Note**
Fever or Pain	650mg **2 tablets**	PO x1	No second dose
	1G **100ml**	IV over 10min	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Route & Rate**	**Note**
Fever or Pain	15mg/kg	PO x1	No second dose
PEDIATRIC DOSING			

Pediatric Dosing Acetaminophen										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Patient must be able to control their airway. PO Dose to administer in mL OR tablets Concentration = 32mg/1mL -- Meltaway Tablets = 80mg each										
1 mL No tablets	**2 mL No tablets**	**3 mL No tablets**	**3.8 mL No tablets**	**4.7 mL 1 tablet**	**5.6 mL or 2 tablets**	**7 mL or 2 Tablets**	**8 mL or 3 tablets**	**10 mL or 4 tablets**	**12 mL or 4 tablets**	**14.1 mL or 5 tablets**

Precautions	Pregnancy Category B. Use in caution with known thrombocytopenia and/or Liver Disease.
Adverse/Side Effects	N/V, abdominal pain
Class	Analgesic, Antipyretic
Mechanism of Action	Equivalent to aspirin in both analgesic and antipyretic effects. Unlike aspirin, acetaminophen has little effect on platelet function, no effect on homeostasis, and is not known to produce gastric bleeding. Acetaminophen is not an NSAID, as it has no anti-inflammatory properties. PO Absorption is rapid, peak 1-2h, duration 3-4h, ½life 1-3h. APAP is processed in the Liver.

PO Onset of Action	< 1 hour	**Peak Effect**	10 to 60 minutes	**Duration of Action**	4 to 6 hours
IV Onset of Action	< 30 minutes	**Peak Effect**	10 to 60 minutes	**Duration of Action**	4 to 6 hours

Adenosine

Indications: Supraventricular Tachycardia SVT (including WPW) refractory to vagal maneuvers

Contraindications: 2nd or 3rd degree heart block (without a functioning pacemaker); Known Sick sinus syndrome; Known History of Long QT Syndrome; Irregular Wide-complex tachycardia presumed to be WPW

Concentration: 3 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Supraventricular Tachycardia SVT	12 mg **4 mL**	Rapid IV/IO push with 10 ml flush	May repeat one time
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Supraventricular Tachycardia SVT	0.2 mg/kg	Rapid IV/IO push with flush	May repeat one time. Single dose max of 12 mg
PEDIATRIC DOSING			

Pediatric Dosing Adenosine										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Adenosine: IV/IO for SVT May repeat x1 Concentration = 3mg/mL										
0.1 mL **0.4mg**	**0.3 mL** **0.8mg**	**0.4 mL** **1.2mg**	**0.5 mL** **1.6mg**	**0.7 mL** **2.0mg**	**0.8 mL** **2.4mg**	**1.0 mL** **3.0mg**	**1.1 mL** **3.4mg**	**1.3 mL** **4.0mg**	**1.7 mL** **5.0mg**	**2 mL** **6.0mg**

Precautions	Pregnancy Category C. Advising patient of the side effects of adenosine prior to administering can help minimize patient anxiety. Large bore IV, antecubital access or IO access & IV wide open during administration; it may help to have your partner administer the fluid bolus. Start your EKG printout before administration and continue printing through bolus and conversion. Administration of adenosine will cause a period of asystole & various conversion dysrhythmias, be patient, most will transiently resolve.
Adverse/Side Effects	Flushing, Dizziness, Chest Pain, Lightheadedness, Dyspnea, Numbness, Headache, Nausea/Vomiting , Diaphoresis, Palpitations , Metallic Taste
Class	Supraventricular Antiarrhythmic, Nucleoside
Mechanism of Action	Slows tachycardias associated with the AV node via modulation of the autonomic nervous system without causing negative inotropic effects. It acts directly on sinus pacemaker cells and vagal nerve terminals to decrease chronotropic & dromotropic activity. Slows conduction through the AV node, blocks reentry pathways through the AV node, can transiently slow conduction in the SA node.

Onset of Action	Rapid	**Peak Effect**	Rapid	**Duration of Action**	Very brief

Albuterol

Indications: Bronchospasm with or without wheezing, hyperkalemia

Contraindications: None in the emergency setting

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Bronchospasm	2 MDI Puffs	Inhaled	May repeat q 5 minutes x 3 PRN
	2.5 mg/3ml 1 unit vial	Nebulizer	Continuous as needed.
Hyperkalemia	10 mg 4 unit vials		May repeat x 1 for a total dose of 20 mg
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Bronchospasm	2.5 mg/3ml 1 unit vial	Nebulizer	Continuous as needed
PEDIATRIC DOSING			

Precautions / Side Effects	Palpitations, Tachycardia, Anxiety, Nervousness, Dizziness, HA, Tremor, N/V, Less frequent HTN, Dysrhythmias, Chest Pain
Interactions	Antagonistic Effects—Beta blockers
Class	Beta2 Agonist, Sympathomimetic
Mechanism of Action	Acts selectively on Beta2 receptor sites in the lungs, relaxing bronchial smooth muscle, decreasing airway resistance, & relief of bronchospasm. Although Albuterol is beta selective, it will cause some CNS stimulation, cardiac stimulation, increased diuresis, & gastric acid secretion. Higher doses of albuterol shifts potassium into the intracellular space, thus lowering serum potassium levels.

Onset of Action < 5 minutes **Peak Effect** 30 minutes **Duration of Action** 3 to 6 hours

Amiodarone

Indications: V-Fib or Pulseless V-Tach(pVT) Cardiac Arrest, Post Resuscitation Care, Wide Complex Tachycardia with a Pulse, & Symptomatic A-fib.

Contraindications: Without a pulse: None; With a pulse: bradycardia, second/third degree AV block

Concentration: 50 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
V-fib or pVT Cardiac Arrest	1st: 300 mg **6 mL** 2nd: 150 mg **3 mL**	IV/IO push	4 minutes between 1st and 2nd doses.
Post resuscitation care after V-fib or pVT– or – Wide Complex Tachycardia WITH a Pulse	150 mg	IV/IO infusion over 10 minutes	3 ml/100cc NS wide open with a 60gtts set. Wait 10 minutes from the end of one infusion to start of next infusion. **MAXIMUM TOTAL DOSE IS 450 mg**
Symptomatic A-Fib			Alternative to diltiazem when there is a clinical concern.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Pulseless VF/VT	1st: 5 mg/kg Max dose: 300 mg 2nd: 5 mg/kg Max dose: 150 mg	IV/IO push	4 minutes between 1st and 2nd doses.
V-fib or pVT Post resuscitation care or Wide Complex Tachycardia WITH a Pulse	5 mg/kg Max dose: 150 mg	IV/IO infusion over 20 minutes	Place ml dose in 100ml NS in an IV burette/60 gtts then infuse at 150gtts/min. **Consult OLMC.**
PEDIATRIC DOSING			

Pediatric Dosing Amiodarone

2 kgs	4kgs	6 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-16 kgs	17-19 kgs	20-23 kgs	24-29 kgs	30-36 kgs
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
IV/IO Push for VT/VF in Cardiac Arrest. Concentration = 50 mg/ml										
0.2 mL 10mg	**0.4 mL 20mg**	**0.6 mL 30mg**	**0.8 mL 40mg**	**1.0 mL 50mg**	**1.2 mL 60mg**	**1.5 mL 75mg**	**1.7 mL 85mg**	**2.0 mL 100mg**	**2.5 mL 125mg**	**3.0 mL 150mg**

Adverse/Side Effects Vasodilation (usually not associated with decreased cardiac output secondary to the negative inotropic effects), hypotension, bradycardia, AV block, increased QT interval, V-Tach.

Class Antiarrhythmic, Primarily Class III but has properties of all of the Vaughan Williams classifications

Mechanism of Action Prolongs the duration of the action potential and refractory period of all Cardiac fibers. Depresses the Phase 0 slope by causing a sodium blockade. Causes a Beta block as well as a weak calcium channel blockade. Primarily a Potassium-channel blocker (Class III antiarrhythmic) blocks the potassium channels that are responsible for phase 3 repolarization. Blocking these channels slows (delays) repolarization, which leads to an increase in action potential duration and an increase in the effective refractory period (ERP). Relaxes vascular smooth muscle, decreases peripheral vascular resistance, and increases coronary contractility.

Onset of Action Variable **Peak Effect** 30 to 45 minutes **Duration of Action** Variable

Aspirin

Indications: STEMI, suspected ACS

Contraindications: Allergy, known ulcer & GI bleeding, use of other antiplatelet medications within the past 12 hours.

Concentration: 1 tablet = 81 mg

ADULT DOSING

Indication	Dose	Rate & Route	Note
STEMI or ACS	324 mg **4 tablets**	PO	

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions	On blood thinners. Pregnancy Category D: There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).
Adverse/Side Effects	N/V, diarrhea, heartburn, GI bleeding
Class	Analgesic, Antipyretic, NSAID, platelet inhibitor
Mechanism of Action	Inhibits the formation of prostaglandins associated with pain, fever, and inflammation. Inhibits platelet aggregation by acetylating cyclooxygenase permanently disabling it so that it cannot synthesize prostaglandins and Thromboxanes. Since Thromboxane A2 is important in clotting its absence does not allow blood to clot effectively.

Onset of Action < 1 hour (non-coated) **Peak Effect** 1 – 2 hours (non-coated) **Duration of Action** 4 to 6 hours

Atropine Sulfate

Indications: Symptomatic Bradycardia (if TCP is not immediately available); Organophosphate poisoning

Contraindications: A-Fib or A-Flutter

Concentration: 0.4 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
Symptomatic Bradycardia	0.8 mg **2 mL**	Rapid IV/IO Push	May repeat every 3 minutes. Max dose of 0.04 mg/kg.
Organophosphate Poisoning	2 mg **5ml**	IV/IO/IM	Repeat 2 mg every 3-5 minutes PRN until symptoms resolve.

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
Symptomatic Bradycardia	0.02 mg/kg Minimum of 0.1 mg Max dose: 0.8 mg	Rapid IV/IO Push	Repeat x1 in 5 minutes.
Organophosphate Poisoning	≤18kg (40lbs) 0.5 mg **1.25 ml**	IV/IO/IM	Repeat every 3-5min PRN until symptoms resolve.
	19-40kg (41-90lbs) 1 mg **2.25 ml**		
	≥40kg (90lbs) 2 mg **5 ml**		

PEDIATRIC DOSING

Pediatric Dosing Atropine										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Atropine Sulfate IV/IO Concentration = 0.4 mg/ml										
0.3 mL 0.1mg	**0.3 mL 0.1mg**	**0.3 mL 0.12mg**	**0.4 mL 0.16mg**	**0.5 mL 0.2mg**	**0.6 mL 0.24mg**	**0.8 mL 0.3mg**	**0.9 mL 0.34mg**	**1.0 mL 0.4mg**	**1.3 mL 0.5mg**	**1.3 mL 0.5mg**

Precautions Slow administration of atropine can cause paradoxical bradycardia.

Adverse/Side Effects Pupil dilation, tachycardia, V-Tach, V-Fib, HA, dry mouth

Class Parasympatholytic & Anticholinergic

Mechanism of Action Competitive antagonist that selectively blocks all muscarinic responses to acetylcholine. Blocks vagal impulses, thereby increasing SA node discharge, thereby enhancing AV conduction and cardiac output. Potent anti-secretory effects caused by the blocking of acetylcholine at the muscarinic site. Atropine is also useful in the treatment of the symptoms associated with nerve agent poisoning.

Onset of Action Immediate **Peak Effect** 0.7 to 4 minutes **Duration of Action** Variable

Blood Products

Indications: Hemorrhagic shock, cardiac arrest presumed secondary to hemorrhage with major hemorrhage controlled and blood products available for administration within 5 minutes of loss of pulses

Contraindications: Religious reasons

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hemorrhagic shock	1 Unit	IV/IO	Titrate volume to sustain improvement in clinical indications. Contact OLMC for administration of >1 unit.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hemorrhagic Shock	10cc/kg	IV/IO	Contact OLMC for additional volume
PEDIATRIC DOSING			

Precautions / Side Effects Fever, pain at injection site, low back pain, vomiting, hemoglobinuria, anaphylaxis. Must be stored in a temperature controlled environment and filtered tubing must be used for administration. If serious transfusion reaction develops, discontinue transfusion, replace all lines, save blood products and tubing to be returned to We Are Blood. Use a dedicated IV/IO line for blood product administration.

Interactions None

Class Biological

Mechanism of Action Replaces lost blood volume and pressure with the ability to carry oxygen.

Onset of Action Immediate **Peak Effect** Rapid

Buprenorphine

Indications: Opioid withdrawal / Opioid Use Disorder

Contraindications: Allergy, hypersensitivity, acute alcoholism, alcohol intoxication, cor pulmonale, CNS depression, Methadone ingestion within 72 hours.

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Opioid withdrawal & COWS ≥ 8	8mg 1 tablet	PO	1 hour after initial administration, if COWS ≥ 8 then administer another 8mg x1
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
NONE			
PEDIATRIC DOSING			

Precautions	Pregnancy Category C. Respiratory depression, gastrointestinal obstruction. Methadone use within 3-5 days. Benzodiazepine use.
Adverse/Side Effects	Dose-related euphoria, drug liking, papillary constriction, respiratory depression and sedation. Correlation with liver damage.
Class	Synthetic opioid
Mechanism of Action	Produces the effects typical of both pure mu opioid receptor agonists (e.g., morphine) and partial agonists (e.g., pentazocine) depending on dose, pattern of use, and population taking the drug. It is about 20-30 times more potent than morphine as an analgesic.

Onset of Action ~ 1 hours **Peak Effect** 3 to 4 hours **Duration of Action** ~ 1 to 1.5 days

Calcium Chloride

Indications: Calcium channel or beta blocker overdose, hyperkalemia, hypocalcemia, hypermagnesemia, Hydrofluoric acid burn, Blood product transfusion; Cardiac arrest with presumed hyperkalemia or calcium channel blocker overdose; Pulseless VF/VT.

Contraindications: None in the emergency setting

Flush IV/IO Before and After Each Administration

Concentration: 100 mg/mL

ADULT DOSING

Indication	Dose	Route & Rate	Note
Cardiac Arrest with hyperkalemia or calcium channel blocker OD	1 g (1,000 mg) **10 mL**	IV/IO Push	
VF / pVT			
Blood product administration		Slow IV/IO Push over 3 minutes	Through a dedicated medication line.
Hydrofluoric acid burn			
Hyperkalemia with a pulse			
Calcium channel or beta blocker OD			
Magnesium OD			**OLMC Required**

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Route & Rate	Note
Blood product administration	10 mg/kg	Slow IV/IO Push Over 3 minutes	Through a dedicated medication line.
Calcium channel or beta blocker OD	20 mg/kg	IV/IO infusion over 10 minutes	**OLMC Required**

PEDIATRIC DOSING

Pediatric Dosing Calcium Chloride										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Blood Product Administration (10 mg/kg) Slow IV or IO Push Over 3 Minutes										
0.2 mL	**0.4 mL**	**0.6 mL**	**0.8 mL**	**1.0 mL**	**1.2 mL**	**1.5 mL**	**1.7 mL**	**2.0 mL**	**2.5 mL**	**3.0 mL**
Calcium Channel or Beta Blocker OD (20 mg/kg) IV/IO Infusion Over 10 Minutes – OLMC Required IV/IO infusion over 10 minutes. Place mL dose of medication in 100 mL NS/60 gtts set. Infuse @ 300 gtts/min. Concentration = 10mg/1ml										
0.4 mL	**0.8 mL**	**1.2 mL**	**1.6 mL**	**2.0 mL**	**2.4 mL**	**3.0 mL**	**3.4 mL**	**4.0 mL**	**5.0 mL**	**6.0 mL**

Adverse effects Arrhythmias including bradycardia or cardiac arrest, Syncope, N/V, Hypotension, Necrosis with extravasation. Calcium chloride will precipitate when used in conjunction with sodium bicarbonate, Toxicity with digitalis, and may antagonize the effects of calcium channel blockers

Class Inotropic Agent (electrolyte)

Mechanism of Action Replaces elemental calcium, which is essential for regulating excitation threshold of nerves and muscles. Calcium is also essential for blood clotting mechanisms, maintenance of renal function, and bone tissues. Calcium increases myocardial contractile force and ventricular automaticity. Additionally, serves as an antidote for magnesium sulfate and calcium channel blocker toxicity. For hypermagnesemia, calcium competitively inhibits magnesium.

Onset of Action Immediate **Peak Effect** Immediate **Duration of Action** Varies

Dexamethasone

Indications: Allergic reaction/Anaphylaxis, Respiratory distress from presumed bronchospasm, reducing airway swelling in the presence of stridor.

Contraindications: None in the emergency setting

Concentration: 10 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Allergic reaction/Anaphylaxis Respiratory distress	10 mg **1 mL**	IV/IO/IM	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Allergic reaction/Anaphylaxis Respiratory distress	0.6 mg/kg Max dose: 10mg	IV/IO/IM/PO	For PO: draw up dose in syringe, remove needle, and administer in patient's mouth.
PEDIATRIC DOSING			

Pediatric Dosing Dexamethasone										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Dexamethasone for IV/IO/IM Concentration = 10mg/ml										
0.1 ml	**0.25 ml**	**0.3 ml**	**0.5 ml**	**0.6 ml**	**0.8 ml**	**1.0 ml**	**1.0 ml**	**1.0 ml**	**1.0 ml**	**1.0 ml**

Adverse/Side Effects	Headache, vertigo, hypertension, nausea/vomiting, hyperglycemia, anaphylaxis. Should be administered slowly to prevent cardiovascular collapse. Caution in patients with diabetes, osteoporosis, hepatic impairment, seizure disorders, congestive heart failure, or known tuberculosis.
Class	Glucocorticoid steroid
Mechanism of Action	Dexamethasone is a synthetic glucocorticoid that decreases inflammation by inhibiting the migration of leukocytes and reversing increased capillary permeability. It suppresses normal immune response.

Onset of Action	< Rapid	**Peak Effect**	~ 5-10 minutes	**Duration of Action**	Varies

Dextrose (D10W)

Indications: Symptomatic hypoglycemia, altered mentation with glucose < 50, newborn with heart rate < 60.

Contraindications: Suspected hypoglycemia: None

Concentration: 0.1 g/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Symptomatic Hypoglycemia – or - Altered mentation with glucose < 50	25 g **250 mL**	IV/IO Infusion	25 g in 250 ml for 10% concentration. Titrate and repeat dose to effect.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypoglycemia Newborn Bradycardia < 60 hr	1 g/kg Max dose: 25 g	IV/IO Infusion	Premixed 25 g in 250 mL bag: 10 ml/kg Titrate and repeat dose to effect.
PEDIATRIC DOSING			

Pediatric Dosing Dextrose (D10W)										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
D10W: Max Dose of 250 mL Must use IV Burette for infusion										
20 mL	**40 mL**	**60 mL**	**80 mL**	**100 mL**	**120 mL**	**150 mL**	**170 mL**	**200 mL**	**250 mL**	**250 mL**

Precautions	Use with caution in patients with suspected increased ICP.
Adverse/Side Effects	Patients may complain of warmth, pain, or burning at the injection site. Extravasation causes necrosis. Infusing through larger vessels decreases the risk of necrosis
Class	Carbohydrate
Mechanism of Action	Glucose is readily processed in the blood. Through glycolysis, glucose is turned into pyruvate giving off a small amount of chemical energy (ATP). Pyruvate is further processed through the Citric Acid Cycle yielding even more energy. Glucose is a large molecule and is incapable of being absorbed into a cell without insulin and therefore increases damage to epithelium. It also causes an osmotic pressure as concentrations vary across membranes.

Onset of Action	Fast	**Peak Effect**	Varies	**Duration of Action**	Varies

Diltiazem

Indications: A-fib with RVR, Paroxysmal SVT

Contraindications: Known hypersensitivity; History or 12-lead showing WPW; Sick sinus syndrome or 2nd or 3rd AVB except if the patient has a functioning ventricular pacemaker; SBP < 90mmHg; Myocardial infarction and pulmonary congestion; Sinus tachycardia

Concentration: 5 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
A-fib with RVR – or – Paroxysmal SVT	1st: 0.25 mg/kg **Max dose: 20 mg or 4 mL** 2nd: 0.35 mg/kg **Max dose: 25 mg or 5 mL**	Slow IV/IO push over 2 minutes	SBP must remain > 90 mmHg **OLMC required for 2nd dose** 15 minutes after 1st dose.

ADULT DOSING

Adult Dosing Chart										
Weight lbs	100	110	120	130	140	150	***157***	160	170	***176 ≤***
Weight kgs	45	50	55	59	64	68	***71***	73	77	***80 ≤***
1st Dose mg	11.4	12.5	13.6	14.8	15.9	17.0	17.8	18.2	19.3	20.0
1st mL	**2.3**	**2.5**	**2.7**	**3.0**	**3.2**	**3.4**	**3.6**	**3.6**	**3.9**	***4.0***
2nd Dose mg	15.9	17.5	19.1	20.7	22.3	23.9	25.0	25.0	25.0	25.0
2nd mL	**3.2**	**3.5**	**3.8**	**4.1**	**4.5**	**4.8**	***5.0***	**5.0**	**5.0**	**5.0**

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions	Pregnancy category C. Cardiac Conduction: Diltiazem prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction.
Adverse/Side Effects	Headache, constipation, rash, nausea, flushing, edema, drowsiness, low blood pressure, and dizziness.
Class	Diltiazem hydrochloride is a calcium ion cellular influx inhibitor (slow channel blocker or calcium antagonist).
Mechanism of Action	Nondihydropyridine calcium-channel blocker: Inhibits extracellular calcium ion influx across membranes of myocardial cells and vascular smooth muscle cells, resulting in inhibition of cardiac and vascular smooth muscle contraction and thereby dilating main coronary and systemic arteries; no effect on serum calcium concentrations; substantial inhibitory effects on cardiac conduction system, acting principally at AV node, with some effects at sinus node. Diltiazem hydrochloride is extensively metabolized by the liver and excreted by the kidneys and in bile.

Onset of Action	3 minutes (IV Bolus)	**Peak Effect**	Varies	**Duration of Action**	1 – 3 hours (IV Bolus)

Diphenhydramine

Indications: Allergic Reaction, Anaphylaxis, Adult dystonic reaction, or Persistent nausea/vomiting. Administered with Haloperidol in order to counteract possible side effects and potentiate sedative effects.

Contraindications: Known allergy

Concentration: 50 mg/mL or 1 Tablet = 25 mg

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Moderate/Severe Allergic Reaction -or- Dystonia	25 mg **0.5 mL**	IV/IO/IM	
Mild Allergic Reaction with Only Hives/Rash		IV/IM/PO	Slow IVP for mild allergic reaction
Persistent Nausea/Vomiting		IV/IO/IM	May repeat x1 q 20 minutes for nausea/vomiting

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Mild to Severe Allergic Reaction – or – Dystonia	1 mg/kg Max dose: 25 mg	IV/IO/IM/PO	Do Not Administer if < 5 kg
Persistent Nausea/Vomiting		IV/IO/IM	

PEDIATRIC DOSING

Pediatric Dosing Diphenhydramine										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Diphenhydramine for IV/IO/IM Concentration = 50mg/ml										
None	**None**	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.5 mL**
Diphenhydramine for PO Solution; Patient must be able to protect their airway Concentration = 2.5mg/ml										
08.mL	**1.6mL**	**2.4 mL**	**3.2 mL**	**4 mL**	**4.8 mL**	**6 mL**	**6.8 mL**	**8 mL**	**10 mL or 25 mg cap**	**10 mL or 25 mg cap**

Precautions

Pregnancy Category B.
Antihistamine toxicity:

- Remember: "red as a beet, dry as a bone, hot as a hare, blind as a bat, mad as a hatter, and full as a flask."
- Brugada-like ECG patterns are seen with anticholinergic toxicity.
- Elimination mechanism concerns
- Potent anticholinergic agent

Adverse/Side Effects

Mydriasis, photophobia, ataxia, tachycardia, dizziness, drowsiness

Class

Antihistamine, Ethanolamine, Anticholinergic

Mechanism of Action

Diphenhydramine blocks the effects of Histamine (H1 histamine) on the H1 receptor site through a competitive competition for the peripheral H1 site. When diphenhydramine is bound the H1 site cannot be stimulated preventing the effects of histamines (swelling, etc…). As an antihistamine, diphenhydramine one of the most effective antihistamines.

Onset of Action	Rapid (Injection) Varies (PO)	**Peak Effect**	1 – 3 hours	**Duration of Action**	6 – 12 hours

Droperidol

Indications: Behavioral & Hyperactive Delirium with Severe Agitation, Headache, Nausea/Vomiting

Contraindications: Patients with Parkinson's or movement disorders.

Concentration: 2.5 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
Hyperactive Delirium with Severe Agitation (RAAS +4)	10mg **4 ML**	IV/IO/IM	May repeat x 1 with 5mg at 10 minutes
Agitation requiring sedation (RAAS +2 or +3)	5 mg **2 ML**	IV/IO/IM	May repeat x 1 with 2.5mg at 10 minutes
Headache	1.25 **0.5 ML**	IV/IO/IM	May repeat x1 with 0.75mg at 10min. **Contact OLMC for further doses**
Nausea/Vomiting			

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions Pregnancy Category C, Elderly Patients with Dementia-Related Psychosis.

Adverse/Side Effects Sedation, akathisia, hypotension, dystonia, neurolyptic malignant syndrome, QT prolongation (in high doses).

Class Butyrophenone

Mechanism of Action Droperidol is a butyrophenone with anti-emetic, sedative and anti-anxiety properties. Although the exact mechanism through which droperidol exerts its effects is unknown, droperidol may block dopamine receptors in the chemoreceptor trigger zone (CTZ), which may lead to its anti-emetic effect. This agent may also bind to postsynaptic gamma-aminobutyric acid (GABA) receptors in the central nervous system (CNS), increasing GABA's inhibitory effect and leading to sedative and anti-anxiety activities.

Onset of Action 3-10 minutes **Peak Effect** ~ 10 - 30 minutes **Duration of Action** 2-4 Hours

Epinephrine

Indications: Cardiac arrest, Bradycardia, Non-hemorrhagic hypotension, Allergic reaction or Anaphylaxis, Respiratory distress with presumed bronchospasm, Uncontrollable external hemorrhage

Contraindications: None in the emergency setting

1: 1,000 Concentration: 1 mg/mL | 1:10,000 Concentration: 0.1 mg/mL | 1:100,000 Concentration 10 mcg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Cardiac Arrest	1 mg (1:10,000) **10 mL**	IV/IO q 8 min	
Non-hemorrhagic Hypotension – or – Bradycardia – or – BP support prior to sedation	20 mcg (1:100,000) **2 mL**	IV/IO q 5 min PRN	Titrate to MAP > 65
	2 – 20 mcg/min	IV Infusion	
Anaphylaxis – or – Respiratory Distress	0.3 mg (1:1,000) **0.3 mL**	IM	May repeat every 5 minutes up to total 1.2 mg May assist with prescribed Epi Pen
	2 mg (1:1,000)	Nebulizer	2 mg (2 mL) of 1:1,000 mixed with 1 ml NS
	2 – 20 mcg/min	IV/IO Infusion	Titrate to respiratory and circulatory effect
Uncontrollable external hemorrhage	1 mg (1:1,000)	Topical	Dental or wound. For Epistaxis, topical or IN atomizer
		Nebulizer	Tonsil, mix 1 mL into 2.5 ml NS
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Cardiac Arrest	0.01 mg/kg (1:10,000) Max dose: 1 mg	IV/IO q 4 min	
Bradycardia	0.01 mg/kg (1:10,000) Max dose: 1 mg	IV/IO	**Contact OLMC for repeat IVP doses**
	0.1 – 1 mcg/kg/min	IV/IO Infusion	
Hypotension	0.1 – 1 mcg/kg/min	IV/IO Infusion	**OLMC Required**
Anaphylaxis BLS PROVIDERS	If 8 to 29.9 kg then 0.15 mg	IM	**Contact OLMC for repeat IM doses** **Do not administer if < 8 kg (17 lbs)** May assist with prescribed Epi Pen
	If ≥ 30 kg then 0.3 mg	IM	
Anaphylaxis ALS PROVIDERS	0.01 mg/kg 1:1,000 Max dose: 0.3 mg	IM	
	0.1 – 1 mcg/kg/min	IV/IO Infusion	
Respiratory Distress Stridor/Barking – or – < 2 Y/O with bronchiolitis	0.01 mg/kg (1:1,000) Max dose: 0.3 mg	IM	**Contact OLMC for repeat IM doses**
	0.5 mg	Nebulizer	0.5 mL 1:1,000 mixed with 4 ml NS – or – 5 mL of 1:10,000
PEDIATRIC DOSING			

Pediatric Dosing Epinephrine										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Epinephrine 1:1,000 Concentration = 1 mg/ml										
None	**None**	**None**	**0.08mL**	**0.1 mL**	**0.1 mL**	**0.15 mL**	**0.2 mL**	**0.2 mL**	**0.25 mL**	**0.3 mL**
Epinephrine 1:10,000 Concentration = 0.1 mg/ml										
0.2 mL	**0.4 mL**	**0.6 mL**	**0.8 mL**	**1 mL**	**1.2 mL**	**1.5 mL**	**1.7 mL**	**2 mL**	**2.5 mL**	**3 mL**

Adverse/Side Effects	Palpitations, anxiety, tremulousness, headache, dizziness, nausea, vomiting, increased myocardial oxygen demand
Class	Sympathetic Agonist. Epinephrine is a naturally occurring catecholamine. It is a potent alpha- and beta-adrenergic stimulant with more profound beta effects.
Mechanism of Action	Epinephrine works directly on alpha- and beta-adrenergic receptors with effects of increased heart rate, cardiac contractile force, increased electrical activity in the myocardium, increased systemic vascular resistance, increased blood pressure, and increased automaticity. It also causes bronchodilation.

Onset of Action	< 1 minute	**Peak Effect**	Minutes	**Duration of Action**	Varies

Epinephrine Infusion and Dosing Volume

ADULT DOSING										
Step 1: Determine concentration and prepare medication.	Epi 1 mg/ml (1:1,000)				Mix 2 mg of Epi 1 mg/ml in 250 ml NS, thus creating Epi 8 mcg/ml					
Step 2: Use 60 gtts set and determine infusion rate										
Dose in mcg/min	2 mcg	4 mcg	6 mcg	8 mcg	10 mcg	12 mcg	14 mcg	16 mcg	18 mcg	20 mcg
Drops per minute	15 gtts	30 gtts	45 gtts	60 gtts	75 gtts	90 gtts	105 gtts	120 gtts	135 gtts	150 gtts
ADULT DOSING										

PEDIATRIC DOSING

Preferred Method- Mix 2mg in 250cc NS bag and place on IV pump 0.1 – 1 mcg/kg/min OR see below only if a pump is not available (Use HandTevy)

Step 1: Determine starting rate **(only for use if pump not available)**.	Epi 1 mg/ml (1:1,000)									
2 kg	**4 kg**	**6 kg**	**8-9 kg**	**10-11 kg**	**12-14 kg**	**15-16 kg**	**17-19 kg**	**20-23 kg**	**24-29 kg**	**30-36 kg**
2gtt /min	**3gtt /min**	**5gtt /min**	**6gtt /min**	**8gtt /min**	**9gtt /min**	**11gtt /min**	**13gtt /min**	**15gtt /min**	**15gtt /min**	**15gtt /min**

PEDIATRIC DOSING

Push Dose Epinephrine:

1. Method 1 (bag)
    a. Inject 2mg of Epinephrine 1mg/1ml (1:1,000) into 250ml NS bag
    b. Mix
    c. You now have Epinephrine 8mcg/ml
    d. Label
    e. This also readies your drip
    f. Draw up and push **2.5mL** increments for 20mcg

2. Method 2 (flush)
    a. Expel 1ml of NS from a 10ml flush
    b. Draw in 1ml of Epinephrine 1mg/10cc (1:10,000)
    c. Mix
    d. You now have Epinephrine 1:100,000 (10mcg/ml)
    e. Label
    f. Push in **2mL** increments for 20mcg

3. Method 3 (pre-fill)
    a. Expel 9ml of Epinephrine 1:10 from a prefilled syringe
    b. Draw in 9ml of NS from NS bag using luer lock
    c. Mix
    d. You now have Epinephrine 1:100,000 (10mcg/ml)
    e. Label
    f. Push in **2mL** increments for 20mcg

Fentanyl

Indications: Pain management, ACS or STEMI, Constant Crush Injury > 4 hours, Procedural sedation

Contraindications: Respiratory depression

Concentration: 50 mcg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Pain management ACS Constant crush injury > 4 hours Procedural sedation (PL-6)	25 – 100 mcg **0.5 to 2 mL** **Max total dose: 300 mcg**	IV/IO/IM/IN	Titrate to pain management & may repeat 25-50 mcg q 5 minutes.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Pain management	1.5 – 2 mcg/kg	IN	IN route preferred in pediatric patients who do not otherwise require IV access
Constant crush injury > 4 hours Procedural sedation	1st: 1.0 mcg/kg 2nd and 3rd: 0.5 mcg/kg	IV/IO/IM	**Do not administer repeat doses if < 6 kg** May repeat q 5 min up to **max total 2 mcg/kg** Maintain SBP > 70 + (age in years x 2) mmHg
PEDIATRIC DOSING			

Pediatric Fentanyl Dosing										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
IN Fentanyl Dosing Concentration = 50 mcg/ml										
0.08 ml	**0.2 ml**	**0.2 ml**	**0.3 ml**	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.7 mL**	**0.8 mL**	**1.0 mL**	**1.2 mL**
1st Dose Fentanyl for IV/IO/IM Concentration = 50 mcg/ml										
0.04 ml	**0.08 ml**	**0.08 ml**	**0.2 ml**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.6 mL**

2nd and 3rd Dose Fentanyl for IV/IO/IM

Do not administer second or third doses if < 6 kg

Concentration = 50 mcg/ml

None	**None**	**None**	**0.1 mL**	**0.1 mL**	**0.1 mL**	**0.1 mL**	**0.2 mL**	**0.2 mL**	**2.5 mL**	**0.3 mL**

Precautions	Narcan should be available, Lower doses should be considered in elderly and frail patients.
Adverse/Side Effects	Fentanyl may cause muscle rigidity, particularly involving the muscles of respiration. As with other narcotic analgesics, the most common serious adverse reactions reported to occur with fentanyl are respiratory depression, apnea, rigidity, and bradycardia. Other adverse reactions that have been reported are hypertension, hypotension, dizziness, blurred vision, nausea, emesis, laryngospasm, and diaphoresis. May cause Respiratory Depression.
Class	Opioid, Schedule II controlled substance
Mechanism of Action	Competitive agonist that binds to opioid receptors which are found principally in the central and peripheral nervous system.

Onset of Action	Immediate (IV) 7 – 8 minutes (IN/IM)	**Peak Effect**	Rapid (IV) 15 to 21 minutes (IM/IN)	**Duration of Action**	30 – 60 minutes (IV) 1 to 2 hours (IM)

Glucagon

Indications: Hypoglycemia or Beta-blocker overdose

Contraindications: None in the emergency setting

Concentration: 1 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypoglycemia	1 mg **1 mL**	IM	
Beta-blocker overdose	4 mg **4 mL**	IV/IO	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypoglycemia	0.1 mg/kg Max dose: 1 mg	IM	
Beta-blocker overdose		IV/IO	
PEDIATRIC DOSING			

Pediatric Dosing Glucagon										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Glucagon Concentration = 1 mg/ml										
0.2 mL	**0.4 mL**	**0.6 mL**	**0.8 mL**	**1.0 mL**	**1.0 mL**	**1.0 mL**	**1.0 mL**	**1.0 mL**	**1.0 mL**	**1.0 mL**

Precautions	Pregnancy Category B. Glucagon for Hypoglycemia is only effective if there are sufficient stores of glycogen in the liver.
Adverse/Side Effects	Hypotension, dizziness, headache, nausea, vomiting.
Class	Hormone secreted by the alpha cells of the pancreas
Mechanism of Action	Glucagon causes a breakdown of stored glycogen to glucose, and inhibits the synthesis of glycogen from glucose. Glucagon exerts a positive inotropic action on the heart and decreases renal vascular resistance.

Onset of Action	Minutes (IV) 10 minutes (IM)	**Peak Effect**	5 – 20 minutes (IV) ~ 30 minutes (IM)	**Duration of Action**	60 to 90 minutes (IV) > 90 minutes (IM)

Hydroxocobalamin (Cyanokit)

Indications: For the treatment of known of suspected cyanide poisoning/smoke inhalation.

Contraindications: Known anaphylactic reactions to Hydroxocobalamin or cyanocobalamin.

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Cyanide Poisoning	5 g	IV infusion over 15 minutes	Mix 5 g vial into 200 ml isotonic crystalloid for concentration of 25mg/ml.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Cyanide Poisoning	70 mg/kg Max dose: 5 g	IV infusion at 15 ml/min	Mix 5 g vial into 200 ml isotonic crystalloid for concentration of 25mg/ml.
PEDIATRIC DOSING			

Pediatric Dosing Hydroxocobalmin (Cyanokit)										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Hydroxocobalamin solution of 25 mg/ml IV Infusion at 15 ml/min using 10 gtts set = rate of 133 gtts/min Infuse only at the listed ml dose as indicated below										
8.4 mL	**11 mL**	**17 mL**	**22 mL**	**28 mL**	**36 mL**	**42 mL**	**46 mL**	**56 mL**	**70 mL**	**84 mL**

Adverse/Side Effects	Anaphylaxis, chest tightness, edema, urticaria, pruritus, dyspnea, rash, and hypertension. Also effects skin (turns red), urine and secretions.
Class	Cobalamin derivative; Vitamin
Mechanism of Action	Hydroxocobalamin binds with Cyanide to form nontoxic cyanocobalamin, which is then excreted in the urine

Onset of Action Rapid **Peak Effect** Varies **Duration of Action** Varies

Ibuprofen

Indications: Pain, fever, swelling from an acute injury

Contraindications: Known hypersensitivity. Should not be given to patients who have experienced asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs. Known pregnancy. Should be avoided in patient with advance kidney disease.

Concentration: 1 tablet = 200 mg

ADULT DOSING

Indication	Dose	Rate & Route	Note
Pain – or – Fever – or – Swelling from an acute injury	400 mg **2 tablets**	PO	

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions/ Side Effects	Aspirin-sensitive asthma, coagulation disorders or patients receiving anticoagulants should be carefully monitored.
Class	Non-Steroidal Anti-Inflammatory Drug (NSAID)
Mechanism of Action	Ibuprofen possesses analgesic and antipyretic activities. Its mode of action, like that of other NSAIDs, is not completely understood, but may be related to prostaglandin synthetized inhibition, by blocking the enzyme in your body that makes prostaglandins. Decreasing prostaglandins helps to reduce pain, swelling, and fever.

Onset of Action 30 – 60 minutes (PO) **Peak Effect** 1 to 2 hours (PO) **Duration of Action** 6 to 8 hours (PO)

Ipratropium Bromide (Atrovent)

Indications: Respiratory Distress (Bronchial asthma, reversible bronchospasm associated with chronic bronchitis and emphysema), Drowning, Organophosphate exposure.

Contraindications: Known hypersensitivity

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Respiratory distress	0.5 mg 1 unit vial	Nebulizer	Administer with albuterol and repeat as needed.
Drowning			
Organophosphate exposure			Repeat as needed.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Respiratory distress	0.5 mg 1 unit vial	Nebulizer	Administer with albuterol and repeat as needed.
Drowning			
Organophosphate exposure			Repeat as needed.
PEDIATRIC DOSING			

Precautions	Use caution when administering this drug to elderly patients and those with cardiovascular disease or hypertension
Adverse/ Side Effects	Palpitations, anxiety, dizziness, headache, nervousness, tremor, hypertension, arrhythmias, chest pain, nausea, vomiting, dry mouth, dry eyes
Class	Anticholinergic
Mechanism of Action	Ipratropium is a parasympatholytic used in the treatment of respiratory emergencies. It causes bronchodilation and dries respiratory tract secretions. Ipratropium acts by blocking acetylcholine. 15% of dose reaches lower airway.

Onset of Action < 15 minutes **Peak Effect** 1 to 2 hours **Duration of Action** 4 to 5 hours

Isotonic Crystalloid Fluids

Indications: Hypovolemia, Sepsis, Dehydration, Establishing vascular access and medication administration

Contraindications: Fluid overload resulting in pulmonary edema and/or congestive heart failure

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypovolemia Sepsis Dehydration Establishing vascular access and medication administration	< 4,000 mL	IV/IO	May titrate dose and administration rate based on assessment, MAP > 65 or permissive hypotension when indicated, and most appropriate clinical operating guideline
Stridor	3ml	Nebulized	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypovolemia Sepsis Dehydration Establishing vascular access and medication administration	Pediatric: 20 ml/kg Newborn: 10 ml/kg	IV/IO	May titrate dose and administration rate based on assessment, mental status and vital signs, and most appropriate clinical operating guideline
Stridor	3ml	Nebulized	
PEDIATRIC DOSING			

Precautions / Side Effects Crystalloid fluids are administered for volume expansion as indicated. Crystalloid fluids, such as Lactated Ringers or Normal Saline, do not add oxygen binding capacity. Rapid volume resuscitation of crystalloid fluids, preferably through large-bore line, may be indicated in the acute setting. Always monitor for signs of fluid overload and titrate to a desired effect. Maintenance infusion is indicated as needed to maintain patent access or minimum volume to maintain volume homeostasis.

Interactions None

Class Isotonic to human plasma

Mechanism of Action Approximate concentrations of various solutes and do not exert as osmotic effect, expand intravascular volume without disturbing ion concentration or significant fluid shift.

Onset of Action Immediate **Peak Effect** Varies **Duration of Action** Varies

Ketamine

Indications: Pain, Severe bronchospasm, Procedural sedation, Rapid sequence induction, Hyperactive delirium with severe agitation, Lifesaving procedure

Contraindications: Uncontrolled Hypertension, Hypersensitivity. Be cautious administering to older adults and elderly.

Concentration: 100 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Pain – or – Severe bronchospasm	10 mg **0.1 mL**	IV/IO infusion over 10 minutes	If the patient is in respiratory failure, then ketamine may be used first for pain. If the patient is not in respiratory failure, then the appropriate total amount of fentanyl (≥ 100 mcg) should be administered first. Ketamine can be administered x1 10 minutes later if inadequate pain relief. For IV/IO infusion, 10 mg (0.1 mL) mixed in 100 mL isotonic, then administer with 60 gtts wide open; may repeat x1 at 20 minutes. May repeat IM every 30 minutes titrated to pain management or presence of nystagmus.
	25 – 50 mg **0.25 - 0.5 mL**	IM	
Procedural sedation (PL-6) Rapid Sequence Induction (PL-6)	100 mg **1 mL** 200 mg **2 mL**	IV/IO push over 1 minute	May repeat IV/IO push every 10 - 20 minutes titrated to effect. A PL5 may use this indication if an airway is already established.
Hyperactive delirium with severe agitation – or – Lifesaving procedure		IM	May repeat IM every 30 minutes titrated to effect. Lifesaving procedure when IV/IO access cannot be obtained.
50 – 75 kg	200 – 300 mg **2 mL – 3 mL**		
> 75 kg	400 mg **4 mL**		
ADULT DOSING			

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
Pain	0.2 mg/kg Max dose: 10 mg	IV/IO infusion over 10 minutes	**OLMC Required.** Must be ≥ 3 months old and see pediatric dosing chart for patient weight minimums. For IV/IO infusion, correct weight-based dose is mixed in 100 mL isotonic then administer with 60 gtts wide open; may repeat x1 at 20 minutes. May repeat IV/IO push every 10 - 20 minutes titrated to effect.
	0.4 mg/kg Max dose: 25 mg	IM	
Procedural sedation - or - Lifesaving procedure (approved for PL-5 if patient has an established airway)	1 mg/kg Max dose: 100mg 4 mg/kg Max dose: 400 mg	IVP/IO push over 1 minute IM	
Rapid Sequence Induction	2 mg/kg Max dose: 200 mg	IV/IO push over 1 minute	

PEDIATRIC DOSING

Precautions Laryngospasms and other forms of airway obstruction have occurred. Use with caution in patients with history of Schizophrenia. Be aware that in lower dosing some patients may experience partial disassociation.

Adverse/Side Effects Respiratory depression may occur, Laryngospasms, Hypertension, Emergence Reactions (Hallucinations, Delirium), dizziness, nausea, vomiting

Class Ketamine hydrochloride is a rapid-acting dissociative anesthetic.

Mechanism of Action The anesthetic state produced by ketamine hydrochloride has been termed "dissociative anesthesia" in that it appears to selectively interrupt association pathways of the brain before producing somatesthetic sensory blockade. It may selectively depress the thalamoneocortical system before significantly obtunding the more ancient cerebral centers and pathways (reticular-activating and limbic systems).

Onset of Action < 30 seconds (IV)
3 – 15 minutes (IM)

Peak Effect Fast (IV)
5 – 30 minutes (IM)

Duration of Action IV Anesthetic: 5 – 10 minutes
IM Anesthetic: 12 – 25 minutes
Analgesia: 15 – 30 minutes

Pediatric Dosing Ketamine
OLMC Required

2 kgs	4kgs	6 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-16 kgs	17-19 kgs	20-23 kgs	24-29 kgs	30-36 kgs
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Pain 0.2 mg/kg ≤ 10 mg IV/IO Infusion **Concentration = 100 mg/ml**										
None	None	None	None	None	None	None	None	None	0.1 mL	0.1 mL
Pain 0.4 mg/kg ≤ 25 mg IM **Concentration = 100 mg/ml**										
0.01mL	0.02mL	0.02mL	0.03mL	0.04mL	0.05mL	0.06 mL	0.07 mL	0.08 mL	0.1 mL	0.1 mL
Procedural sedation 1 mg/kg ≤ 100 mg IV/IO **Concentration = 100 mg/ml**										
0.02mL	0.04mL	0.06mL	0.08mL	0.1mL	0.1 mL	0.2 mL	0.2 mL	0.2 mL	0.3 mL	0.3 mL
Procedural sedation 4 mg/kg ≤ 400 mg IM **Concentration = 100 mg/ml**										
None	None	None	None	None	0.4 mL	0.8 mL	0.8 mL	0.8 mL	1.2 mL	1.3 mL
Rapid Sequence Induction 2 mg/kg ≤ 200 mg IV/IO **Concentration = 100 mg/ml**										
0.04mL	0.08mL	0.1mL	0.2mL	0.2mL	0.2 mL	0.3 mL	0.3 mL	0.4 mL	0.5 mL	0.6 mL

Lidocaine

Indications: V-Fib or Pulseless V-Tach(pVT) Cardiac Arrest, Post Resuscitation Care, Wide Complex Tachycardia with a Pulse, Pain Management for IO Flush, Eye Injury, Pain Management for Kidney Stone

Contraindications: Second and third degree heart blocks, CHF

Concentration: 20 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
V-fib or pVT Cardiac Arrest	100 mg **5 mL**	IV/IO Push	q 4 minutes to max total patient dose of 3 mg/kg
Post-resuscitation care after V-fib or pVT			
Wide Complex Tachycardia with a Pulse			
Eye Injury	100 mg	Eye/Topical	Mix 100mg (5.0 mL) into 1 L LR for continuous eye irrigation
IO Flush	40 mg **2 mL**	Slow IO Push	Non-cardiac arrest patients Dilute with isotonic solution to 10 ml
Kidney Stones	100 mg	IV infusion over 10 minutes	Second line treatment after other pain management medications

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
V-fib or pVT Cardiac Arrest	1 mg/kg Max dose: 100 mg	IV/IO Push	q 4 minutes to max total patient dose of 3 mg/kg
V-fib or pVT Post Resuscitation Care			
Wide Complex Tachycardia with a Pulse			
Eye Injury	100 mg	Eye/Topical	Mix into 1 L LR for continuous eye irrigation
IO Flush	0.5 mg/kg Max dose: 40 mg	Slow IO Push	Non-cardiac arrest patients Dilute with isotonic solution to 10 ml

PEDIATRIC DOSING

Pediatric Dosing Lidocaine										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Lidocaine for Cardiac Care 1 mg/kg ≤ 100 mg Concentration 20 mg/ml										
0.1 ml	**0.2 ml**	**0.3 ml**	**0.4 ml**	**0.5 ml**	**0.6 ml**	**0.8 ml**	**0.9 ml**	**1.0 ml**	**1.3 ml**	**1.5 ml**
Lidocaine for IO Flush 0.5 mg ≤ 40 mg Concentration 20 mg/ml then dilute with NS to 10 ml										
0.05 mL	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**

Precautions CNS depression may occur when the drug exceeds 300mg/hr. Lidocaine should be used with caution when administered concomitantly with Procainamide and beta-blockers as drug toxicity may result.

Adverse/Side Effects Drowsiness, seizures, confusion, hypotension, bradycardia, heart blocks, nausea, vomiting, and respiratory and cardiac arrest

Class Antiarrhythmic (Class 1b), Sodium channel blocker

Mechanism of Action Lidocaine depresses depolarization and automaticity in the ventricles, and increases the ventricular fibrillation threshold by increasing phase IV repolarization.

Onset of Action 45 – 60 seconds **Peak Effect** Fast **Duration of Action** 10 – 20 minutes

Magnesium Sulfate 50%

Indications: V-Fib or Pulseless V-Tach(pVT) Cardiac Arrest, Wide Complex Tachycardia with a Pulse, All Torsade de Pointes, Respiratory Distress or Failure, OB Seizures (eclampsia)

Contraindications: Hypotension, third degree AV block, routine dialysis patients, known hypocalcemia.

Concentration: 500 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
V-fib or pVT Cardiac Arrest	2 g **4 mL**	Slow IV/IO Push	
Wide Complex Tachycardia WITH a Pulse (Torsade de Pointes)		IV/IO Infusion	Place into 100 ml NS to infuse over 5 minutes 200 gtts/min with 10 gtts set
Respiratory Distress/Failure			
OB Seizures	4 g **8 mL**		

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
V-fib or pVT Cardiac Arrest	50 mg/kg Max dose: 2 g	Slow IV/IO Push	q 5 minutes to max dose of 2 g
Wide Complex Tachycardia WITH a Pulse (Torsade de Pointes)		IV/IO Infusion	Place into 100 ml NS and place on IV pump Wide open with 60gtts set
Respiratory Distress/Failure			

PEDIATRIC DOSING

Pediatric Dosing Magnesium Sulfate 50%

2 kgs	4kgs	6 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-16 kgs	17-19 kgs	20-23 kgs	24-29 kgs	30-36 kgs
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25

IV/IO Push for VF/pVT in Cardiac Arrest
Concentration = 500 mg/ml

0.2 mL	0.4 mL	0.6 mL	0.8 mL	1.0 mL	1.2 mL	1.5 mL	1.7 mL	2.0 mL	2.5 mL	3.0 mL

IV/IO Infusion over 5 Minutes
Place above ml dose (≤ 4 ml) in 100 ml NS, use 60 gtts set, then infuse at 600 gtts/min
Concentration = 500 mg/ml

Precaution	Magnesium Sulfate should be administered slowly to minimize side effects. Use with caution in patients with known renal insufficiency. In hypermagnesemia Calcium Chloride should be available as an antidote if serious side effects occur
Adverse/Side Effects	Hypotension, cardiac arrest, respiratory/CNS depression, flushing, sweating, bradycardia, decreased deep tendon reflexes, drowsiness, respiratory depression, arrhythmia, hypothermia, itching, and rash.
Class	Antiarrhythmic (Class V), Electrolyte
Mechanism of Action	Magnesium Sulfate is a salt that dissociates into the Magnesium cation and the sulfate anion. Magnesium is an essential element in numerous biochemical reactions that occur within the body. Magnesium Sulfate acts as a calcium channel blocker and blocks neuromuscular transmission. Hypomagnesemia can cause refractory ventricular fibrillation. Magnesium Sulfate is also a central nervous system depressant used for seizures associated with eclampsia and it is also a bronchodilator.

Onset of Action	Immediate	**Peak Effect**	Fast	**Duration of Action**	30 minutes

Methylprednisolone

Indications: Allergic reaction/Anaphylaxis, Respiratory distress from presumed bronchospasm

Contraindications: None in the emergency setting

Concentration: 62.5 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Allergic reaction/Anaphylaxis Respiratory distress	125 mg **2 mL**	IV/IO/IM	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Allergic reaction/Anaphylaxis Respiratory distress	2 mg/kg Max dose: 125mg	IV/IO/IM	
PEDIATRIC DOSING			

Pediatric Dosing Methylprednisolone										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Methylprednisolone for IV/IO/IM Concentration = 50mg/ml										
0.06 ml	**0.1 ml**	**0.2 ml**	**0.3 ml**	**0.3 ml**	**0.4 ml**	**0.5 ml**	**0.5 ml**	**0.6 ml**	**0.8 ml**	**1.0 ml**

Adverse/Side Effects	Hypertension, hyperglycemia, vertigo, headache, nausea, hiccups, and peptic ulcer
Class	Glucocorticoids steroid
Mechanism of Action	Methylprednisolone is a synthetic steroid with potent anti-inflammatory properties. Effective as anti-inflammatory agents, they are used in the management of allergic reactions, asthma, and anaphylaxis. Methylprednisolone alters the body's immune response. Swelling is reduced because it prevents the white blood cells traveling to the area.

Onset of Action	< 1 hour	**Peak Effect**	~ 1 hour	**Duration of Action**	Varies

Midazolam

Indications: Procedural/maintenance sedation, Anticonvulsant, Rapid Sequence Induction, Acute behavioral emergencies, EtOH withdrawal, Uncontrolled Anxiety/Panic Attack

Contraindications: Allergy, Shock, Coma, Closed Angle Glaucoma

Concentration: 5 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Procedural/maintenance sedation – or – Acute psychiatric or toxicologic behavioral emergency – or – Chest pain from secondary to hypersympathetic state from stimulant abuse	2.5 – 5 mg **0.5 – 1 mL**	IV/IO	For IV/IO: Repeat q 3-5 minutes to effect For IM/IN: Repeat q 10-15 minutes to effect Maintain MAP > 65
	5 – 10 mg **1 – 2 mL**	IM/IN	
Rapid Sequence Induction (PL-6)	5 – 10 mg **1 – 2 mL**	IV/IO	
Anticonvulsant – or – EtOH Withdrawal	5 mg **1 mL**	IV/IO	
	10mg **2 mL**	IM/IN	
Uncontrolled Anxiety / Panic attack	0.5 – 1 mg **0.1 to 0.2 mL**	IV/IM/IN	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Procedural/maintenance sedation (PL-6) (PL-5 may use if airway already established)	0.05 mg/kg Max dose: 5 mg	IV/IO	**DO NOT ADMIN IF < 5 KG** Repeat PRN to effect. Maintain SBP > 70 + (Age in years x 2) mmHg
Anticonvulsant	0.1 mg/kg Max dose: 5 mg	IV/IO/IM/IN	
PEDIATRIC DOSING			

Pediatric Dosing Midazolam										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Sedation 0.05 mg/kg Midazolam for IV/IO/IM/IN Concentration = 5 mg/ml										
None	**None**	**0.06 ml**	**0.08 ml**	**0.1 ml**	**0.1 ml**	**0.2 ml**	**0.2 ml**	**0.2 ml**	**0.3 ml**	**0.3 ml**
Anticonvulsant 0.1 mg/kg Midazolam for IV/IO/IM/IN Concentration = 5 mg/ml										
None	**None**	**0.1 ml**	**0.2 ml**	**0.2 ml**	**0.2 ml**	**0.3 ml**	**0.3 ml**	**0.4 ml**	**0.5 ml**	**0.6 ml**

Precautions

Premedication with an opiate may potentiate midazolam and lead to apnea. Proximity to delivery.
Reducing the dose to 50% is suggested in elderly and patients under the influence of other CNS depressants.

Adverse/Side Effects

Minor: N/V, Headache, Drowsiness, Lethargy, Cough, Hiccups
Major: Respiratory Depression, Apnea, Hypotension, Cardiac Arrest, Paradoxical CNS stimulation

Class

Short-acting benzodiazepine central nervous system (CNS) depressant.

Mechanism of Action

Acts at the level of the limbic, thalamic, and hypothalamic regions of the CNS through potentiation of GABA (inhibitory neurotransmitter). Decreases neural cell activity in all regions of CNS. Anxiety is decreased by inhibiting cortical and limbic arousal. Promotes relaxation through inhibition of spinal motor reflex pathway, also depresses muscle & motor nerve function directly. As an anticonvulsant, augments presynaptic inhibitions of neurons, limiting the spread of electrical activity. However, it does not alter the electrical activity of the seizure's focus. Midazolam has twice the affinity for benzodiazepine receptors than diazepam and has more potent amnesic effects. It is short acting and roughly 3-4 times more powerful than diazepam.

Onset of Action

IV: 3 – 5 minutes
IN: ~ 10 minutes
IM: 5 – 15 minutes

Peak Effect

IV: 3 – 5 minutes
IN: ~ 15 minutes
IM: 15 – 30 minutes

Duration of Action

IV: < 2 hours (single dose)
IN: ~ 30 minutes
IM: ~ 2 hours

Naloxone

Indications: Reversal of respiratory depression caused by opiates or synthetic narcotics

Contraindications: Known allergy, known hypersensitivity, neonates with narcotic use by mother

Concentration: 1 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Non-synthetic organic opiate overdose	0.4 – 2 mg **0.4 – 2 mL**	IV/IO/IM/IN	Repeat PRN to effect
	4mg **1 Spray**	IN	Pre-filled 4mg/.1mL NARCAN Nasal Spray
Synthetic opiate overdose	10 – 20 mg **10 – 20 mL**	IV/IO/IM/IN	**OLMC Required**
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Opiate overdose	0.1 mg/kg Max dose: 2 mg	IV/IO/IM/IN	Repeat PRN to effect **Contact OLMC for higher dosing**
PEDIATRIC DOSING			

Pediatric Dosing Naloxone										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Naloxone for IV/IN Concentration = 1 mg/ml										
0.2 ml	**0.4 ml**	**0.6 ml**	**0.8 ml**	**1 ml**	**1.2 ml**	**1.5 ml**	**1.7 ml**	**2 ml**	**2ml**	**2 ml**

Adverse/Side Effects	Tachycardia, hypotension with rapid administration, HTN, dysrhythmias, N/V and diaphoresis. In neonates, opioid withdrawal may be life-threatening if not recognized.
Class	Opioid antagonist
Mechanism of Action	Naloxone hydrochloride is an opioid antagonist that antagonizes opioid effects by competing for the same receptor sites. Naloxone hydrochloride reverses the effects of opioids, including respiratory depression, sedation, and hypotension.

Onset of Action	IV: ~ 2 minutes IM: 2 – 5 minutes IN: ~ 5 minutes	**Peak Effect**	IV: Fast IM/IN: 15 – 30 minutes	**Duration of Action**	Varies on route & opioid IV has a shorter duration than IM

Nitroglycerin

Indications: HTN after pain management in ACS, CHF/Pulmonary Edema

Contraindications: Hypotension, hypovolemia, severe bradycardia or tachycardia, use of erectile dysfunction drugs within past 24hrs up to 48 hours depending on use of extended release medications.

Concentration: 1 tablet or 1 spray = 0.4 mg

ADULT DOSING

Indication	Dose	Rate & Route	Note
HTN after pain management in ACS – or – CHF/Pulmonary edema	0.4 mg 1 spray or 1 tablet	SL	Repeat q 5 to effect Maintain SBP > 100 mmHg In the case of HTN after pain management in ACS, administer if SBP ≥180mmHg
	1 inch	Topical	x 1 and place on the chest Maintain SBP > 100 mmHg; wipe off if SBP becomes < 100 mmHg

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions Headache, Tachycardia

Adverse/Side Effects Hypotension, Syncope

Class Nitrate

Mechanism of Action Potent vasodilator with antianginal, anti-ischemic, and antihypertensive effects. Relaxes vascular smooth muscle by an unknown mechanism. Decreases peripheral vascular resistance, preload, and afterload.

Onset of Action SL: 1 – 3 minutes; Topical: 15 – 30 minutes

Peak Effect SL: < 5 minutes; Topical: < 60 minutes

Duration of Action SL: ~ 25 minutes; Topical: < 7 hours

Norepinephrine

Indications: Hypotension, septic shock, shock persisting after adequate fluid volume replacement

Contraindications: Known allergy, **hypovolemic shock from hemorrhage except for OLMC approval.**

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypotension – or – Septic shock – or – Persistent shock after volume replacement	2 – 12 mcg/min	IV/IO infusion	Titrate to a MAP > 65
Non-hemorrhagic Hypotension – or – BP support prior to sedation	24-32mcg **1.5-2ml DILUTED**	IV/IO q 5min	
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypotension in a patient with congenital cardiac abnormality	****CONTACT OLMC****		
PEDIATRIC DOSING			

Adverse/Side Effects

Systemic: Ischemic injury due to potent vasoconstrictor action and tissue hypoxia.
Cardiovascular: Bradycardia, probably as a reflex result of a rise in blood pressure, arrhythmias, tachycardia
Nervous: Anxiety, transient headache.
Respiratory: Respiratory difficulty.
Skin and Appendages: Extravasation necrosis at injection site. Gangrene of extremities has been rarely reported.
Overdoses or conventional doses in hypersensitive persons (e.g., hyperthyroid patients) cause severe hypertension with violent headache, photophobia, stabbing retrosternal pain, pallor, intense sweating, and vomiting.

Class

Sympathomimetic: Alpha/Beta agonist

Mechanism of Action

Norepinephrine acts predominantly on alpha-adrenergic receptors to produce constriction of resistance and capacitance vessels, thereby increasing systemic blood pressure and coronary artery blood flow. Norepinephrine also acts on beta1-receptors, although quantitatively less than either epinephrine or isoproterenol. In relatively lower doses, the cardiac-stimulant effect of norepinephrine is predominant; with larger doses, the vasoconstrictor effect predominates. Similar to epinephrine, norepinephrine has direct agonist effects on effector cells that contain alpha and beta receptors.

Onset of Action Rapid **Peak Effect** 1 – 2 minutes **Duration of Action** 1 – 2 minutes

Norepinephrine Infusion and Dosing Volume

ADULT DOSING						
Step 1: Determine concentration and prepare medication.	Mix 4 mg (4 ml) of Levophed in 250 ml NS, thus creating a concentration of 16 mcg/ml					
Step 2: Use 60 gtts set and determine infusion rate						
Dose	2 mcg/min	4 mcg/min	6 mcg/min	8 mcg/min	10 mcg/min	12 mcg/min
Drops per minute	8	15	22	30	38	45
ADULT DOSING						

PUSH Dose Levophed Instructions:

1. Mix 4mg (4ml) of Levophed in 250ml of NS – Creating a concentration of 16mcg/ml
2. Draw up 1.5 – 2 ml (24-32mcg)
3. Push slowly

Olanzapine (Zyprexa)

Indications: Acute Schizophrenia or Bipolar Disorder crisis

Contraindications: Allergy, hypersensitivity, alcohol intoxication, Liver disease, Hyperglycemia, Acute dehydration, pregnant or breastfeeding patient, uncooperative patient unwilling to participate in follow-up care, RAAS > 2, patient age < 13 years

ADULT DOSING

Indication	Dose	Rate & Route	Note
Acute behavioral health crisis RAAS ≤ 2	5mg **1 tablet**	SL	Monitor patient for 20min after administration and repeat vitals, including a BGL if diabetic **Contact OLMC if repeat BLG is ≥300**

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
NONE			

PEDIATRIC DOSING

Precautions Caution in patients with a history of blood clots, dehydrated patients, or those exposed to extreme heat or cold. Olanzapine can increase blood glucose levels, monitor diabetic patients closely. Olanzapine can decrease blood pressure and cause orthostatic hypotension, especially in patients who are already dehydrated. Olanzapine may increase the risk of seizures in epileptic patients.

Adverse/Side Effects Extrapyramidal syndrome, vision changes, slurred speech, headache, dizziness, watery mouth, dry skin, dry or sore throat, tachycardia, increased blood glucose, priapism, and disruption in the body's ability to regulate temperature.

Class Atypical antipsychotic

Mechanism of Action The mechanism of action of Olanzapine is unclear. However, it is thought to work through a combination of dopamine and serotonin type 2 antagonism. Olanzapine binds with high affinity to serotonin, dopamine, histamine, and adrenergic receptors. It also binds with low affinity to low affinity to GABA and beta-adrenergic receptors.

Onset of Action ~ 1 hour **Peak Effect** 6 hours **Duration of Action** ~ 1 to 2.5 days

Ondansetron

Indications: Moderate to severe nausea, vomiting

Contraindications: Known allergy, do not use Zofran concurrently with Procainamide, Haldol, or Amiodarone due to QT prolongation.

Concentration: 2 mg/mL or 1 tablet = 4 mg

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Moderate to severe nausea - or - Vomiting	4 mg **2 mL**	IV/IO/IM/PO	Repeat x1 q 15 minutes
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Moderate to severe nausea - or - Vomiting	0.1 mg/kg	IV/IM	Only if weight > 6 kg
	2 mg = ½ tab	PO	For 12 – 23 kg patients
	4 mg = 1 tab	PO	For 24 – 36 kg patients
PEDIATRIC DOSING			

Pediatric Dosing Ondansetron										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Ondansetron IV/IM Concentration: 2 mg/ml										
None	**None**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**	**0.9 mL**	**1 mL**	**1.3 mL**	**1.5 mL**
Ondansetron PO Concentration: 4 mg/tab										
None	**None**	**None**	**None**	**None**	**½ tab**	**½ tab**	**½ tab**	**½ tab**	**1 tab**	**1 tab**

Adverse/Side Effects	Arrhythmias (including ventricular and supraventricular tachycardia, premature ventricular contractions, and atrial fibrillation), bradycardia, electrocardiographic alterations (including second-degree heart block, QT/QTc interval prolongation, and ST segment depression), palpitations, and syncope.
Class	Anti-emetic, Selective Serotonin (5HT3) Receptor Antagonist
Mechanism of Action	Ondansetron reduces the activity of the vagus nerve, which activates the vomiting center in the medulla oblongata and also blocks serotonin receptors in the chemoreceptor trigger zone. It has little effect on vomiting caused by motion sickness. Safely tolerated at high dose ranges.

Onset of Action	< 30 minutes	**Peak Effect**	30 – 120 minutes	**Duration of Action**	Varies

Oral Glucose

Indications: Hypoglycemia (< 50 mg/dl) with patients who can protect their airway

Contraindications: Known allergy, patients who are unable to protect their airway

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypoglycemia	15 G	PO	May repeat x1 q 15 min
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Hypoglycemia	7.5 G	PO	May repeat x1 q 15 min
PEDIATRIC DOSING			

Adverse/Side Effects	Nausea
Class	Monosaccharide, Carbohydrate
Mechanism of Action	After absorption from GI tract, glucose is distributed in the tissues and provides a prompt increase in circulating blood sugar

Onset of Action Up to 10 minutes **Peak Effect** Varies **Duration of Action** Varies

Oxygen

Indications: SpO_2 < 94%, signs of respiratory distress or failure, signs of hypoxia or hypoxemia

Contraindications: None in the emergency setting

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
SpO_2 < 92% - or – Respiratory distress / failure – or – Hypoxia or hypoxemia	1 – 15 lpm	Inhaled	Titrate to maintain SpO_2 92 – 96% Titrate to effect Titrate to delivery device specifications
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
SpO_2 < 92% - or – Respiratory distress / failure – or – Hypoxia or hypoxemia	1 – 15 lpm	Inhaled	Titrate to maintain SpO_2 92 – 96% Titrate to effect Titrate to delivery device specifications
PEDIATRIC DOSING			

Precautions / Side Effects	Excessive oxygenation can be harmful, especially with neonates, therefore titrate flow rates and frequently assess oxygen needs. Can dry mucous membranes, prolong high concentration therapy can affect respiratory drive and consciousness of COPD patients.
Interactions	None
Class	Naturally occurring atmospheric gas.
Mechanism of Action	Reverses hypoxemia.

Onset of Action	Immediate	**Peak Effect**	Rapid	**Duration of Action**	< 2 minutes

Rocuronium Bromide

Indications: Rapid Sequence Induction, Targeted temperature management post ROSC **and** post intubation.

Contraindications: Patients with anticipated difficult airway who can be managed by basic maneuvers / BVM / CPAP with adequate oxygenation and ventilation.

Concentration: 10 mg/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Rapid Sequence Induction (PL-6)	100 mg **10 mL**	IV/IO	
Targeted temp management – ensure advanced airway	50 mg **5 mL**		
Post ROSC – ensure advanced airway			
Post intubation			
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
NONE			
PEDIATRIC DOSING			

Precautions	Prior administration of succinylcholine may enhance the neuromuscular blocking effect of rocuronium and its duration of action.
Adverse/Side Effects	Hypersensitivity reactions are possible Use caution in patients with: known significant hepatic disease, pulmonary hypertension, valvular heart disease, causes respiratory paralysis. Supportive airway control must be continuous and under direct observation at all times.
Class	Non-depolarizing neuromuscular blocking agent
Mechanism of Action	Rocuronium bromide acts by competing with acetylcholine for cholinergic receptors at the motor end plate. Rapid to intermediate onset of action, depending on dose, with an intermediate duration of action. Has no analgesic properties and the patient may be conscious, but unable to communicate by any means. Patients should be pre-medicated with a sedative (versed/ketamine) as Rocuronium has no effect on level of consciousness. First muscles affected include eyes, face, neck; followed by limbs, abdomen, chest; diaphragm affected last. Recovery usually occurs in the reverse order and may take longer than 60 minutes.

Onset of Action	< 2 minutes	**Peak Effect**	1 – 3 minutes	**Duration of Action**	20 – 60 minutes

Sodium Bicarbonate

Indications: Metabolic Acidosis (severe hypoxia), Hyperkalemia, Tricyclic or Phenobarbital Overdose, Crush Syndrome, Suspected acidosis in cardiac arrest

Contraindications: Avoid in the Pediatric DKA patient except in cardiac arrest.

Flush IV/IO Before and After Each Administration

Concentration: 1 mEq/mL

ADULT DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Suspected Acidosis Cardiac Arrest	100 mEq **100 mL**	IV/IO Push	
TCA / Phenobarbital Overdose	50 mEq **50 mL**	IV/IO Push	Bolus 50 mEq (50 mL), then begin maintenance infusion of 100 mEq (100 mL) in 1.0 L of LR wide open.
	100 mEq **100 mL**	IV/IO Infusion	
Chlorine Gas Exposure	2 mEq **2 mL**	Nebulizer	Mix 2 mEq (2 ml) with 2 ml sterile water to nebulize May repeat q 20 min with max of 2 doses.
Crush Injury	50 mEq **50 mL**	IV/IO Push	Bolus 50 mEq (50 mL), then begin maintenance infusion of 50 mEq (50 mL) in 1.0 L of LR wide open.
	50 mEq **50 mL**	IV/IO Infusion	
Hyperkalemia with a pulse	50 mEq **50 mL**	IV/IO Push	Slow push. Repeat q 15 min x 1 if evidence of hyperkalemia persists on repeat 12-lead ECG.
ADULT DOSING			

PEDIATRIC DOSING			
Indication	**Dose**	**Rate & Route**	**Note**
Acidosis TCA / Phenobarbital Overdose	1 mEq / kg	IV/IO Push	
PEDIATRIC DOSING			

Pediatric Dosing Sodium Bicarbonate										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Sodium Bicarbonate Concentration: 1 mEq/ml										
2 mL	**4 mL**	**6 mL**	**8 mL**	**10 mL**	**12 mL**	**15 mL**	**18 mL**	**22 mL**	**26 mL**	**33 mL**

Adverse/Side Effects Alkalosis, Hyperirritability, Seizures, Tetany (electrolyte imbalance), Cardiac & respiratory arrest, Lowering of serum potassium, Decreased fibrillation threshold.

Class Alkalinizing Agent

Mechanism of Action In the presence of hydrogen ions, sodium bicarbonate dissociates to sodium and carbonic acid, the carbonic acid picks up a hydrogen ion changing to bicarbonate and then dissociates into water and CO2, functioning as an effective buffer and alkalinizing the blood. Drives potassium ions into the cells through exchange with hydrogen ions. In the setting of crush injury and overdose, increases plasma bicarbonate, which can buffer metabolic acids and move TCAs and phenobarbital off receptor sites and back into circulation.

Onset of Action Rapid **Peak Effect** Fast **Duration of Action** 8 – 10 minutes

Tranexamic Acid

Indications: Moderate to severe hemorrhage and/or for injury < 3 hours old, SBP < 90 mmHg with suspected hemorrhage, or Pedi SBP < 70 + (age in yrs. x 2)

Contraindications: Hypersensitivity to tranexamic acid or any of the ingredients, or active intravascular clotting.

Concentration: 100 mg/mL

ADULT DOSING

Indication	Dose	Rate & Route	Note
Moderate to severe hemorrhage	1 g **10 mL**	Topical	Epistaxis, soak on gauze and place intranasal or IN atomizer
			Wound, soak on gauze or place topically with syringe
			Dental, soak on gauze and place on affected gum/site
		Nebulizer	Tonsil and/or hemoptysis, nebulize 5 ml (0.5 g) x 2 for 1 g dose
Acute obvious or suspected moderate to severe hemorrhage with or without hypotension	2 g **20 mL**	Slow IVP/IO	Monitor for hypotension.

ADULT DOSING

PEDIATRIC DOSING

Indication	Dose	Rate & Route	Note
Moderate to severe hemorrhage	15 mg/kg	Topical	Epistaxis, soak on gauze and place intranasal
			Wound, soak on gauze or place topically with syringe
			Dental, soak on gauze and place on affected gum/site
		Nebulizer	Tonsil and/or hemoptysis, add saline as needed to make 5 ml solution
Acute obvious or suspected moderate to severe hemorrhage with or without hypotension		Slow IVP/IO	Monitor for hypotension.

PEDIATRIC DOSING

Pediatric Dosing Tranexamic Acid										
2 kgs	**4kgs**	**6 kgs**	**8-9 kgs**	**10-11 kgs**	**12-14 kgs**	**15-16 kgs**	**17-19 kgs**	**20-23 kgs**	**24-29 kgs**	**30-36 kgs**
4.4 lbs	8.8 lbs	13 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-35 lbs	37-41 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in23.25-23.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Tranexamic Acid **Concentration: 100 mq/ml** Place into 50 ml isotonic solution, use a 60 gtts set, and administer at 300 gtts/min										
0.3 mL	**0.6 mL**	**0.9 mL**	**1.2 mL**	**1.5 mL**	**1.8 mL**	**2.3 mL**	**2.6 mL**	**3 mL**	**4 mL**	**5 mL**

Precautions Allergic dermatitis, giddiness, and hypotension have been reported occasionally.

Hypotension has been observed when intravenous injection is too rapid. To avoid this response, the solution should not be injected rapidly.

Use with caution in patients with history of thrombotic events or potentially having an active MI or PE.

Adverse/Side Effects Dizziness, nausea, vomiting, chest pain

Class Antifibrinolytic Agent

Mechanism of Action Tranexamic acid is a competitive inhibitor of plasminogen activation, and at much higher concentrations, a noncompetitive inhibitor of plasmin, i.e., actions similar to aminocaproic acid. Tranexamic acid is about 10 times more potent in vitro than aminocaproic acid. Tranexamic acid binds more strongly than aminocaproic acid to both the strong and weak receptor sites of the plasminogen molecule in a ratio corresponding to the difference in potency between the compounds. Tranexamic acid in a concentration of 1 mg per mL does not aggregate platelets in vitro.

Onset of Action 5 – 15 minutes **Peak Effect** Varies **Duration of Action** ~ 3 hours

Office of the Chief Medical Officer System Reference Documents

Authorized Skills per Credential Level

Every credentialed provider that delivers medical care within the System must be able to perform skills consistent with the expectations of their system credential. Each Credential level builds on all previous Credential levels (i.e., AEMT is responsible for all System Responder, EMT & AEMT skills). The following defines the approved skills by credential level for Providers in the ATCEMS System. Providers/Responders **must not** practice outside their System Credentialed Scope of Practice.

Each successive level may perform any interventions endorsed for the levels below it.

Endorsement of a skill or medication for a particular credential level does not imply mandatory carriage of that medication or piece of equipment. For example, a tactical medic may be credentialed at the PL6 level but may not be carrying appropriate equipment for manual defibrillation or cardioversion. Likewise, FROs may have personnel credentialed at certain levels but do not carry the capability for every treatment available at that level.

Certain procedures require other procedures to be available. For example, intubation shall not be performed without the ability to monitor SpO_2 and $EtCO_2$. The specific Clinical Operating Guideline governs that particular procedure. An organization may have personnel credentialed to the PL5 level but if cardiac monitoring is not available, cardioversion and manual defibrillation may not be performed. Each organization may decide what treatments and procedures they will provide and support.

Maintenance of Credentialing (MOC) shall take place every 2 years and is comprised of a written exam, skills test, simulation (s) and portfolio. The PL6 level must additionally maintain Critical Care Paramedic or Flight Paramedic certification, which has its own Continuing Education and testing requirements.

The following skills/interventions are authorized by Credential Level in our System:

Emergency Medical Dispatch (EMD) Credentials

- Determination of obvious death by MPD
- Post-dispatch instructions
- Determination of response codes by MPD/OCMO standards
- Pre-arrival instructions as defined by MPD/OCMO

PL1: Credentialed First Responder
Minimum DSHS Certification: Emergency Care Attendant

Approved Interventions for Credential Level PL1

- Bag-valve Mask device
- Bandaging/Splinting
- Bimanual Trachea Manipulation
- Blood Glucose Assessment
- CPR/AED Application
- Determination of Obvious Death
- Emergency Childbirth
- External Patient Cooling (Ice Pack/Bag)
- Ice Pack/Bag (wound/injury/bite/sting)
- Intramuscular Injection Medication Administration
- Intranasal Medication Administration
- Nasopharyngeal airway
- Oropharyngeal Airway
- Oropharyngeal Suctioning
- Patient Assessment
- Pelvic Binder
- Pulse Oximetry Monitoring
- Spinal Motion Restriction
- Tourniquet (application/loosening)
- Wound Packing (Junctional/Extremity)

Authorized Skills per Credential Level

Approved Medications for Credential Level PL1

- Aspirin PO
- Epinephrine Auto-injector IM
- Epinephrine IM 1mg/mL (0.3 mg draw and inject x1)
- Naloxone (IN)
- Oral Glucose (PO)
- Oxygen (all routes)

PL2: EMT 1
Minimum DSHS Certification: EMT

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL2

- 12, 3, and 4 lead ECG placement/acquisition (not interpretation)
- BIAD placement
- Call and obtain TOR time for DNR and Obvious DOS
- Continuous Positive Airway Pressure (CPAP) device
- End-tidal CO_2 Assessment
- Monitor medication lock (Saline lock or Heplock)
- Patient Assist Vagus Nerve Stimulator
- Small Volume Nebulizer

Additional Approved Medications for Credential Level PL2

- Acetaminophen PO – Adult only
- Albuterol
- Diphenhydramine PO – Adult only
- Epinephrine (IN, Topical, Neb.)
- Ibuprofen PO – Adult Only
- Ipratropium Bromide
- Nebulized Normal Saline
- Nitroglycerine SL (spray/tablets) & topical
- Ondansetron (ODT)
- Patient assist with their MDI
- Topical Tranexamic Acid

Under the direction of a credentialed ≥PL3 Provider/Responder, after an appropriate Medication Cross Check, a PL2 may facilitate the physical delivery of PO, SL, Topical, IN, or Nebulized Medications at the scope of practice of the person directing them. A PL2 may also prepare/draw up non-narcotic, non-sedative, non-paralytic medications as requested by ≥PL5. A Medication Cross Check must still occur prior to injection by the ≥PL5.

PL3: EMT 2
Minimum DSHS Certification: EMT

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL3

- Waveform Capnography Monitoring

Additional Approved Medications for Credential Level PL3

- Ondansetron (IM)

Under the direction of a credentialed ≥PL4 Provider/Responder, after an appropriate Medication Cross Check, a PL3 may facilitate the physical delivery of PO, SL, Topical, IM, IN, or Nebulized Medications at the scope of practice of the person directing them. A PL2 may also prepare/draw up non-narcotic, non-sedative, non-paralytic medications as requested by ≥PL5. A Medication Cross Check must still occur prior to injection by the ≥PL5.

Authorized Skills per Credential Level

PL4: ILS Technician
Minimum DSHS Certification: AEMT

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL4

- Intraosseous access
- Peripheral intravenous access (IV)
- Tracheal suctioning

Additional Approved Medications for Credential Level PL4

- Acetaminophen (all routes)
- Dextrose solutions- IV
- Diphenhydramine
- Epinephrine 1mg/10ml (Cardiac arrest – First dose)
- Glucagon IM
- Hydroxocobalamin
- Ibuprofen
- Lidocaine for eye irritation only
- Naloxone
- Isotonic Crystalloid Fluids
- Ondansetron
- Tranexamic Acid

PL5: Paramedic Clinician
Minimum DSHS Certification: Paramedic

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL5

- Alternate Vascular Access (indwelling catheter)
- Beck Airway Airflow Monitor (BAAM)
- Direct Laryngoscopy
- ECG Monitoring and interpretation
- External Jugular vein cannulation
- FBAO with direct laryngoscopy
- Fiberoptic bronchoscopy/intubation
- Flex guide Endotracheal Tube Introducer (a.k.a. gum-elastic bougie)
- Gastric tube insertion
- Initiation & maintenance of whole blood transfusion
- Intravenous pump usage
- Manual cardioversion, defibrillation, pacing, and dual sequential defibrillation
- Modified Valsalva
- Nasotracheal intubation
- Needle cricothyrotomy (pediatric)
- Orotracheal Intubation
- Pleural decompression
- Simple thoracostomy
- Surgical cricothyrotomy
- Termination of resuscitation
- Therapeutic hypothermia
- Ultrasound
- Video Laryngoscopy

Additional Approved Medications for Credential Level PL5

- Adenosine
- Amiodarone
- Atropine Sulfate
- Calcium Chloride
- Cetacaine (Hurricane topical anesthetic spray)
- Dexamethasone
- Diltiazem
- Droperidol
- Epinephrine (all indications)
- Fentanyl citrate
- Ketamine
- Lidocaine
- Magnesium Sulfate
- Methylprednisolone
- Midazolam
- Norepinephrine (Infusion & Push Dose)
- Pralidoxime
- Rocuronium
- Sodium Bicarbonate (all indications)

Authorized Skills per Credential Level

PL6: Extended Scope Paramedic
Minimum DSHS Certification: Paramedic or Paramedic/RN

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL6

- Arterial blood pressure monitoring
- Central venous pressure monitoring
- Chemically facilitated extrication
- Emergency escharotomy
- Field amputation
- Fracture/dislocation reduction
- Intracranial pressure monitoring
- Maintenance of IV infusions requiring titration
- Maintenance of patient controlled analgesia (PCA) pump
- Mechanical Non-Invasive Ventilation (BiPAP)
- Rapid sequence induction
- Transvenous cardiac pacing (maintenance)
- Ventilator maintenance

Additional Approved Medications for Credential Level PL6

- Abciximab
- Albumin
- All OTC medications
- Amoxicillin
- Amoxicillin/clav
- Benzonatate
- Ceftriaxone
- Cephalexin
- Cetrizine
- Ciprofloxacin
- Ciprofloxacin/dexamethasone
- Clindamycin
- Dicyclomine
- Dobutamine
- Dopamine
- Eptifibatide
- Ertapenem
- Fexofenadine
- Fosphenytoin
- Heparin
- Hydralazine
- Hydromorphone
- Hyoscyamine
- Inamrinone
- Insulin
- Labetalol
- Lansaprazole
- Levitiracetam
- Levofloxacin
- Loratadine
- Meloxicam
- Metoprolol
- Milrinone
- Modafinil
- Morphine
- Moxifloxacin
- N-Acetyl Cysteine
- Nicardipine
- Nitroglycerine infusion
- Nitroprusside
- Octreotide
- Oxytocin
- Pantoprazole
- Pentobarbitol
- Phenobarbitol
- Potassium Chloride
- Prednisone
- Prochlorperazine
- Promethazine
- Propofol
- Pyridoxine
- Ranitidine
- Streptokinase
- Succinylcholine
- Tenectaplase
- Tirofiban
- Tissue Plasminogen Activator
- Triamcinolone
- Trimethoprim/Sulfamethoxazole
- Zolpidem

Authorized Skills per Credential Level

Integrated Services Provider
Minimum DSHS Certification: Paramedic or Paramedic RN

In addition to those listed in the provider's base credentialing level (PL5 or above)

Additional Approved Interventions for CHP / C4 Provider

- Staple / Suture removal
- Wound care

Additional Approved Medications for CHP / C4 Provider

- Buprenorphine
- Olanzapine

PL7: Paramedic Practitioner
Minimum Licensure: Paramedic/PA or Paramedic/APRN

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL7

- Central Venous Line Placement
- Thoracostomy tube placement

Additional Approved Medications for Credential Level PL7

- Any deemed necessary by the provider

PL8: EMS Physician

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Practitioner

- Any deemed necessary by the physician, within the scope of practice for Emergency Medicine or EMS physicians

Additional Approved Medications for Practitioner

- Any deemed necessary by the physician

Credentialing Requirements

	ATCEMS (EMS)	Austin Fire Dept. (AFD)	Texas Department of Public Safety (DPS) and Corporate FRO (FRO)
	EMD: ATCEMS Communications Only		
IET	IAED Certification: EMD ATCEMS Academy EMD Written Test (EMS)	**N/A**	**N/A**
MOC	Complete all OCMO Designated CE within 180 days of assignment EMD Testing (every 2 years) (IAED)	**N/A**	**N/A**
	PL1: ECA or Communications		
IET	Minimum DSHS certification: ECA ATCEMS Academy incl. PL1 skill testing (EMS) COG written test (OCMO)	**N/A**	Minimum DSHS certification: ECA Entry training (DPS/FRO) including online learning modules set forth by the (OCMO) PL1 skill testing (DPS/FRO) COG written test (OCMO)
MOC	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (EMS) 3.COG Testing (every 2 years) (OCMO)	**N/A**	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (DPS/FRO) 3.COG Testing (every 2 years) (OCMO)
	PL2: EMT 1		
IET	**N/A**	Minimum DSHS certification: EMT AFD Academy incl. PL2 skill testing (AFD) COG written test (OCMO)	Minimum DSHS certification: EMT Entry training (DPS/FRO) including online learning modules set forth by the (OCMO) PL2 skill testing (DPS/FRO) COG written test (OCMO)
MOC	**N/A**	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (AFD) 3.COG Testing (every 2 years) (OCMO)	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (DPS/FRO) 3.COG Testing (every 2 years) (OCMO)

Credentialing Requirements

	PL3: EMT 2		
IET	Minimum DSHS certification: EMT ATCEMS Academy incl. PL3 skill testing (EMS) & ATCEMS field training COG written test (OCMO) Medical Director Interview	**N/A**	**N/A**
MOC	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (EMS) 3.COG Testing (every 2 years) (OCMO)	**N/A**	**N/A**
	PL4: ILS Provider		
IET	Minimum DSHS certification: AEMT Entry training (ATCEMS) including learning modules set forth by the OCMO PL4 skill testing (ATCEMS) Scenario-based testing (OCMO) COG written test (OCMO)	Minimum DSHS certification: AEMT Entry training (AFD) including online learning modules set forth by the (OCMO) PL4 skill testing (AFD) Scenario-based testing (OCMO) COG written test (OCMO)	Minimum DSHS certification: AEMT Entry training (DPS/FRO) including online learning modules set forth by the (OCMO) PL4 skill testing (ESD) Scenario-based testing (OCMO) COG written test (OCMO)
MOC	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (ATCEMS) COG Testing (every 2 years) (OCMO)	3.Complete all OCMO Designated CE within 180 days of assignment 4.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (AFD) 5.COG Testing (every 2 years) (OCMO)	1.Complete all OCMO Designated CE within 180 days of assignment 2.OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (FRO/DPS) 1.COG Testing (every 2 years) (OCMO)
	PL5: Paramedic Clinician		
IET	Minimum DSHS certification: Paramedic EMS PL3 Academy PL5 skills testing (EMS) EMS/OCMO PL5 Academy Medical Director Interview	Minimum DSHS certification: Paramedic Entry training as set forth by the (AFD) & PL4 Academy (EMS/AFD) PL5 skills testing (EMS/AFD)	Minimum DSHS certification: Paramedic Entry training as set forth by the (DPS/FRO) & PL4 Academy (OCMO) PL5 skills testing (OCMO)

Credentialing Requirements

		EMS/OCMO PL5 Academy or substantially equivalent OCMO approved academy Medical Director Interview	OCMO PL5 Academy or substantially equivalent OCMO approved academy Medical Director Interview
MOC	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS) 3.If unable to reach targeted competences within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS) 4. COG Testing (every 2 years) (OCMO)	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS/AFD) 3.If unable to reach targeted competences within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/AFD) 4. COG Testing (every 2 years) (OCMO)	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS/ESD) 3.If unable to reach targeted competences within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/ESD) 4.COG Testing (every 2 years) (OCMO)
	PL6: Extended Scope Paramedic		
IET	Minimum DSHS certification: Paramedic EMS/OCMO PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview	Minimum DSHS certification: Paramedic EMS/OCMO PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview	Minimum DSHS certification: Paramedic EMS/OCMO PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview
MOC	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS) 3.If unable to reach targeted competencies within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS) 4. COG Testing (every 2 years) (OCMO) 5. Maintain Qualifying "Critical Care" Certificate. (EMS)	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS/AFD) 3.If unable to reach targeted competencies within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio.(EMS/AFD) 4. COG Testing (every 2 years) (OCMO) 5. Maintain Qualifying "Critical Care" Certificate. (EMS/AFD)	1.Complete all OCMO Designated CE within 180 days of assignment 2.Portfolio Review with OCMO Designated Target Events and Levels on an annual cycle (once per year). (EMS/DPS) 3.If unable to reach targeted competencies within the portfolio; OCMO Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/DPS) 4. COG Testing (every 2 years) (OCMO) 5. Maintain Qualifying "Critical Care" Certificate. (EMS/DPS)

Credentialing Requirements

IET: Initial Entry Training. **MOC**: Maintenance of Credentialing.

For "Calendar Year 2023" you should plan for and anticipate the addition of "Portfolio Targeted Skills Verification". These are based upon your patient encounters, organized educational opportunities with skills and skills performed under direct supervision. Your individual portfolio will be reviewed; specific skills not performed during patient care or as listed above will be validated periodically as needed.

Credentialing Requirements

Administrative Provider (Courtesy Credential)

Purpose: To create a means of preserving current DSHS certified administrators as contingency providers in the System while eliminating requirements to maintain OCMO credentials.

Description: The Administrative Provider Status is available only to providers whose primary role is as administrative personnel in a Tier 2 System Organization and who are no longer expected to provide patient care as part of their regular duties. Administrative personnel are not required to credential as an Administrative Provider and may maintain full OCMO privileges at or below their current level of OCMO credential as long as they continue to meet all the requirements of that credential. This qualification does not apply to providers requiring credentialing to comply with their job description.

Application for administrative status: Administrators who wish to apply for an Administrative Credential must provide a letter of approval from the Department Chief, the organizational equivalent, or their designee.

Administrative Provider Requirements:

The Administrative Provider must:

- Be in an administrative role without patient care responsibilities in their daily duties as defined by their organization.
- Be a credentialed PL 2 or above employee/member of a Tier 2 First Responder or ATCEMS Department
- Have a current Minimum DSHS certification
- Maintain functional working knowledge of the COGs.

Administrative Provider Limitations

The Administrative Provider:

- Their on-scene role is limited to a First Aid level of patient care (i.e. AED/CPR/Bleeding Control) and interaction. Otherwise, they are participating as an observer only.
- Should an Administrative Provider wish to return to a fully credentialed status they must provide a letter of approval from the Department Chief, the organizational equivalent or their designee indicating approval of the provider's return to a fully credentialed status. The OCMO and their respective organization will review each request individually and create a re-integration plan. Once the provider has successfully completed the reintegration process they will be restored to a fully credentialed status.

Eligible Administrative Provider Courtesy Credential Levels:

Administrative Provider - PL 2 C
Administrative Provider – PL 3 C
Administrative Provider – PL 4 C
Administrative Provider – PL 5 C

Provider Specialty Qualifications

	ATCEMS (EMS)	Austin Fire Dept. (AFD)	Travis Co. ESD (ESD) and First Responder Organizations (FROs)
	System Educator		
IET	• OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing
MOQ	• Completion of OCMO designated specialty continuing education • Completion of required documentation • Maintains confidentiality and integrity of all testing processes/documents • Maintains confidentiality of provider trainings	• Completion of OCMO designated specialty continuing education • Completion of required documentation • Maintains confidentiality and integrity of all testing processes/documents • Maintains confidentiality of provider trainings	• Completion of OCMO designated specialty continuing education • Completion of required documentation • Maintains confidentiality and integrity of all testing processes/documents • Maintains confidentiality of provider trainings
	System Credentialing Preceptor		
IET	• Must be an OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• Must be an OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• Must be an OCMO credentialed provider in good standing • Letter of support from corresponding agency • Successful completion of all OCMO required training • Successful completion of all OCMO required testing
MOQ	• Completion of required documentation • Maintains confidentiality of provider records • Completion of OCMO designated specialty continuing education	• Completion of required documentation • Maintains confidentiality of provider records • Completion of OCMO designated specialty continuing education	• Completion of required documentation • Maintains confidentiality of provider records • Completion of OCMO designated specialty continuing education
	Performance Management / Improvement		
IET	• Must be an OCMO credentialed provider at EMD level **OR** ≥PL-5 in good standing • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• Must be an OCMO credentialed provider at ≥PL-2 in good standing • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	• Must be an OCMO credentialed provider at ≥PL-2 in good standing • Successful completion of all OCMO required training • Successful completion of all OCMO required testing

MOQ	• Coordination and/or implementation of performance improvement initiatives, programs, and activities as defined by the OCMO • Utilization of system defined PI concepts and practices • Completion of required documentation • Completion of OCMO designated specialty designated continuing education • Maintains records of all performance improvement activities, remediation or other required documentation	• Coordination and/or implementation of performance improvement initiatives, programs, and activities as defined by the OCMO • Utilization of system defined PI concepts and practices • Completion of required documentation • Completion of OCMO designated specialty designated continuing education • Maintains records of all performance improvement activities, remediation or other required documentation	• Coordination and/or implementation of performance improvement initiatives, programs, and activities as defined by the OCMO • Utilization of system defined PI concepts and practices • Completion of required documentation • Completion of OCMO designated specialty designated continuing education • Maintains records of all performance improvement activities, remediation or other required documentation
	Integrated Services - Community Health Paramedic		
IET	• Must be an OCMO credentialed provider in good standing • Successful completion of OCMO qualifying process • Successful completion of a qualifying "Community Paramedic" training program • Successful completion of all OCMO required training for Community Paramedics	n/a	n/a
MOQ	• Completion of OCMO designated specialty continuing education • Completion of required documentation • Maintains records of all Community Health provider activities	n/a	n/a
	Special Operations - Tactical Paramedic		
IET	• Must be an OCMO Credentialed provider at ≥ PL5 in good standing • Successful completion of a qualifying "Tactical Paramedic" Course (CONTOMS, EMTT, NTOA, or equivalent)	n/a	• Must be an OCMO Credentialed provider at ≥ PL5 in good standing • Successful completion of a qualifying "Tactical Paramedic" Course (CONTOMS, EMTT, NTOA, or equivalent)

	• Successful completion of all OCMO required training for the qualification • Successful completion of OCMO required skills testing/verification • Successful completion of OCMO required written testing		• Successful completion of all OCMO required training for the qualification • Successful completion of OCMO required skills testing/verification • Successful completion of OCMO required written testing
MOQ	• Completion of OCMO required specialty continuing education • Completion of all required documentation	n/a	• Completion of OCMO required specialty continuing education • Completion of all required documentation
	Special Operations Paramedic		
IET	• Must be an OCMO Credentialed provider at ≥ PL5 in good standing • Successful completion of all OCMO required training for the qualification • Successful completion of OCMO required skills testing/verification • Successful completion of OCMO required written testing	n/a	• Must be an OCMO Credentialed provider at ≥ PL5 in good standing • Successful completion of all OCMO required training for the qualification • Successful completion of OCMO required skills testing/verification • Successful completion of OCMO required written testing
MOQ	• Completion of OCMO required specialty continuing education • Completion of all required documentation	n/a	• Completion of OCMO required specialty continuing education • Completion of all required documentation
	Integrated Services - C4		
IET	• Must be an OCMO credentialed provider at ≥PL5 in good standing • Successful completion of all OCMO required training • Successful completion of all OCMO required testing	N/A	N/A
MOQ	• Completion of OCMO designated specialty continuing education. • 12 hours of work in the field (PRU, medic unit, or DC) every month • 12 hours of work in C4L office every month	N/A	N/A

Provider Specialty Qualifications

	Immunization Provider		
IET	• Must be an OCMO credentialed provider in good standing • Successful completion of all required testing and skills verification • Must meet all program requirements as currently defined by OCMO Infection Control Officer	• Must be an OCMO credentialed provider in good standing • Successful completion of all required testing and skills verification • Must meet all program requirements as currently defined by OCMO Infection Control Officer	• Must be an OCMO credentialed provider in good standing • Successful completion of all required testing and skills verification • Must meet all program requirements as currently defined by OCMO Infection Control Officer
MOQ	• Must complete annual training and skills verification regarding safe injection practices • Must complete annual training on treatment of allergic reactions & anaphylaxis • Must complete required trainings prior to administering any immunizations	• Must complete annual training and skills verification regarding safe injection practices • Must complete annual training on treatment of allergic reactions & anaphylaxis • Must complete required trainings prior to administering any immunizations	• Must complete annual training and skills verification regarding safe injection practices • Must complete annual training on treatment of allergic reactions & anaphylaxis • Must complete required trainings prior to administering any immunizations
	Phlebotomy Services Provider		
IET	• Must be an OCMO credentialed provider ≥PL-2 in good standing **OR** certified phlebotomist • Successful completion of all OCMO required training and skills verification • Successful completion of all LE required training and skills verification	• Must be an OCMO credentialed provider ≥PL-2 in good standing **OR** certified phlebotomist • Successful completion of all OCMO required training and skills verification • Successful completion of all LE required training and skills verification	• Must be an OCMO credentialed provider ≥PL-2 in good standing **OR** certified phlebotomist • Successful completion of all OCMO required training and skills verification • Successful completion of all LE required training and skills verification
MOQ	• Completion of all OCMO designated specialty continuing education • Completion of all required documentation • Maintains confidentiality of records	• Completion of all OCMO designated specialty continuing education • Completion of all required documentation • Maintains confidentiality of records	• Completion of all OCMO designated specialty continuing education • Completion of all required documentation • Maintains confidentiality of records

IET: Initial Entry Training. **MOQ**: Maintenance of Qualification.

PL 1 & PL 2 Minimum Equipment List
FRO Tier 1 Organizations

Austin-Travis County EMS System

First Response Minimum Equipment Stocking List

The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level, Clinical Standard CS - 30.

PL 1 and PL 2 Credential Levels

BLS Airway Adjuncts: Minimum of all Adult sizes

- NPA – 1 of each
- OPA – 1 of each
- Water soluble lubricating jelly – 2

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter (brass preferred) minimum– 15 Lpm. – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
  - Nasal cannula – 2
  - Non-rebreathing mask – 2
  - Pediatric Non rebreather – 1
  - Infant face mask – 1

Bandages, Dressings and Splinting

- Latex free band-aids – 5
- Sterile 4x4s – 10
- Non-sterile 4x4s – 25
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) – 1 roll
- Padded Short Board Splint –1 and/or 1 Sam Splint
- Padded Medium Board Splint –1 and/or 1 Sam Splint

Spinal Motion Restriction (per Organization)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar ---1
- Head Blocks –1 package or set

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount – 500 mL (two 250 mL bags or bottles acceptable)

PL 1 & PL 2 Minimum Equipment List
FRO Tier 1 Organizations

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Adult – 1
  - Infant and thigh cuffs optional
- Stethoscope
  - Adult sized – 1
  - Pediatric optional
- Pen light or flashlight type device – 1
- Heavy-duty bandage scissors or paramedic shears – 1
- Thermometer (glass or digital electronic) – 1 (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes – 5

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 1
- Protective face mask/shield – 1
- HEPA TB or NIOSH N 95 facemask – 1
- Exam gloves (latex free) – 3 pair
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple "surgical type" face masks for patient use -- 5

AED Device-1 (per Organization)

- Adult Pads-1
- Pedi Pads -1
- Impedance Threshold Device (ITD) **or** Adult and Child BVMs with ventilation timing lights –1ea

One of the following devices for delivery of artificial ventilation in adult /pediatric patients

- Latex free Bag Valve Mask Device
- System approved BVM with delivery volumes sufficient for adult and child/infant patients – 1 each
- Ventilation bags should be self refilling without a pop-off valve
- Child and adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range
  - Child (up to 450 mL reservoir) – 1
  - Adult (at least 1,000 mL reservoir) – 1
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM – 1 each
- Clear face mask of adult and child/infant sizes – 1 each

-OR-

- Pocket /Face Mask or Face Shield
- With or without one-way valve and oxygen inlet

PL 1 & PL 2 Minimum Equipment List
FRO Tier 1 Organizations

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent with spare disposables – 1

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions – 1 bottle
- Disposable and retractable safety lock lancet – 5
- Chlorohexadine prep pads – 2
- Band-aids – 2

Medications:

- Aspirin 81mg (chewable) tablets – 1 bottle
- Oral glucose **or** Level Glucose, 15 grams
- Adult EPI Auto Injector- 1 (**PL 1**)
- Pedi EPI Auto Injector- 1 (**PL 1**)

-OR-

- Epinephrine Anaphylaxis Kit – 2 (**PL 1**)
  - Each Kit contains:
    - (1) Epinephrine 1:1,000 1mL ampule
    - (1) 0.3 cc safety syringe with needle
    - (2) Chlorohexadine prep pads
    - (2) Band-aids
    - (2) 4x4s (sterile package)

----------Optional Equipment & Medications That May Be Stocked for PL1 or PL2----------

ECG Electrodes – 1 package (**PL 2**)

- Tincture Benzoin – 1 spray container or 2 applicators (for ECG Electrodes if needed)

Nebulizer Kit (**PL 2**)

- T piece adapter – 1
- Nebulization chamber – 1
- Mouth piece – 1
- Face mask assembly (Adult and Pedi) – 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1

Saline for Nebulization: 3 mL unit dose vial – 2 (**PL 2**)

Airway and Ventilation Equipment (**PL 2**)

- I-gel Airway sizes for Cardiac Arrest only :
  - 3.0 - 1
  - 4.0 - 1
  - 5.0 – 1
  - Commercial made (system approved) BIAD tube holder (1 Adult)

BLS Airway Adjuncts: Pedi sizes (PL1)

- NPA – 1 of each (Pedi Fr: 18, 20, 22, 24, 26)
- OPA – 1 of each
- Water soluble lubricating jelly – 2

PL 1 & PL 2 Minimum Equipment List
FRO Tier 1 Organizations

Pulse Oximeter (required with BIAD Airway) (**PL 2**)

- With probes adult and pediatric – 1 each

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. Adult large & small masks and Child mask) (**PL 2**)

Bandages and Dressings (**PL 1**)

- Commercially Designed Tourniquet- 2
- Pelvic Binder (Sam Sling) –1

Emesis bags/containers – 2 (**PL 1**)

Mucosal Atomization Device – 1 (PL1)

Medications:

- Albuterol sulfate 0.083% 3 mL unit dose vial – 3 (**PL 2**)
- Ipratropium Bromide Neb.(continuous as needed) (**PL 2**)
- Naloxone administration (intranasal IN) (**PL 1**)
- Nitroglycerine SL & Topical (spray/tablets/paste) (**PL 2**)

PL 2 Minimum Equipment List
FRO Tier 2 Organizations

Austin-Travis County EMS System

First Response Minimum Equipment Stocking List

The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level, Clinical Standard CS - 30.

PL 2 Credential Levels

BLS Airway Adjuncts: Minimum of all Adult sizes and Pedi sizes

- NPA – 1 of each (Pedi Fr: 18, 20, 22, 24, 26)
- OPA – 1 of each
- Water soluble lubricating jelly – 2

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm. – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
  - Nasal cannula – 2
  - Non-rebreathing mask – 2
  - Pediatric Non rebreather – 1
  - Infant face mask – 1

Bandages, Dressings and Splinting

- Latex free band-aids – 5
- Sterile 4x4s – 10
- Non-sterile 4x4s – 25
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) – 1 roll
- Padded Short Board Splint –1 and/or 1 Sam Splint
- Padded Medium Board Splint –1 and/or 1 Sam Splint
- Padded Long Board Splint –1
- Commercially Designed Tourniquet- 2
- Pelvic Binder (Sam Sling) –1 ea size small and large

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar ---1
- Head Blocks –1 package or set

PL 2 Minimum Equipment List
FRO Tier 2 Organizations

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount – 500 mL (two 250 mL bags or bottles acceptable)

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Adult – 1
  - Infant and thigh cuffs optional
- Stethoscope
  - Adult sized – 1
  - Pediatric optional
- Pen light or flashlight type device – 1
- Heavy-duty bandage scissors or paramedic shears – 1
- Thermometer (glass or digital electronic) – 1 (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes – 5
  - ECG Electrodes – 1 package
    - Tincture Benzoin – 1 spray container or 2 applicators (for use with ECG Electrodes if needed)

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 1
- Protective face mask/shield – 1
- HEPA TB or NIOSH N 95 facemask – 1
- Exam gloves (latex free) – 3 pair
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple “surgical type” face masks for patient use -- 5

AED Device-1 (per Organization’s Primary Response Apparatus)

- Adult Pads-1
- Pedi Pads -1
- Impedance Threshold Device (ITD) **or** Adult and Child BVMs with ventilation timing lights –1ea

One of the following devices for delivery of artificial ventilation in adult /pediatric patients

- Latex free Bag Valve Mask Device
- System approved BVM with delivery volumes sufficient for adult and child/infant patients – 1 each
- Ventilation bags should be self refilling without a pop-off valve
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range
  - Child (up to 450 mL reservoir) – 1
  - Adult (at least 1,000 mL reservoir) – 1
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM – 1 each

- Clear face mask of adult and child/infant sizes – 1 each

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent with spare disposables – 1

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions – 1 bottle
- Disposable and retractable safety lock lancet – 5
- Chlorohexadine prep pads – 2
- Band-aids - 2

Medications:

- Baby Aspirin 81mg (chewable) tablets – 1 bottle (**PL1**)
- Oral glucose **or** Level Glucose, 15 grams (**PL1**)
- Albuterol sulfate 0.083% 3 mL unit dose vial – 3 (**PL2**)
- Ipratropium Bromide Neb.(continuous as needed) (**PL2**)
- Adult EPI Auto Injector- 1 (**PL1**)
- Pedi EPI Auto Injector- 1 (**PL1**)

-OR-

- Epinephrine Anaphylaxis Kit – 2 (**PL2**)
  - Each Kit contains:
    - (1) Epinephrine 1mg/1mL ampule
    - (1) 0.3 cc safety syringe with needle
    - (2) Chlorhexidine prep pads
    - (2) Band-Aids
    - (2) 4x4s (sterile package)

Nebulizer Kit:

- T piece adapter – 1
- Nebulization chamber – 1
- Mouth piece – 1
- Face mask assembly (Adult and Pedi) – 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1

Saline for Nebulization: 3 mL unit dose vial – 2

Advanced Airway and Ventilation Equipment

- I-gel Airways sizes for Cardiac Arrest only:
  - 3.0 - 1
  - 4.0 - 1
  - 5.0 – 1
  - Commercial made (system approved) BIAD tube holder (1 Adult)

Pulse Oximeter **(required with BIAD Airway)**

- With probes adult and pediatric – 1 each

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. Adult large & small masks and Child mask)

Emesis bags/containers – 2

----------Optional Equipment & Medications----------

Mucosal Atomization Device – 1 (PL1)

Medications:

- Hydroxycobalamin carried by Battalion Fire Chiefs to fire scenes (for **PL4 & PL5** only to administer)
- Naloxone administration (intranasal IN) (**PL1**)
- Nitroglycerine SL & Topical (spray/tablets/paste) (**PL2**)

PL 3 Minimum Equipment List
FRO Tier 2 Organizations

Austin-Travis County EMS System

First Response Minimum Equipment Stocking List

The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level, Clinical Standard CS - 30.

PL 3 Credential Levels

BLS Airway Adjuncts: Minimum of all Adult sizes and Pedi sizes

- NPA – 1 of each (Pedi Fr: 18, 20, 22, 24, 26)
- OPA – 1 of each
- Water soluble lubricating jelly – 2

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm. – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
  - Nasal cannula – 2
  - Non-rebreathing mask – 2
  - Pediatric Non rebreather – 1
  - Infant face mask – 1

Bandages, Dressings and Splinting

- Latex free band-aids – 5
- Sterile 4x4s – 10
- Non-sterile 4x4s – 25
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) – 1 roll
- Padded Short Board Splint –1 and/or 1 Sam Splint
- Padded Medium Board Splint –1 and/or 1 Sam Splint
- Padded Long Board Splint –1
- Commercially Designed Tourniquet- 2
- Pelvic Binder (Sam Sling) –1 ea size small and large

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar ---1
- Head Blocks –1 package or set

PL 3 Minimum Equipment List
FRO Tier 2 Organizations

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount – 500 mL (Saline Fluids listed under Vascular Access Equipment may be used to fulfill this requirement also).

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Adult – 1
  - Infant and thigh cuffs optional
- Stethoscope
  - Adult sized – 1
  - Pediatric optional
- Pen light or flashlight type device – 1
- Heavy-duty bandage scissors or paramedic shears – 1
- Thermometer (glass or digital electronic) – 1 (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes – 5
- Pedia Tape - 1
- ECG Electrodes – 1 package
  - Tincture Benzoin – 1 spray container or 2 applicators (for use with ECG Electrodes as needed)

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 1
- Protective face mask/shield – 1
- HEPA TB or NIOSH N 95 facemask – 1
- Exam gloves (latex free) – 3 pair
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple “surgical type” face masks for patient use -- 5

AED Device-1 (per Organization’s Primary Response Apparatus)

- Adult Pads-1
- Pedi Pads -1
- Impedance Threshold Device (ITD) **or** Adult and Child BVMs with ventilation timing lights –1ea

One of the following devices for delivery of artificial ventilation in adult /pediatric patients

- Latex free Bag Valve Mask Device
- System approved BVM with delivery volumes sufficient for adult and child/infant patients – 1 each
- Ventilation bags should be self refilling without a pop-off valve
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range

  - Child (up to 450 mL reservoir) – 1
  - Adult (at least 1,000 mL reservoir) – 1
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM – 1 each
- Clear face mask of adult and child/infant sizes – 1 each

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent – 1
- Flexible Suction Catheters 6Fr, 8Fr, 10Fr, 12Fr, 14Fr, 16Fr, 18Fr – 1 each
- Rigid Suction Catheter – 1
- Spare Suction Tubing appropriate for equipment used
- Spare Canister appropriate for equipment used – 1each

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions – 1 bottle
- Disposable and retractable safety lock lancet – 5
- Chlorohexadine prep pads – 2
- Band-aids - 2

Medications:

- Aspirin (chewable) tablets – 1 bottle
- Oral glucose **or** Level Glucose minimum of 15 grams
- Albuterol sulfate 0.083% 3 mL unit dose vial – 3 doses
- Dextrose - minimum 25 grams (D10W 250mL S/W)
- Diphenhydramine 50 mg for IV or IM
- Diphenhydramine PO 25 mg – 2 doses
- Diphenhydramine PO Liquid 12.5mg/5mL Cups – 2 cups
- Ipratropium Bromide 0.02% 2.5 mL unit dose vial – 1 dose
- Naloxone minimum of 4 mg for IV/IM/IN
- Acetaminophen 32 mg/1 mL liquid PO Pedi dose – 1 bottle
- Acetaminophen 80 mg/Tablet PO Meltaways – 1 bottle
- Acetaminophen PO 1 gram – 1 dose
- Ibuprofen PO – 1 COG dose
- Glucagon – 1 mg IM
- Lidocaine 100 mg
- Nitroglycerin SL tablets or SL Spray – 1 bottle
- Nitroglycerin Paste - 1 tube and papers
- Ondansetron 4mg ODT - 1 dose
- Ondansetron IV 4mg vial – 1
- Epinephrine Anaphylaxis Kit – 2
  - Each Kit contains:
    - (1) Epinephrine 1mg/1mL ampule
    - (1) 0.3 cc safety syringe with needle
    - (2) Chlorhexidine prep pads
    - (2) Band-Aids
    - (2) 4x4s (sterile package)

PL 3 Minimum Equipment List
FRO Tier 2 Organizations

Nebulizer Kit

- T piece adapter – 1
- Nebulization chamber – 1
- Mouth piece – 1
- Face mask assembly (Adult and Pedi) – 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1

Saline for Nebulization: 3 mL unit dose vial – 2ea

Advanced Airway and Ventilation Equipment

- I-gel Airways sizes:
  - 3.0 - 1
  - 4.0 - 1
  - 5.0 – 1
  - Commercial made (system approved) BIAD tube holder (1 Adult)

Pulse Oximeter **(required with BIAD Airway)**

- With probes adult and pediatric – 1 each

Colorimetric End tidal CO2 Detector or Capnography **(required with BIAD Airway)**

- Adult – 1

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. Adult mask sizes large & small and Child mask)

Vascular Access Equipment

- 60 drop (micro) infusion IV set – 2
- 10 drop (macro) infusion set – 1
- IV arm boards - 1
- IV tourniquet (latex free) – 2
- IV loop – 1
- Isotonic Crystalloid solution, 1000 mL – 1 bag
- System approved intravenous catheters (self-sheathing, needle-less system)
  - 14 gauge – 2
  - 16 gauge – 2
  - 18 gauge – 2
  - 20 gauge – 2
  - 22 gauge – 1
  - 24 gauge – 1
- Saline lock hubs – 2
- Chlorohexadine prep pads – 5
- Small sharps safety container – 1
- 0.9% sodium chloride vial or prefilled syringe (5 or 10 mL) – 2
- Tegaderm – 2
- Venigard – 2

PL 3 Minimum Equipment List
FRO Tier 2 Organizations

Sterile Syringes

- 3 cc safety syringe with needle – 2
- 12cc safety syringe without needle – 2

Mucosal Atomization Device - 1

Sterile Needles:

- Assorted sizes (19, 20, 25 gauge) – 1 each

EZIO Driver and associated Adult/Pedi and Bariatric size Needles and Supplies -1 set

Emesis bags/containers - 2

----------Optional Equipment & Medications----------

Medications:

- Ketorolac-60mg/2mL vial
- Epinephrine 0.1mg/1 mL – 3 doses

PL 4 Minimum Equipment List
FRO Tier 2 Organizations

Austin-Travis County EMS System

First Response Minimum Equipment Stocking List

The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level, Clinical Standard CS - 30.

PL 4 Credential Levels

BLS Airway Adjuncts: Minimum of all Adult sizes and Pedi sizes

- NPA – 1 of each (Pedi Fr: 18, 20, 22, 24, 26)
- OPA – 1 of each
- Water soluble lubricating jelly – 2

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm. – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
  - Nasal cannula – 2
  - Non-rebreathing mask – 2
  - Pediatric Non rebreather – 1
  - Infant face mask – 1

Bandages, Dressings and Splinting

- Latex free band-aids – 5
- Sterile 4x4s – 10
- Non-sterile 4x4s – 25
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) – 1 roll
- Padded Short Board Splint –1 and/or 1 Sam Splint
- Padded Medium Board Splint –1 and/or 1 Sam Splint
- Padded Long Board Splint –1
- Commercially Designed Tourniquet- 2
- Pelvic Binder (Sam Sling) –1 ea size small and large

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar ---1
- Head Blocks –1 package or set

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount – 500 mL (Saline Fluids listed under Vascular Access Equipment may be used to fulfill this requirement also).

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Adult – 1
  - Infant and thigh cuffs optional
- Stethoscope
  - Adult sized – 1
  - Pediatric optional
- Pen light or flashlight type device – 1
- Heavy-duty bandage scissors or paramedic shears – 1
- Thermometer (glass or digital electronic) – 1 (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes – 5
- Pedia Tape - 1

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 1
- Protective face mask/shield – 1
- HEPA TB or NIOSH N 95 facemask – 1
- Exam gloves (latex free) – 3 pair
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple “surgical type” face masks for patient use -- 5

Three through Twelve Lead ECG Monitoring with Manual defibrillation

- Adult Pads-2
- Pedi Pads -1
- ECG Electrodes – 1 package
- Spare roll of ECG paper- 1
- Spare ECG batteries – 2
- Tincture Benzoin – 1 spray container or 2 applicators
- Disposable razor - 1

One of the following devices for delivery of artificial ventilation in adult /pediatric patients

- Latex free Bag Valve Mask Device
- System approved BVM with delivery volumes sufficient for adult and child/infant patients – 1 each
- Ventilation bags should be self refilling without a pop-off valve
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range
  - Child (up to 450 mL reservoir) – 1
  - Adult (at least 1,000 mL reservoir) – 1
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM – 1 each
- Clear face mask of adult and child/infant sizes – 1 each

PL 4 Minimum Equipment List
FRO Tier 2 Organizations

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent – 1
- Flexible Suction Catheters 6Fr, 8Fr, 10Fr, 12Fr, 14Fr, 16Fr, 18Fr – 1 each
- Rigid Suction Catheter – 1
- Spare Suction Tubing appropriate for equipment used
- Spare Canister appropriate for equipment used – 1each
- Meconium Aspirator – 1
- Toomy 60 ml syringe - 1

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions – 1 bottle
- Disposable and retractable safety lock lancet – 5
- Chlorohexadine prep pads – 2
- Band-aids - 2

Medications:

- Acetaminophen 32 mg/1 mL liquid PO Pedi dose – 1 bottle
- Acetaminophen 80 mg/Tablet PO Meltaways – 1 bottle
- Acetaminophen PO 1 gram – 1 dose
- Albuterol sulfate 0.083% 3 mL unit dose vial – 3
- Amiodarone 150 mg vial -3
- Atropine Sulfate 0.1mg/1 mL – 3 doses **or** 8mg/20mL (1 vial)
- Aspirin 81mg (chewable) tablets – 1 bottle
- Calcium Chloride 10% 1 gram vials – 2
- Dextrose - minimum 25 grams (D10W 250mL S/W)
- Diphenhydramine 50 mg for IV or IM – 1
- Diphenhydramine PO 25 mg capsules – 5 capsules
- Diphenhydramine PO Liquid 12.5mg/5mL Cups – 2 cups
- Epinephrine 0.1mg/1 mL – 3 doses
- Epinephrine 1mg/1 mL ampule – 3
- Glucagon IM/IN - 1mg
- Ibuprofen PO – 1 COG dose
- Ipratropium Bromide 0.02% 2.5 mL unit dose vial – 2
- Lidocaine 2% 100 mg/ 5 mL – 4 doses
- Magnesium Sulfate 50% 1 gram vials – 2
- Methylprednisolone 125 mg act-o-vial – 1
- Naloxone minimum of 4 mg for IV/IM/IN
- Nitroglycerin 0.4 mg SL tablets or SL Spray – 1 bottle
- Nitroglycerin Paste - 1 tube and papers
- Ondansetron 4mg ODT - 1 dose
- Ondansetron IV 4mg vial – 1
- Oral glucose **or** Level Glucose, 15 grams
- Sodium Bicarbonate 50 mEq ampule or vial – 2
- Tranexamic Acid (TXA) 100 mg/1mL vial - 1

Nebulizer Kit

- T piece adapter – 1

- Nebulization chamber – 1
- Mouth piece – 1
- Face mask assembly (Adult and Pedi) – 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1
- Universal cuff adapter (nebulizer to BVM facemask) - 1

Saline for Nebulization: 3 mL unit dose vial – 2ea

Advanced Airway and Ventilation Equipment

- I-gel Airway sizes:
  - 3.0 - 1
  - 4.0 - 1
  - 5.0 – 1
  - Commercial made (system approved) BIAD tube holder (1 Adult)

- Disposable Laryngoscope handles (Adult & Pedi) – 1ea
- Disposable Laryngoscope blades.
  - Miller sizes 0, 1, 2, 3, and 4 – 1 each
  - Macintosh sizes 1, 2, 3 and 4 – 1 each
- Disposable Magill forceps Large and Small – 1 each
- Water soluble lubricating jelly packets – 4
- Gastric Tube – 1ea

Impedance Threshold Device (ITD) or Adult and Child BVMs with ventilation timing lights -1ea

Pulse Oximeter

- With probes adult and pediatric – 1 each

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. Adult mask sizes large & small and Child mask)

Vascular Access Equipment

- 60 drop (micro) infusion IV set – 2
- 10 drop (macro) infusion set – 1
- Dial-a-flow fluid limit device – 2
- IV arm boards - 2
- IV tourniquet (latex free) – 2
- IV loop – 1
- Isotonic Crystalloid, 1000 mL – 1 bag
- System approved intravenous catheters (self-sheathing, needle-less system)
  - 14 gauge – 2
  - 16 gauge – 2
  - 18 gauge – 2
  - 20 gauge – 2
  - 22 gauge – 1
  - 24 gauge – 1
  - Saline lock hubs – 2
- Chlorohexadine prep pads – 5
- Small sharps safety container – 1
- 0.9% sodium chloride vial or prefilled syringe (5 or 10 mL) – 2
- Tegaderm – 2

- Venigard – 2
- Pressure infusion bag – 1
- IV Burette - 1

Sterile Syringes

- 1 cc safety syringe with needle – 2
- 3 cc safety syringe with needle – 2
- 12cc safety syringe without needle – 2

Sterile Needles

- Assorted sizes (19, 20, 25 gauge) – 1 each

EZIO Driver and associated Adult/Pedi and Bariatric size Needles and Supplies -1 set

Emesis bags/containers – 2

Mucosal Atomization Device – 1

----------Optional Equipment & Medications----------

Medications:

- Ketorolac IV/IM 60mg/2mL vial - 1
- Neo-Synephrine nasal spray - 1 bottle
- Pralidoxime during MCI if available
- Xylocaine gel packet – 1
- Epinephrine Anaphylaxis Kit – 2
  - Each Kit contains:
    - (1) Epinephrine 1mg/1mL ampule
    - (1) 0.3 cc safety syringe with needle
    - (2) Chlorohexadine prep pads
    - (2) Band-aids
    - (2) 4x4s (sterile package)

PL 5 Minimum Equipment List
FRO Tier 2 Organizations

Austin-Travis County EMS System

First Response Minimum Equipment Stocking List

The use of Equipment or Supplies not approved by the System Medical Director during patient care is prohibited. Approved items are specified per the Equipment Lists for each System Organization Tier and Credentialing Level, Clinical Standard CS - 30.

PL 5 Credential Levels

BLS Airway Adjuncts: Minimum of all Adult sizes and Pedi sizes

- NPA – 1 of each (Pedi Fr: 18, 20, 22, 24, 26)
- OPA – 1 of each
- Water soluble lubricating jelly – 2

Portable Oxygen Delivery System

- Oxygen bottle (may be one of either A, super C, D, or E size) – 1
- Cylinder pressure gauge (brass preferred) – 1
- Adjustable liter flow meter with high pressure port (brass preferred) minimum flow 15 Lpm. – 1
- Oxygen cylinder wrench – 1
- Oxygen administration supplies
  - Nasal cannula – 2
  - Non-rebreathing mask – 2
  - Pediatric Non rebreather – 1
  - Infant face mask – 1

Bandages, Dressings and Splinting

- Latex free band-aids – 5
- Sterile 4x4s – 10
- Non-sterile 4x4s – 25
- Ice Packs - 6
- Trauma dressing – 1
- Occlusive dressing – 1
- Triangular bandages – 3
- Self-adhering gauze bandages (Kerlex or acceptable equivalent) – 3
- Adhesive tape (should be hypoallergenic/latex free when available) – 1 roll
- Padded Short Board Splint –1 and/or 1 Sam Splint
- Padded Medium Board Splint –1 and/or 1 Sam Splint
- Padded Long Board Splint –1
- Commercially Designed Tourniquet- 2
- Pelvic Binder (Sam Sling) –1 ea size small and large

Spinal Motion Restriction (per Organization's Primary Response Apparatus)

- Long Back Board with straps –1
- Adjustable Adult C-Collar –1
- Adjustable Pedi C-Collar ---1
- Head Blocks –1 package or set

Sterile (Saline Solution or Water) for irrigation

- Minimum volume amount – 500 mL (Saline Fluids listed under Vascular Access Equipment may be used to fulfill this requirement also).

Sterile OB Kit – 1

- Sterile scissors for cutting the umbilical cord may or may not be stocked separate from the obstetrical pack to assure sterility. However, if present, scissors must be of the blunt tipped variety.
- Bulb suction device (if not included in OB kit) – 1

Miscellaneous Equipment

- Latex Free Blood pressure cuff
  - Adult – 1
  - Infant and thigh cuffs optional
- Stethoscope
  - Adult sized – 1
  - Pediatric optional
- Pen light or flashlight type device – 1
- Heavy-duty bandage scissors or paramedic shears – 1
- Thermometer (glass or digital electronic) – 1 (minimum temp of 88 F and at least 104 F)
  - Measures by oral, rectal, or axillary methods
  - Cover probes – 5
- Pedia Tape - 1

Personal Protective Equipment (latex-free equipment should be available)

- Protective eye wear (goggles, full-peripheral glasses, or face masks) – 1
- Protective face mask/shield – 1
- HEPA TB or NIOSH N 95 facemask – 1
- Exam gloves (latex free) – 3 pair
- Antiseptic hand sanitizer (waterless antiseptic agent) – 1
- Simple “surgical type” face masks for patient use -- 5

Three through Twelve Lead ECG Monitoring with Manual cardioversion/defibrillation/pacing

- Adult Pads-2
- Pedi Pads -1
- ECG Electrodes – 1 package
- Spare roll of ECG paper- 1
- Spare ECG batteries – 2
- Tincture Benzoin – 1 spray container or 2 applicators
- Disposable razor - 1

One of the following devices for delivery of artificial ventilation in adult /pediatric patients

- Latex free Bag Valve Mask Device
- System approved BVM with delivery volumes sufficient for adult and child/infant patients – 1 each
- Ventilation bags should be self refilling without a pop-off valve
- Infant, Child and Adult bags are suitable for supporting adequate tidal volumes for the entire pediatric age range
  - Child (up to 450 mL reservoir) – 1
  - Adult (at least 1,000 mL reservoir) – 1
- Reservoir bag or enrichment tube with oxygen tubing appropriate for each BVM – 1 each

- Clear face mask of adult and child/infant sizes – 1 each

Portable suction device

- V-VAC or Suction Easy or other system approved equivalent – 1
- Flexible Suction Catheters 6Fr, 8Fr, 10Fr, 12Fr, 14Fr, 16Fr, 18Fr – 1 each
- Rigid Suction Catheter – 1
- Spare Suction Tubing appropriate for equipment used
- Spare Canister appropriate for equipment used – 1each
- Meconium Aspirator – 1
- Toomy 60 ml syringe - 1

Glucometer and Kit including:

- Glucose clinical Test strips – 5
- Calibration and check test strips – 1 each
- Test control solution and instructions – 1 bottle
- Disposable and retractable safety lock lancet – 5
- Chlorohexadine prep pads – 2
- Band-aids - 2

Medications:

- Acetaminophen 32 mg/1 mL liquid PO Pedi dose – 1 bottle
- Acetaminophen 80 mg/Tablet PO Meltaways – 1 bottle
- Acetaminophen PO 1 gram – 1 dose
- Adenosine 12 mg vial - 2
- Albuterol sulfate 0.083% 3 mL unit dose vial – 3
- Amiodarone 150 mg vial -3
- Aspirin 81mg (chewable) tablets – 1 bottle
- Atropine Sulfate 0.1mg/1 mL – 3 doses **or** 8mg/20mL (1 vial)
- Calcium Chloride 10% 1 gram vials – 2
- Dextrose - minimum 25 grams (D10W 250mL S/W)
- Diltiazem 25mg/5mL - 1
- Diphenhydramine 50 mg for IV or IM – 1
- Diphenhydramine PO 25 mg capsules – 5 capsules
- Diphenhydramine PO Liquid 12.5mg/5mL Cups – 2 cups
- Epinephrine 0.1mg/1 mL – 3 doses
- Epinephrine 1mg/1 mL ampule – 3
- Fentanyl Citrate 100 mcg/2 mL - 1
- Glucagon IM/IN - 1mg
- Haloperidol 5mg/1mL ampule – 1
- Hurricaine - Cetacaine Spray – 1
- Ibuprofen PO 400 mg – 1 dose
- Ipratropium Bromide 0.02% 2.5 mL unit dose vial – 2
- Ketamine 100mg/1mL - 1
- Levophed 4mg vial - 1
- Lidocaine 2% 100 mg/ 5 mL – 4 doses
- Magnesium Sulfate 50% 1 gram vials – 2
- Methylprednisolone 125 mg act-o-vial – 1
- Midazolam 5mg/1mL -1
- Naloxone (1 mg/mL or 0.4 mg/mL concentration) – 2
- Neo-Synephrine nasal spray - 1 bottle
- Nitroglycerin 0.4 mg SL tablets or SL Spray – 1 bottle

- Nitroglycerin Paste - 1 tube and papers
- Ondansetron 4mg ODT - 1 dose
- Ondansetron IV 4mg vial – 1
- Oral glucose **or** Level Glucose, 15 grams
- Sodium Bicarbonate 50 mEq ampule or vial – 2
- Tranexamic Acid (TXA) 100mg/1mL vial – 1
- Rocuronium 100mg/10mL vial - 2
- Xylocaine gel packet – 1

Nebulizer Kit

- T piece adapter – 1
- Nebulization chamber – 1
- Mouth piece – 1
- Face mask assembly (Adult and Pedi) – 1ea
- Oxygen supply tubing – 1
- Flex tubing – 1
- Universal cuff adapter (nebulizer to BVM facemask) - 1

Saline for Nebulization: 3 mL unit dose vial – 2ea

Advanced Airway and Ventilation Equipment

- I-gel Airway sizes:
  - 3.0 - 1
  - 4.0 - 1
  - 5.0 – 1
- Endotrachael Tube sizes 4, 4.5, 5, 5.5, 6, 7, 7.5, 8 – 1 each
- Endotrachael Tube sizes 2.5, 3, 3.5 – 2 each
- ET Introducer/Bougie sizes Adult and Pedi -1 each
- BAAM device – 1 each
- Needle Cricothyrotomy Kit – 1
- Surgical Cricothyrotomy Kit – 1
- Commercial made (system approved) BIAD/advanced airway tube holder (1 Adult & 1 Pedi)
- Disposable Laryngoscope handle (Adult & Pedi) – 1ea
- Disposable Laryngoscope blades.
  - Miller sizes 0, 1, 2, 3, and 4 – 1 each
  - Macintosh sizes 1, 2, 3 and 4 – 1 each
- Disposable Magill forceps Large and Small – 1 each
- Water soluble lubricating jelly packets – 4
- Gastric Tube – 1
- King Vision Video Laryngoscopy

Impedance Threshold Device (ITD) or Adult and Child BVMs with ventilation timing lights –1ea

Pulse Oximeter

- With probes adult and pediatric – 1 each

Continuous Wave Form Capnography

Continuous Positive Airway Pressure Ventilation (CPAP) 1 Kit (incl. Adult mask sizes large & small and Child mask)

PL 5 Minimum Equipment List
FRO Tier 2 Organizations

Vascular Access Equipment

- 60 drop (micro) infusion IV set – 2
- 10 drop (macro) infusion set – 1
- Dial-a-flow fluid limit device – 2
- IV arm boards - 2
- IV tourniquet (latex free) – 2
- IV loop – 1
- 0.9% Normal Saline solution, 250 mL – 1 bag
- Isotonic Crystalloid solution, 1000 mL – 1 bag
- System approved intravenous catheters (self-sheathing, needle-less system)
  - 14 gauge – 2
  - 16 gauge – 2
  - 18 gauge – 2
  - 20 gauge – 2
  - 22 gauge – 1
  - 24 gauge – 1
  - Saline lock hubs – 2
- Chlorohexadine prep pads – 5
- Small sharps safety container – 1
- 0.9% sodium chloride vial or prefilled syringe (5 or 10 mL) – 2
- Tegaderm – 2
- Venigard – 2
- Pressure infusion bag – 1
- IV Burette - 1

Sterile Syringes

- 1 cc safety syringe with needle – 2
- 3 cc safety syringe with needle – 2
- 12cc safety syringe without needle – 2

Mucosal Atomization Device – 1

Pleural Decompression Kit – 1

Sterile Needles

- Assorted sizes (19, 20, 25 gauge) – 1 each

EZIO Driver and associated Adult/Pedi and Bariatric size Needles and Supplies -1 set

Emesis bags/containers – 2

----------Optional Equipment & Medications----------

Medications:

- Fentanyl (Oral transmucosal) - 1
- Ketorolac 60mg/2ml vial – 1
- Pralidoxime if available during MCI
- Epinephrine Anaphylaxis Kit – 2
  - Each Kit contains:
    - (1) Epinephrine 1mg/1mL ampule
    - (1) 0.3 cc safety syringe with needle
    - (2) Chlorohexadine prep pads
    - (2) Band-aids
    - (2) 4x4s (sterile package)

Clinical Initiative Review Process

The clinical practice serves as the foundation for any emergency medical services system. Our clinical practice is designed to guide the safe and effective delivery of clinical services in a manner that places the patient at the center, uses an evidence-based approach to defining care, minimizes the risk of harm to patients and providers, and seeks to provide a positive patient experience. The Clinical Initiative Review Process is intended to proactively plan for the successful implementation of clinical initiatives, identify potential challenges and unintended consequences, and evaluate the financial and operational impacts of the proposed clinical initiatives.

The process focuses on ensuring any new or revised clinical initiative is clinically effective, safe, feasible, appropriately prioritized, and implemented with minimal impact on the delivery of services to patients. It serves as a project planning tool for use by the applicable stakeholders involved in any new or revised clinical initiative. This process is most valuable when the initial focus is placed on prioritization of clinical effectiveness and patient safety. Once these key elements are addressed, the focus shifts to the initiative's feasibility and financial impact. When stakeholders reach consensus on these elements, implementation may then occur in a manner that minimizes risk of harm to patients and providers, ensures continued delivery of clinical services to the community, and maximizes the likelihood of meeting the intended objectives.

The primary mission of the Austin/Travis County Clinical Initiative Review Committee (CIRC) is to review, evaluate and define the implementation plan for any new or revised clinical initiative. Two broad and essential functions of the Committee are to 1) evaluate the impact of new or revised clinical initiatives on each System Organization and 2) develop timely, effective implementation plans for such initiatives. This Committee functions collaboratively to promote the safe, effective, and efficient medical care provided to those utilizing the City of Austin / Travis County Emergency Medical Services System.

The Clinical Initiative Review Process is essential to ensuring the safe, effective and efficient review and implementation of new or revised clinical initiatives. This Committee is a critical component of this process.

For Process and Forms refer to: http://www.austintexas.gov/department/office-medical-director/committees-semc

Certified Statement of Required Education Module Completion

Credentialing candidates, appropriately affiliated with a System OMD Registered Organization, desiring to take the Clinical Guideline Examination must present this document to the OMD prior to testing.

PL 1 Credential Level:

- ❑ **Successfully completed OMD required Skill Competencies. Per list on page 2.**
- ❑ **Successfully completed OMD required Education Modules. Per list on page 2.**

PL 2 Credential Level:

- ❑ **Successfully completed OMD required Skill Competencies. Per list on page 2.**
- ❑ **Successfully completed OMD required Education Modules. Per list on page 2.**

This document must be signed and dated by one of the following persons in the Candidate's designated Primary Affiliated Organization.

- ❑ **A/TC EMS Department: Clinical Commander or Designated EMS Education Coordinator.**
- ❑ **Fire Department based Organizations: "Chief Officer (s)" or Designated EMS Education Coordinator.**
- ❑ **All other FROs: FRO Administrator or Designated EMS Education Coordinator.**

Candidate Name (print):_____; TDSHS #_____

Organization Name (print):_____

Certified by: Print Name:_____ Sign Name:_____

Title:_____ Date:_____

Please mark all boxes that apply.

PL 1 or PL 2 Credentialing
Progress Document

Print Name: _____ **DSHS #** _____

Online Credentialing for *New or (Reintegration > 90 days OMDR-20)*	Date Completed	Score
Online Course Titles: must have current "MOODLE Login" to access.		
BLS Patient Assessment		
BLS Altered Mental Status		
BLS Cardiac Arrest		
BLS MI/CVA		
BLS Respiratory		
BLS Trauma		
Skills for New or Reintegration > 90 days		
IGEL		PL 2 Only
Adult Pit Crew		PL1 & PL2
Infant Pit Crew		PL1 & PL2
CPAP		PL 2 Only
Smart Bag		PL1 & PL2
EPI Draw and Shoot with Medication Cross Check		PL1 & PL2
12 Lead ECG Electrode Placement		PL 2 Only
Once Completed attach this document to the OMDR-7 Form and transmit or give to OMD Staff. COG Testing will be conducted after this document is completed.		

First Responder Registration
Tier 1 Organizations

Standard:

All ATCEMS System First Responder Organizations must be registered with the OMD and licensed with the TDSHS at the Basic Level. Tier 1 Organization's First Responders' are prohibited from operating above the PL 2 Credentialing Level.

Purpose:

Establish the minimum requirements for Agencies to become a first responder organization within the ATCEMS System.

Application:

Tier 1 Level Registered FR Organizations:

1. The Agency must have a minimum total of **ten (10)** providers eligible to System Credential at the PL 1 and/or PL 2 level.
2. The Agency must commit to equipping their BLS providers with the required medications and equipment necessary to provide patient care at the PL 1 and/or PL 2 level as defined by the COGs & OMD Reference (**PL1 & PL2 Minimum Equipment List Tier 1**).
3. Provide each Credentialed provider Organizational support as needed for:
    - System Educational Initiatives.
    - Initial and ongoing Credentialing Requirements at this level.
    - Ongoing TDSHS Certification/Licensure Requirements at this level.
    - Credential and Skill level appropriate supplies and equipment including simulation devices/mannequins to facilitate Training, Competency Assessments and Credentialing at this level.

First Responder Registration
Tier 2 Organizations

Purpose:

Establish the minimum requirements for Tier 2 Organizations to become a first responder organization within the ATCEMS System.

Policy:

All ATCEMS System First Responder Organizations must be registered with the OMD and licensed with the TDSHS at the Basic Level as a minimum. The Intermediate and Advanced registration/licensure levels are optional for those existing System Agencies who are designated as "Tier 2 Organizations" and are DSHS Licensed at the Advanced level.

Procedure:

Basic Level Registered FR Organizations:

1. The Agency must have a minimum total of **ten (10)** providers eligible to System Credential at the PL 1 Level or higher.
2. Any change to the agency level of care, staffing level or deployment plan must be pre-approved by the Medical Director.
3. The Organization must commit to equipping their BLS providers with the required medications and equipment necessary to provide patient care at the PL 1 and PL 2 level as defined by the COGs & OMD Reference (**PL2 Minimum Equipment List Tier 2**).
    - Provide each Credentialed provider Organizational support as needed for:
        - System Educational Initiatives.
        - Initial and ongoing Credentialing Requirements at this level.
        - Ongoing TDSHS Certification/Licensure Requirements at this level.
        - Credential and Skill level appropriate supplies and equipment including simulation devices/mannequins to facilitate Training, Competency Assessments and Credentialing at this level.

EMT Intermediate Level Registered FR Organizations:

1. The Agency must have at least **one (1)** PL 3 System Credentialed provider.
2. Any change to the agency level of care, staffing level or deployment plan must be pre-approved by the Medical Director.
3. The System Agency must be:
    - Designated as a "Tier 2 Organization" by the Office of the Medical Director.
    - Registered with the OMD as an Intermediate level Organization.
    - Licensed with the TDSHS as an "Advanced" Organization.
4. The Organization must further commit to equipping and facilitating their PL 3 providers with the medications and equipment necessary to provide patient care from the PL 1 up to the PL 3 level as defined by the COGs & OMD Reference (**PL3 Minimum Equipment List Tier 2**).
    - Provide each Credentialed provider Organizational support as needed for:
        - System Educational Initiatives.
        - Initial and ongoing Credentialing Requirements at this level.
        - Ongoing TDSHS Certification/Licensure Requirements at this level.
        - Credential and Skill level appropriate supplies and equipment including simulation devices/mannequins to facilitate Training, Competency Assessments and Credentialing at this level.

First Responder Registration
Tier 2 Organizations

Paramedic Level Registered FR Organizations:

1. The Agency must have at least **one (1)** ≥ PL 4 System Credentialed provider.
2. Any change to the agency level of care, staffing level or deployment plan must be pre-approved by the Medical Director.
3. The System Agency must be:
   - Designated as a "Tier 2 Organization" by the Office of the Medical Director.
   - Registered with the OMD as an Advanced level Organization.
   - Licensed with the TDSHS as an "Advanced" Organization.
   - Compliance with ATCOMD, DEA and TxDPS Controlled Substance Registration requirements.
4. The Organization must further commit to equipping and facilitating their ≥ PL 4 providers with the medications and equipment necessary to provide patient care at the PL 1 up to the ≥ PL 4 level as defined by the COGs & OMD Reference (**PL4 Minimum Equipment List or PL5 Minimum Equipment List**).
   - Provide each Credentialed provider Organizational support as needed for:
     - System Educational Initiatives.
     - Initial and ongoing Credentialing Requirements at this level.
     - Ongoing TDSHS Certification/Licensure Requirements at this level.
     - Credential and Skill level appropriate supplies and equipment including simulation devices/mannequins to facilitate Training, Competency Assessments and Credentialing at this level.

Medical Directive

Standard:

To describe specific clinical changes or update within the ATCEMS System

Purpose:

1. The Medical Directive:
   - Describes specific clinical changes or updates within the System;
   - Is issued by the Office of the Medical Director to designated points of contact within each agency of the System;
   - Is numbered sequentially and designates the specific level of Provider (EMD, PL1, PL2, PL3, PL4, PL5, PL6) impacted by the Directive.
   - Is distributed electronically to all agency-defined points of contacts
   - Individual agencies are responsible for disseminating Medical Directives, in a timely manner, to all Credentialed Providers affiliated with the agency.

The Office of the Chief Medical Officer

Standard:

Define the roles and responsibilities of the Office of the Medical Director and its component parts.

Purpose:

By Texas Department of State Health Services and Texas Medical Board regulation, the System Medical Director is responsible for establishing, overseeing and ensuring quality medical care in the prehospital environment.

1. The Office of the Medical Director is responsible for the following components of the ATCEMS System:
    - Development, maintenance and review of the prehospital clinical operating guidelines, including policies and procedures for establishing clinical care on a semiannual basis.
    - Establishing the standards of prehospital care and any required alterations in these standards care under special circumstances.
    - Establishing and maintaining the minimum requirements for credential to practice within the system.
    - Establishing minimum continuing education requirements for credentialed providers within the system.
    - Oversight of the clinical performance of the System's provider organizations.
    - Implement performance improvement policy and procedures.
    - Establish minimum clinical data requirements to be collected for measuring the system performance.
    - Oversight of clinical research initiatives in the prehospital setting.
    - Serve as the clinical liaison to the medical community.
    - Provide oversight of provider safety as it relates infection control and exposure management.

Clinical Operating Guidelines (COG) Exam

Standard:

To establish a standardized process for demonstrating understanding of ATCEMS System patient care guidelines, system standards and procedures.

Purpose:

Every provider that is credentialed to practice within the ATCEMS System will successfully pass a guideline exam in order to obtain initial system credentialing. Credentialed Providers must maintain their credential in accordance with the maintenance requirements (including periodic COG testing) defined by the Office of the Medical Director. This policy does not preclude organizations from conducting internal guideline exams, however, the OMD guideline exam results will be the only exam considered for OMD Credential to Practice status.

Application:

1. Following submission of necessary documentation to the Office of the Medical Director (OMD), candidates or organizations will coordinate with the OMD to schedule administration of a Guideline exam at the appropriate level.
2. A minimum score of 80% is required for a candidate to be deemed successful.
3. If subsequent attempts are necessary:
   - A candidate will be afforded no more than a total of six attempts to achieve the minimum score. This is inclusive of any attempts on an exam appropriate for a credentialing level lower than the candidate's originally desired level.
   - Failure to achieve a minimum score of 80% within the first 3 initial attempts will result in the candidate being disqualified from all credentialing processes for a minimum of three months from the date of the last exam attempt.
     - ☐ PL 2, PL 3 or ≥ PL 4 candidates that elect to use a third exam attempt to credential at the a lower level (PL 1 or PL 2) than initially tested, and are successful, must remain out of any higher level credentialing process for a minimum of 3 months from the date of the third attempt.
   - A candidate that is unsuccessful in his or her initial three attempts shall remain out of the credentialing process for the prescribed 3 month period, and if the candidate is unsuccessful in the subsequent 3 attempts, they will be disqualified from all credentialing processes for a minimum of one year from the date of the last exam attempt.
   - There must be a minimum of 24 hours between attempts.
   - All attempts must be completed within a 30 day period of the initial exam date.
   - Extension of the 30 day exam period requires approval by the Office of the Medical Director.
   - In order to obtain an extension the candidate must adhere to the following:
     1. The candidate must submit a written request for extension of the 30 day period. The request must include justification for the extension and request for a specific exam date.
     2. The request must be received on or before the end of the 30 day exam period and include signatures from the candidate and the organization's Training Coordinator, Chief Officer or FRO Administrator and an OMD staff member.
     3. Failure to submit the request for extension as described, or to abide by the terms of the extension, will result in the Candidate being disqualified from that or any other credentialing process for a minimum of three (3) months from the date of the last exam attempt.

4. A candidate that is unsuccessful in the exam process, or is disqualified from the process for failing to abide by the requirements related to extending the 30 day exam period, but that is already credentialed in the System will retain his or her current credential level.
5. Should a guideline revision occur within a candidate's 30 day exam period, the version of the guidelines in effect at the time of the first exam will be the basis for all exam attempts.
6. Should an approved request for extension of the 30 day exam period be in place; the version of the guideline in effect on the date testing resumes will be the basis for subsequent exam attempts, regardless of attempt number or level.
7. If it is determined that a candidate has cheated during a guideline exam the Medical Director may suspend or revoke the candidates current credential and/or bar the candidate from the credentialing process for a minimum of 1 year.
8. In all events where there is dispute or discrepancy the OMD reserves the right of final decision for disposition of the guideline testing procedures and processes.
9. For PL 3 and ≥ PL 4 candidates, upon successful completion of the guideline exam and any required educational session (s), the OMD will issue the appropriate OMD transitional badge in accordance with the Identification Badges Standard.
    - An OMD transitional badge extends the privilege to practice at the desired credential level provided the candidate is in the presence of a designated System Training Officer/Preceptor who is Credentialed at the candidates desired Credentialing level or above.

System
Registered Organizations

Tier 2 Designated Organizations

City of Austin Fire Department
#227016

ESD 12 Manor Fire Department
#800106

Travis County Search and Rescue
#300526

City of Austin-Travis County EMS Department
#227007

BAT 1 Bastrop/Travis Counties
#800709

Texas Department of Public Safety
#800542

Tier 1 Designated Organizations

- One Texas Center Emergency Response Team #300153
- 3M Austin Center and Research #300103
- Flextronics #300099
- Texas Department of State Health Services #227044
- City of Austin HSEM #800102
- ARL UT Emergency Team #227020
- Dell Computer Company #300349
- Texas Comptroller of Public Accounts #227010
- Winters Medical Assistance Team #227036
- Texas Division of Emergency Management

System Reintegration Timelines

Purpose

System credentialed providers are required to "reintegrate" following an event or Organizational action causing an extended absence from providing patient care (CS – 25). The purpose of the reintegration process is to ensure that the provider has a smooth transition back to independent duty after returning from a leave of absence, OJI, FMLA, military duty etc. This period of review and/or observation ensures that the returning provider has clinical knowledge and skills proficiency commensurate with that of the other credentialed providers in the System.

Policy Text

Upon return from any type of leave of absence, the System Organization will determine the exact number of days the provider has been absent. The organization will notify The Office of the Medical Director of any individual returning to duty if their absence was greater than 30 consecutive days. The Provider will be required to complete certain credentialing requirements prior to returning to full independent patient care duty status. These requirements will be determined based on the number of days the provider was absent and the credential level of the provider. Providers seeking to reintegrate their Credentials must do so with a System Organization holding the same or higher OMD designated "Tier Level". With the exception of System Responder, Providers may (with the support of their Organization) choose to reintegrate at lower Credentialing levels than they currently hold.

> 30 days and ≤ 90 days (All Credential Levels):

- Verification of current State Certification by System Organization
- Verification of current mandatory certifications by System Organization
- Verification and Completion of all missed OMD required training, including Continuing Education, Skills Competency and a review of all Medical Directives issued during the absence.

> 90 days (All Credentialed PL 1 and PL 2 Providers):

- Verification of current State Certification by System Organization
- Verification of current mandatory certifications by System Organization
- Verification and Completion of all missed OMD required training, including Continuing Education, Skills Competency and a review of all Medical Directives issued during the absence.
- Credentialed Transport Providers, completion of all additional Organizational and Clinical Modules as approved by the OMD.

> 90 days and ≤ 180 days (All Credentialed PL 3 and ≥ PL 4 Providers):

- Verification of current State Certification by System Organization
- Verification of current mandatory certifications by System Organization
- Verification and Completion of all missed OMD required training, including Continuing Education, Skills Competency and a review of all Medical Directives issued during the absence.
- First Response PL 3 & ≥ PL 4 Credentialed Providers, all OMD required Skills verified by SCP.
- Credentialed Transport Providers, completion of all additional Organizational and Clinical Modules as approved by the OMD.

System Reintegration Timelines

> 180 days (All Credential Levels):

- Verification of current State Certification by System Organization
- Verification of current mandatory certifications by System Organization
- Verification and Completion of all missed OMD required training, including Continuing Education, Skills Competency and a review of all Medical Directives issued during the absence.
- Credentialing level COG test in accordance with OMDR-16.
- First Response PL 3 Credentialed Providers, all OMD required Skills verified by SCP and OMD Medical/Trauma Assessment Scenario (s) with a System Medical Director.
- All ≥ PL 4 Credentialed Providers/Responders and EMS Dept. Medic 1s (≥ PL 2) Medical Director interview.
- Credentialed First Response ≥ PL 4 and, Transport Providers ≥ PL 4 completion of all additional Organizational and Clinical Modules as approved by the OMD.

Process:

Providers who wish to re-credential should contact the OMD to create their reintegration plan based on the time parameters described above. If the reintegration process requires supervised practice the provider will be granted a modified credential for the purpose of reintegration. In the event that a provider is not successful in the initial reintegration process they will be assigned a remediation plan addressing any identified deficiencies. Continued failure to successfully complete the reintegration process may result in revocation of the credential to practice in accordance with Clinical Standard CS-29.

Medication Storage

Standard:

To describe the DSHS requirements for medication storage and preservation.

Purpose:

To raise awareness of System responsibilities for continuous storage and preservation of medications on emergency response units.

Texas Administrative Code

TITLE 25	HEALTH SERVICES
PART 1	DEPARTMENT OF STATE HEALTH SERVICES
CHAPTER 157	EMERGENCY MEDICAL CARE
SUBCHAPTER B	EMERGENCY MEDICAL SERVICES PROVIDER LICENSES
RULE §157.11	**Requirements for an EMS Provider License**

(e) Vehicles.

(2) EMS vehicles must allow the proper and safe storage and use of all required equipment, supplies and medications and must allow all required procedures to be carried out in a safe and effective manner.

(4) All vehicles shall have an environmental system capable of heating or cooling the patient(s) and staff, in accordance with the manufacturer specifications, within the patient compartment at all times when in service and which allows for protection of medication, according to manufacturer specifications, from extreme temperatures if it becomes environmentally necessary. The provider shall provide evidence of an operational policy which shall list the parenteral pharmaceuticals authorized by the medical director and which shall define the storage and/or FDA recommendations. Compliance with the policy shall be incorporated into the provider's Quality Assurance process and shall be documented on unit readiness reports.

RULE §157.14	**Requirements for a First Responder Organization License**

(e) Responsibilities of the FRO. During the license period the FRO's responsibilities shall include:

(1) assuring ongoing compliance with the terms of all EMS provider agreement(s);

(2) assuring the existence of and adherence to a quality assurance plan which shall, at a minimum, include:

(A) the standard of patient care and the medical director's protocols;

(B) pharmaceutical storage;

(C) readiness inspections;

(D) preventive maintenance of medical equipment and vehicles owned by the FRO;

(E) policies and procedures;

(F) complaint management; and

(G) patient care reporting and documentation;

System “Clinical Laboratory Improvement Amendment” (CLIA) Certificate of Waiver

Standard:

To make provision to continue to hold the CLIA Waiver for the System.

Purpose:

To describe specific requirements for compliance with the CLIA Waiver.

Process:

On May 15, 2005 the OMD was awarded and now maintains the System’s “Clinical Laboratory Improvement Amendment” (CLIA) Certificate of Waiver. The device that this certificate covers for the System is our Blood Glucose Meters. The waiver we hold requires that each meter in the System is tested at least once per year. Meter testing is to be conducted in accordance with the manufactures standards per the testing instructions and supplies that come with each meter.

In response to this requirement each System Organization will send us summary notification as requested but, no less than on an annual basis verifying that all of their meters have been tested.

Alcohol Withdrawal Syndrome Screening Tool

Inclusion Criteria (all must be present)

1. Intact verbal communication capabilities

2. Sudden period of alcohol consumption cessation within the past 3 days

3. Presenting with 3 or more of the following signs/symptoms
    - Nausea or Vomiting
    - Tremors
    - Sweating
    - Agitation
    - Heart rate > 100 beats per minute

4. Eighteen (18) years of age or older

Exclusion Criteria (none are present)

1. Signs/Symptoms likely due to another underlying medical illness or condition.

2. Presence of:

    - Delirium
    - Altered Mental Status,
    - Respiratory Distress

Additional considerations that increase the risk for respiratory depression

- Opioid use
- COPD
- Obstructive sleep apnea

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Approved Abbreviations

To ensure consistency in patient care reporting, the following is a list of System approved abbreviations

-A-			
Â	Before	**A&Ox3**	Alert & oriented to (PPT)
AAA	Abdominal aortic aneurysm	**Abd**	Abdomen
AB	Abortion	**ABC**	Airway, breathing, circulation
ABG	Arterial blood gas	**a.c.**	Before meals
A/C	Aircraft	**ACE**	Angiotensin-converting enzyme
ACS	Acute Coronary Syndrome	**a.d.**	Right ear (auris dexter)
ADD	Attention deficit disorder	**A.E.**	Above elbow (amputation)
AED	Automated external defibrillator	**A Fib**	Atrial fibrillation
Af	Atrial flutter	**AIDS**	Acquired immunodeficiency syndrome
AIVR	Accelerated Idioventricular rhythm	**A.K.**	Above knee (amputation)
ALS	Advanced Life Support	**AMI**	Acute myocardial infarction
Ant	Anterior	**AOS TF**	Arrived On Scene To Find
APAP	Acetaminophen (APAP)	**APS**	Adult Protective Services
APGAR	Appearance, Pulse, Grimace, Activity, Respiratory effort	**ARDS**	Adult respiratory distress syndrome
AS	Left ear (auris sinistra)	**ASA**	Acetyl salicylic acid (Aspirin)
ATF	Arrived to find	**AV**	Atrioventricula
AVA	Alternate vascular access	**AVM**	Arteriovenous malformation

-B-			
BBB	Bundle branch block	**BBS**	Bilateral breath sounds
B.E.	Below elbow (amputation)	**BGL**	Blood glucose level
B.I.A.D. **b.i.d.**	Blind Insertion Airway Device Twice a day	**B.K**	Below knee (amputation)
BLS	Basic life support	**BM**	Bowel movement
BP	Blood Pressure	**BS**	Breath, bowel sounds
BSA	Body surface area	**BVM**	Bag valve mask

Approved Abbreviations

-C-			
C	With	**Cº**	Centigrade
C/C	Chief complaint	**c/o**	Complains / complaining of
CA	Carcinoma, cancer	**Ca++**	Calcium
CABG	Coronary artery bypass graft	**CAD**	Coronary artery disease
CAO x 3 or 4 or PPT	Conscious, Alert, & Oriented to Person, Place, Time & Events	**CAT/CT**	Computerized axial tomography scanner
CBC	Complete blood count	**Cc**	Cubic centimeter
Cm	Centimeter	**CCB**	Calcium channel blocker
CCU	Coronary / critical care unit	**CHF**	Congestive heart failure
CHI	Closed head injury	**CID**	Cervical Immobilization Device
CK	Creatine kinase	**CK-MB**	Creatine kinase myocardial band
Cl	Chlorine	**CNS**	Central nervous system
COPD	Chronic obstructive pulmonary disease	**CO**	Cardiac output / carbon monoxide
CO2	Carbon dioxide	**+CMS**	Positive circulatory, motor & sensory function
CNS	Central nervous system	**CP**	Chest pain
CPAP	Continuous positive airway pressure	**CPR**	Cardiopulmonary resuscitation
CPS	Child Protective Services	**CRT**	Capillary refill time
CPSS	Cincinnati Prehospital Stroke Screen	**CSF**	Cerebrospinal fluid
C-spine	Cervical spine		
CSM	Carotid sinus massage	**CTA**	Clear to auscultation
CVA	Cerebrovascular accident	**CVP**	Central venous pressure
Cx	Chest	**CXR**	Chest x-ray

-D-			
DCAP BTLS	Deformities, Contusions, Abrasions, Penetrations, Paradoxical movements, Burns, Tenderness, Lacerations, Swelling	DIC	Disseminating intravascular coagulation
Diff	Difficulty	**Disch**	Discharge
D&C	Dilatation & curettage	**dL**	Deciliter (1/10 liter: 100 ml)

Approved Abbreviations

DAE	Dysbaric air embolism	**DKA**	Diabetic ketoacidosis
DM	Diabetes mellitus	**DNAR**	Did not attempt resuscitation
DNR	Do-not-resuscitate	**DOB**	Date of birth
DOE	Dyspnea on exertion	**DOS**	Dead on scene
DPT	Diphtheria, pertussis, tetanus	**DT's**	Delirium tremens
D5W	Dextrose 5% in water	**D10W**	Dextrose 10% in water
D25W	Dextrose 25% in water	**D50**	50% Dextrose
DVT	Deep vein thrombosis	**Dx**	Diagnosis
	-E-		
ECG/EKG	Electrocardiogram	**EDC**	Estimated date of confinement
EEG	Electroencephalogram	**EF**	Ejection fraction
e.g.	For example	**EPS**	Electrophysiological study
ER/ED	Emergency room/department	**Epi**	Epinephrine
Est.	Estimated	**ESRD**	End stage renal disease
ETA	Estimated time of arrival	**ET**	Endotracheal
ETC02	End-tidal carbon dioxide	**ETOH**	Ethyl alcohol, alcoholic beverage
ETT	Endotracheal tube	**EXP**	Expansion
EXT	Extremity(s)		
	-F-		
F	Female	**Fº**	Fahrenheit
FBAO	Foreign body airway obstruction	**FHx**	Family history
FHR	Fetal heart rate	**Fr**	French
FSP	Full spinal precaution	**FUO**	Fever of unknown origin
Fx	Fracture		
	-G-		
G (+ #)	Gravida (G3, G4 etc.)	**GCS**	Glasgow coma scale/score
GERD	Gastroesophageal reflux disease	**GI**	Gastrointestinal
Gm, g	Gram	**Gtts**	Drops
GU	Genitourinary	**GYN**	Gynecology

Approved Abbreviations

-H-			
h, hr	Hour	**H/A**	Headache
HAV	Hepatitis A virus	**HBV**	Hepatitis B virus
HCTZ	Hydrochlorothiazide	**HCV**	Hepatitis C virus
HEENT	Head, eyes, ears, nose, throat	**H&H**	Hemoglobin and hematocrit
Hg	Mercury	**HIV±**	Human immunodeficiency virus
HR	Heart rate	**HRT**	Hormone replacement therapy
hs	At bedtime	**HTN**	Hypertension
Hx	History		

-I-			
ICD	Implanted cardioverter defibrillator	**ICP**	Intracranial pressure
ICU	Intensive care unit	**IDDM/DM I**	Insulin dependent diabetes mellitus (Type I)
ILS	Intermediate life support	**IM**	Intramuscular
IMV	Intermittent mechanical ventilation	**Inf**	Inferior
IO	Intraosseous	**IPPB**	Intermittent positive pressure breathing
IU	International units	**IV**	Intravenous
IVP	IV push	**IVR**	Idioventricular rhythm

-J-			
J	Joules	**JVD**	Jugular venous distention

-K-			
K+	Potassium	**KED**	Kendrick extrication device
KTD	Kendrick traction device	**KVO**	Keep vein open
Kg	Kilogram		

Approved Abbreviations

-L-			
L	Left or Liter	**L spine**	Lumbar spine
L&D	Labor and delivery	**L/S**	Lung sounds
Lac	Laceration	**LAD**	Left axis deviation / left anterior descending
Lbs	Pounds	**LBBB**	Left bundle branch block
LGL	Lown-Ganong-Levine syndrome	**Liq**	Liquid
LLQ	Lower left quadrant	**LMA**	Laryngeal Mask Airway
LMP	Last menstrual period	**LOC**	Level/loss of consciousness
Lpm	Liter per minute	**LR**	Lactated Ringer's
LSB	Long spine board	**LSD**	Lysergic acid diethylamide
LUQ	Left upper quadrant	**LVAD**	Left Ventricular Assist Device
LVH	Left ventricular hypertrophy		

-M-			
m	Meter	**M**	Male
mA	Milliamperes	**mg**	Milligram
MAE	Moves all extremities	**MAP**	Mean arterial pressure
Mcg	Microgram	**MCL**	Midclavicular line, modified chest lead
MDI	Metered dose inhaler	**mEq**	Milliequivalent
mL	Milliliter	**mm**	Millimeter
MMR	Measles, mumps, rubella	**MOI**	Mechanism of injury
Mph	Miles per hour	**MS**	Morphine Sulfate, Multiple Sclerosis
MVA	Motor vehicle accident	**MVP**	Mitral valve prolapse

-N-			
Na+	Sodium	**NAD**	No apparent / acute distress
N/C	Nasal canula	**NES**	Non-English Speaking
NGT	Nasogastric tube	**NH**	Nursing home
NICU	Neurological, neonatal intensive care unit	**NIDDM/DM II**	Non insulin dependent diabetes mellitus (Type II)
NKA	No known allergies	**NKDA**	No known drug allergies
NMB	Neuromuscular blockade	**NOI**	No obvious injury

Approved Abbreviations

NP	Nurse Practitioner	**NPA**	Nasopharyngeal airway
NPO	Nothing by mouth	**NRB**	Non-rebreather mask
NS	Normal saline	**NSAID**	Non-steroidal anti-inflammatory drug
NT	Nasotracheal	**NTG**	Nitroglycerin
N/V/D	Nausea, vomiting, diarrhea		

-O-

02	Oxygen	**OB**	Obstetrics
OBS	Organic brain syndrome	**OBV**	Obvious
OD	Overdose, right eye (oculus dexter)	**OLMC**	On-line medical consultation
OOH	Out of hospital	**OPA**	Oropharyngeal airway
OPP	Organophosphate poisoning	**OPQRST**	Pain Assessment: onset, provocation, quality, radiation, severity, time
OS	Left eye (oculus sinister)	**OR**	Operating room
oz.	Ounce	**OSS**	Oregon Spine Splint
Ø	No or none		

-P-

p	After	**p.c.**	After meals
P (+ #)	Parity (P3, P4 etc)	**PA**	Physician assistant, pulmonary artery
PAI	Pharmacologically assisted intubation, Pre-Arrival Instructions	**PASTMED**	Provoking incident, Associated chest pain, Sputum production, Time of onset, Meds, Exercise tolerance, Diagnosis
PCI	Percutaneous coronary intervention	**pC02**	Carbon dioxide pressure
PCP	Phencyclidine, Primary Care Physician	**PCT**	Patient care to
PE	Physical exam, pulmonary emboli, pulmonary edema	**PEA**	Pulseless electrical activity
PEEP	Positive end expiratory pressure	**PERRL**	Pupils equal round reactive to light
PICU	Pediatric intensive care unit	**PID**	Pelvic inflammatory disease
PMD	Primary/Private medical doctor	**Pn**	Pain
PND	Paroxysmal nocturnal dyspnea	**P02**	Partial pressure of oxygen

Approved Abbreviations

PO	By mouth	**POC**	Position of comfort
post.	Posterior	**POV**	Privately operated/owned vehicle
p.r.	Per rectum	**PRBC's**	Packed red blood cells
PRN	As needed	**PSVT**	Paroxysmal supraventricular tachycardia
Pt.	Patient	**PTA/PTOA**	Prior to (our) arrival
PTS	Pediatric trauma score	**PVC**	Premature ventricular contraction
PVT	Polymorphic ventricular tachycardia	**P/W/D**	Pink warm and dry

-Q-

Q	Every	**Qh**	Every hour
q.i.d.	Four times a day		

-R-

R	Right	**RAD**	Right axis deviation, reactive airway disease
RBBB	Right bundle branch block	**Rbc**	Red blood cell, red blood (cell) count
RCA	Right coronary artery	**RHD**	Rheumatic heart disease
RLQ	Right lower quadrant	**ROSC**	Return of spontaneous circulation
+ROM	Positive range of motion	**RN**	Registered nurse
RR	Respiratory rate	**RSV**	Respiratory syncytial virus
RTS	Revised trauma score	**RUQ**	Right upper quadrant
Rx	Prescription		

-S-

š	Without	**s/s**	Signs / symptoms
SA02	Oxygen saturation of arterial oxyhemoglobin	**SARS**	Severe acute respiratory syndrome
SBP	Systolic blood pressure	**SC, SQ**	Subcutaneous
SCI	Spinal cord injury	**SCUBA**	Self contained underwater breathing apparatus
SIDS	Sudden infant death syndrome	**SL**	Sublingual, Saline Lock
SOAPE	Subjective, Objective, Assessment, Plan, Enroute	**SOB**	Shortness of breath

Approved Abbreviations

SROM	Spontaneous Rupture of Membranes	**St**	States
STD	Sexually transmitted disease	**SUV**	Sport utility vehicle
SVT	Supraventricular tachycardia	**Sx**	Symptoms
	-T-		
T spine	Thoracic spine	**TBI**	Traumatic brain injury
Temp	Temperature	**tab**	Tablet
TB	Tuberculosis	**Tbsp**	Tablespoon
TCP	Transcutaneous pacing	**TCA**	Tricyclic antidepressant
TdP	Torsades de Pointes	**TIA**	Transient ischemic attack
t.i.d.	Three times a day	**TKO**	To keep open
TOT	Turned Over To	**Tsp**	Teaspoon
Tx	Treatment		
	-U-		
u	Unit	**µg**	microgram
U/A	Upon arrival, urine analysis	**URI**	Upper respiratory infection
UTI	Urinary tract infection	**UTL**	Unable to locate
UTO	Unable to obtain		
	-V-		
VD	Venereal disease	**Vol**	Volume
VO	Verbal order	**VF**	Ventricular fibrillation
VS	Vital signs	**Vt**	Tidal volume
VT	Ventricular tachycardia		
	-W-		
w/	With	**w/o**	Without, wide open
WDWN	Well developed, well nourished	**WNL**	Within normal limits
WPW	Wolf-Parkinson-White		
	-X-		
X-fer	Transfer	**X-prt**	Transport
	-Y-		
y/o	Years old		

Approved Abbreviations

-Symbols-			
α	Alpha	ß	Beta
@	At	?	Questionable, possible
♀	Female	♂	Male
1°	First degree	2°	Second degree
3°	Third degree	x	Times
△	Delta (change)	+	Positive
–	Negative	=	Equal
≠	Not equal to	≈	Approximately
↓	Decreased / below / lower	↑	Elevated / increased / upper
→	Move/went to	↔	Between
#	Number		

Hospital Transport Guidelines

Decisions regarding patient destination should be made in the following order, AGE appropriate and: Trauma Alert, ***if not then*** Condition listed in CR-13 (closest designated facility with patient consent) ***if not then*** Patient and/or family preference ***if not then*** closest facility listed.

System Approved Transport Facilities

Dell Seton Medical Center at the University of Texas	Dell Children's Medical Center	Heart Hospital of Austin	North Austin Medical Center
North Austin Medical Center Children's Hospital	Seton Medical Center Austin	Seton Northwest Hospital	Seton Southwest Hospital
South Austin Medical Center	St. David's Medical Center	Westlake Medical Center	Baylor S&W Medical Center - Buda
Baylor S&W Medical Center - Lakeway	Baylor Scott & White Oak Hill	Baylor Scott & White Pflugerville	Baylor Scott & White Hospital Round Rock
Seton Medical Center Williamson	Cedar Park Regional Medical Center	Seton Medical Center Hays	Round Rock Medical Center
Seton Psychiatric Emergency Department			

SINGLE TRAUMA PATIENT IN THE UNIT

Trauma Alert > 14 yrs. **OR** ≤ 14 yrs. and pregnant closest Adult Level 1 or 2 Trauma Center.

Trauma Alert ≤ 14 yrs. Dell Children's Medical Center unless pregnant, cardiac arrest or a prolonged transport would potentially compromise the patient, then closest Level 1 or 2 Trauma Center.

MULTIPLE TRAUMA PATIENTS IN THE SAME UNIT

Guiding principle of trauma transportation destination decision with multiple patients in the unit: The most severely injured patient determines the destination unless a prolonged transport would potentially compromise either patient, then closest Level 1 or 2 Trauma Center.

Co-Transporting patients (medical or trauma) in the same unit is discouraged due to patient and provider safety issues, challenges in assessing and managing more than one patient at a time, and potential for HIPAA violations.

Exceptions to this are Parent and Child of the same family, resource limitations that would otherwise result in significant delays in time-sensitive conditions, and MCI events.

An "ALERT" status declaration is made to Communications and is for their assistance (as needed) in determining the most appropriate transport destination (based on time, distance and facility level/type). Then, communications will advise and facilitate the most expeditious mode of Transport (Ground or Air).

For the System transport criterion refer to **Clinical Reference Transport Grid.**

Infection Prevention
Exposure Management

Infection Prevention

Adherence to infection Prevention principles is the responsibility of each Provider. All EMS Providers must be aware of well-known infectious agents (Hepatitis B, influenza, etc.), as well as emerging new pathogens (Avian Flu, SARS, etc.) that present challenges to medicine and risks to Providers. A personal commitment to employing basic infection Prevention measures on every single incident will provide the simplest and best protection against infectious diseases. Make it a habit!

Basic Protection Guidelines and Immunizations

The infection "triad" requires a portal of entry, an adequate amount of the infectious agent, and a susceptible host in order for a person to actually become infected. Through the engineering of safer equipment and the use of Personal Protective Equipment (PPE), we can prevent portals of entry and reduce the amount of materials to which you may be exposed.

Although it sounds simplistic and obvious, individuals that are well nourished, rested, and physically fit have immune systems that are more responsive and better prepared to mount an effective fight against invading pathogens. Taking care of ourselves decreases our long-term morbidity and allows us to recover more quickly should we become infected.

In any health care environment, Providers can expect to be routinely exposed to infectious agents. Immunizations are an extremely important weapon against infection from many of the more common agents. Keeping current on appropriate immunizations protects you, protects patients from becoming infected by you, and decreases overall disease transmission (this is a concept in public health known as herd immunity). As always, you should consult with your regular physician regarding your health care and immunization status. For healthcare workers, the currently available recommended immunizations (or documented immunity) include:

- Hepatitis B
- Measles
- Mumps
- Rubella
- Varicella
- Tetanus
- Diphtheria
- Pertussis
- Influenza (Pandemic & seasonal)
- Hepatitis A

Attention to ongoing hand washing, especially during the cold and flu season, is very important. Contact with contaminated surfaces provides a ready way for you to become infected and for you to infect others. Hands should be washed after each patient contact, the removal of gloves, and after cleaning all equipment. Waterless, alcohol-based hand cleaners are an acceptable alternative to soap and water provided there is no gross organic material present. To be effective, hand washing with soap and water needs to be performed for a minimum of twenty (20) seconds, using a vigorous rubbing together of all surfaces of lathered hands followed by thorough rinsing under a stream of water. If soap and water are not available at the scene, a waterless hand wash/wipe should be used before boarding the vehicle. Upon return to the station, all Providers should wash their hands with soap and water.

Additionally, it is important to conduct a self-check of your skin (particularly hands and exposed surfaces) prior to any potential patient contact. Identify scrapes, wounds, or other non-intact

surfaces and cover all open and scabbed wounds with bandages. The integrity of any bandages should be monitored during your shift to ensure the continuation of their protection.

Personal Protective Equipment (PPE)

PPE is designed to stop the transmission chain of an infectious agent by preventing potentially infectious microorganisms from contaminating a Provider's skin, mucous membrane, or clothing, and subsequently being transmitted to others. While PPE reduces the risk, it does not completely eliminate the possibility of infection, and is only effective if chosen and used correctly.

Remember, PPE should always be readily available, not just carried in the vehicle for those "surprise" circumstances where the possibility of exposure exists.

There are instances that the selection of appropriate PPE should be obvious and regarded by all Providers as standard practice. These include:

- Anytime patient contact is made and, it can be reasonably anticipated that contact with blood or other potentially infectious fluids will occur, gloves should be worn.
- During any type of airway management procedure, or other situation that fluid splash contact with the Provider's face is a possibility, the protection of mucous membrane is crucial. Effective mucous membrane protection may be afforded by use of the combination eye shield and mask apparatus, or a "Fit Tested" N95 mask in conjunction with department issued or approved eyewear (goggles).
- Whenever the possibility exists that a patient's bodily fluids could be splashed onto or directly contact a Provider, gowns should be utilized.

There are times when the selection of proper PPE, especially respiratory protection, is not so obvious and must be made based on how a disease is spread. In these situations, the difficulty in determining the appropriate level of protection is that a truly informed decision usually can't be made until a patient assessment is completed and/or a history is obtained. By then, it's too late! For that reason, a patient exhibiting any of the following signs or symptoms should be a signal to Providers, that in addition to gloves and, possibly a gown, some level of respiratory protection is required:

- Productive cough (with or without blood)
- Fever and chills with coughing
- Night sweats
- Dramatic (>10%) unexplained weight loss
- Fatigue (in the presence of other symptoms)
- Hemoptysis (coughing up blood)
- Nuchal rigidity (stiff neck)
- Chest and upper torso rash

In determining the type of respiratory protection needed, remember that a "Fit Tested" N95 mask will afford the best protection against disease spread via airborne particles (i.e., tuberculosis), while the combination eye shield and mask apparatus is appropriate protection against disease spread through larger droplets (i.e., meningitis). In either case, protection is only afforded if the mask is worn properly.

- For a patient exhibiting signs and/or symptoms of a disease spread via airborne particles, the "Fit Tested" N95 mask should be donned prior to entering an enclosed area that the patient may have contaminated
- When caring for a patient with signs and symptoms of a disease spread through larger droplets, a surgical type mask or combination eye shield and mask should be donned as soon as possible, and worn anytime the Provider is within six (6) feet of the patient.

- Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement. Provide instructions on the proper use and disposal of masks.
- For patients who cannot wear a surgical mask; place a non-rebreather mask with supplemental O_2, in addition to any additional medical treatment (s). Provide tissues and instructions on when to use them (i.e., when coughing, sneezing, or controlling nasal secretions), how and where to dispose of them and, the importance of hand hygiene after handling these materials.
- Continue to use droplet and airborne precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.
- When in doubt, maximal rather than minimal PPE should be selected.

Sharps Hazards

- The greatest risk for an occupational exposure to blood occurs with the use of needles and other sharp utensils. The most common occupational blood exposure occurs when needles are recapped. Needles that have contact with human tissue should not be recapped, re-sheathed, bent, broken, or separated from disposable syringes.
- Used needles and other sharps shall be disposed of in approved sharps containers as soon as possible.
- Providers should ensure that no sharp is used in a manner inconsistent with its intended purpose or attempt to circumvent the safety features of the device.
- See Crime Scene Preservation (in Cardiac Arrest COG) regarding used sharps at a potential crime scene.

Cleaning and Disinfection of Equipment and Work Areas

Remember how important it is to keep all medical equipment clean and free from infectious agents. The essential part of cleaning and disinfecting equipment is ensuring the removal of all accumulated organic material. Failure to remove organic material provides a continuing breeding ground for organisms. After the removal of the organic material, disinfecting can take place.

Be thorough with your cleaning and use your PPE eyewear if you need to do heavy cleaning that may result in splashing. Remember to clean any surface that your gloved hand may have contacted. After applying your disinfectant, permit the equipment to air dry. Wiping dry the wet disinfected surface will negate the effects of the agent and render it useless. Upon completion of the cleaning, make sure you wash your hands.

Exposure Follow-up

The purpose of PPE, and always using sound infection prevention practices, is to reduce or eliminate the potential for infection. On occasion, a Provider is exposed to blood, bodily fluids, or airborne particles, and appropriate action must be taken. Many of these actions are time-dependent so it's important to initiate the reporting and follow up process as soon as possible. Besides adherence to sound infection prevention practices, the most important thing you can do to ensure your health and well-being is to educate yourself. Become knowledgeable about infectious diseases, and the exposure reporting and follow-up process for your organization. Knowledge of the process specific to your organization ensures the right people are notified in a timely manner should post-exposure testing, follow-up, and documentation be required.

Infection Prevention
Exposure Management

The following are general guidelines to be followed should you experience, or suspect that you have experienced, an exposure to blood or other infectious material:

- Withdraw from patient care as soon as it is appropriate. This is usually at the completion of care but may need to occur sooner in some cases.
- Take self-care steps and cleanse the wound (or irrigate the membranes) with the appropriate solution immediately after any exposure to a patient's bodily fluids. Don't attempt to "milk" any needle stick injuries. This does not appear to be useful in removing source patient material.

Exposures require immediate intervention. Report any suspected exposure to communicable diseases to the appropriate designated individual in your department as quickly as possible. Questions and consultation regarding post exposure actions should be immediately directed to the Infection Preventionist through Austin/Travis County EMS Communications. Consultation may reveal that medical evaluation of the exposure, testing, follow-up, and/or additional documentation is necessary. In the case of a blood exposure due to needle stick (or other sharps), spray to mucous membrane, or patient blood contacting non-intact skin, the Provider should immediately travel, or be transported to, the closest appropriate facility for evaluation.

Patient Transport Condition Classification System

1. Once a patient has been assessed they should be assigned a transport code in the "Alpha, Bravo, Charlie, Delta or Echo" coding system based on acuity as determined by the transport medic
2. Trauma patients will be further categorized according to the Trauma Categorization Criteria
3. During a Mass Casualty Incident (MCI), patients should be categorized according to a “Triage” coding system.
4. Patient Transport Condition Classification System Patient transport condition classification is based on the magnitude of abnormal physiology or the potential for clinical deterioration. Specific interventions are not the sole determinate of abnormal physiology.

ALPHA	A patient condition or circumstance that appears to require little or no medical evaluation or treatment. An example would be a minor being transported to DCMC because no parental consent for refusal is available. MCI designation- “Green” / “Minimal”
BRAVO	A patient condition or circumstance that requires minimal acute treatment or further evaluation. An example would be a patient involved in a low speed MVC complaining of neck pain, and neurologically intact. MCI designation- “Green” / “Minimal”
CHARLIE	A patient condition or circumstance that requires moderate acute treatment or stabilization and further evaluation. An example would be a patient with a moderate asthmatic exacerbation with a slightly decreased O2 saturation requiring nebulized beta agonists. MCI designation- “Yellow” / “Delayed”
DELTA	A patient condition or circumstance that requires immediate acute treatment and stabilization and further evaluation. An example would be a hypotensive patient with ECG evidence of a STEMI. MCI designation- “Red” / ”Immediate”
ECHO	A patient condition or circumstance that requires immediate resuscitation and life sustaining measures. An example would be any patient with resuscitative efforts in progress. MCI designation- “Black” / “Expectant”

Suspected Child Abuse and Reporting

Suspected Child Abuse – Recognition and Reporting

Children are at risk of abuse due to physical, sexual, emotional maltreatment or neglect. All are harmful to their physical and emotional development and all require intervention. Under the Child Abuse Prevention and Treatment Act (CAPTA), child abuse and neglect means, at a minimum, "Any recent act, or failure to act, on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act which presents an imminent risk of serious harm." By Texas State law, all healthcare providers are obligated to report cases of suspected child abuse or neglect to either the local law enforcement agency or the Texas Department of Family and Protective Services (TDFPS).

State of Texas Definitions of Abuse and Neglect

- Abuse includes any of the following acts or omissions by a person:
  - Mental or emotional injury to a child that results in an observable and material impairment in the child's growth, development, or psychological well being;
  - Causing or permitting the child to be in a situation in which the child sustains a mental or emotional injury that results in an observable and material impairment in the child's growth, development, or psychological well being;
  - Physical injury which results in substantial harm to the child, or the genuine threat of substantial harm from physical injury to the child, including an injury which is at variance with the history or explanation given and excluding an accident or reasonable discipline by a parent, guardian, or managing or possessory conservator that does not expose the child to a substantial risk of harm;
  - Failure to make a reasonable effort to prevent an action by another person that results in physical injury that results in substantial harm to the child;
  - Sexual conduct harmful to a child's mental, emotional, or physical welfare;
  - Compelling or encouraging the child to engage in sexual conduct as defined by Section 43.01, Penal Code;
  - Causing, permitting, encouraging, engaging in, or allowing the photographing, filming, or depicting of the child if the person knew or should have known that the resulting photograph, film or depiction of the child is obscene or pornographic, as defined by the Penal Code;
  - The current use by a person of a controlled substance, as defined by the Health and Safety Code, in a manner or to the extent that the use results in physical, mental, or emotional injury to the child or
  - Causing, expressly permitting, or encouraging a child to use a controlled substance.
- Neglect includes any of the following acts or omissions by a person:
  - The leaving of a child in a situation where the child would be exposed to a substantial risk of physical or mental harm, without arranging for necessary care for the child, and the demonstration of an intent not to return by a parent, guardian, or managing or possessory conservator of the child;
  - Placing a child in, or failing to remove a child from, a situation that a reasonable person would realize requires judgment or actions beyond the child's level of maturity, physical condition, or mental abilities and that results in bodily injury or substantial risk of immediate harm to the child
  - Failure to seek, obtain, or follow through with medical care for a child, with the failure resulting in or presenting a substantial risk of death, disfigurement, or

bodily injury or with the failure resulting in an observable and material impairment to the growth, development, or functioning of the child;
  - The failure to provide a child with food, clothing, or shelter necessary to sustain life or health of the child, excluding failure caused primarily by financial inability unless relief services have been offered and refused; or,
  - Placing a child in, or failure to remove a child from, a situation in which the child would be exposed to a substantial risk of sexual conduct harmful to the child; or,
  - The failure by the person responsible for the child's care, custody, or welfare to permit the child to return to the child's home without arranging for the necessary care for the child after the child has been absent from the home for any reason, including having been in residential placement or having run away.

Who Must Report / Circumstances

- Any person;
  - When they have cause to believe that a child's physical or mental health or welfare has been adversely affected by abuse or neglect;
  - Professionals, including teachers, nurses, doctors, day-care employees, juvenile probation officers, juvenile detention or correctional officers, and employees of a clinic or health care facility that provides reproductive services.
  - If a professional has cause to believe that a child has been abused or neglected or may be abused or neglected or that a child is a victim of an offense under Section 21.11, Penal Code.

Privileged Communications/Confidentiality of Records:

- The requirement to report under this section applies without exception to an individual whose personal communications may otherwise be privileged, including an attorney, a member of the clergy, a medical practitioner, a social worker, a mental health professional, and an employee of a clinic or health care facility that provides reproductive services.

When Child Abuse or Neglect is Suspected:

- Anyone having cause to believe that a child's physical or mental health or welfare has been or may be adversely affected by abuse or neglect MUST report the case immediately to a state or local law enforcement agency or the Texas Department of Family and Protective Services (TDFPS).
- Current law requires that professionals such as teachers, doctors, nurses, or child daycare workers must make a verbal report within 48 hours. Failure to report suspected child abuse or neglect is a misdemeanor punishable by imprisonment of up to 180 days and/or a fine of up to $2000.

EMS reporting of suspected child abuse can be accomplished by only one of two methods

- Reporting it directly to law enforcement (not hospital security) either on scene or at the hospital

OR

- Directly contacting the 24 hour TDFPS Family Violence Hotline at 1-800- 252-5400
  - The report of child abuse or neglect is confidential and immune from civil or criminal liability as long as the report was made "in good faith" and "without malice"
  - "In good faith" means that the person making the report took reasonable steps to learn facts that were readily available and at hand.

- "Without malice" means that the person did not intend to injure or violate the rights of another person.
- Provided the report was made "in good faith" and "without malice" the Provider will be immune from liability if asked to participate in any judicial proceedings that may result from the report.

Patient or Scene Presentation:

- The patient may present with patterned burns or injuries suggesting intentional infliction
  - Injuries in various stages of healing (old bruises, etc.)
  - Injuries scattered over multiple areas of the body
  - Fractures or injuries inconsistent with stated cause of injury
  - The patient, parent, or caregiver responding inappropriately to the situation
  - Malnutrition or extreme lack of cleanliness of the patient or environment may indicate neglect
  - Signs of increased intracranial pressure without a readily explainable cause (fever, head trauma, etc.)

Procedures for Dealing with Suspected Abuse Patients:

- Stabilize and treat all injuries accordingly
- Immediately request law enforcement assistance
- Do not initiate a report to law enforcement or social services in front of the patient, parent, or caregiver
- If sexual abuse is suspected, discourage the patient from washing
- If patient, parent, or caregivers are hostile, immediately request law enforcement assistance
- Do not confront or become hostile to the parent or caregiver.
- Document
  - Verbatim (in quotation marks), all statements by the patient, the parent, or caregiver, including statements made about the manner of the injuries.
  - Document any abnormal behavior of the patient, parent, or caregiver.
  - Document the condition of the environment and other residents present.
  - Document in the PCR who received the report of suspected abuse or neglect
    - If reporting is done after PCR completion, an addendum should be written and attached with reporting date, time, who reported to, etc. This will serve to protect the Provider.
- Once a determination of abuse or suspected abuse has been made, notify the appropriate EMS Commander or Designated Medical Officer to provide support for the completion of reporting regulations and processes

Vital Signs Parameters

To ensure consistency in the assessment and treatment of patients that may be suffering circulatory system problems, the following definitions will apply:

Tachycardia
Resting heart rate greater than 100 bpm in adults

Bradycardia
Resting heart rate less than 60 bpm in adults
A child's heart rate should be evaluated based on age and condition. The heart rate of an anxious, sick, or injured child should be rapid. A heart rate less than 60 bpm coupled with signs of poor perfusion in children <8 years of age is an ominous sign.

Hypertension
Consistent resting blood pressure greater than or equal to 140/90 mmHg in adults

Hypotension

Consistent resting blood pressure (less than) < 90/60 mmHg (or Systolic BP < 90mmHg) in adults with associated signs and symptoms of hypoperfusion.

The goal in treating patients suffering from non-compressible bleeding is to maintain a systolic BP of 70 mmHg. This is referred to as permissive hypotension.

Trauma Alert Criteria: "Traumatic injury with signs of shock". The need to rapidly make a determination should be based on signs of hypoperfusion as evidenced by:

- Skin color and condition, **and**;
- Pulse rate and location, **and**;
- Capillary refill, **and**;
- Blood pressure

The blood pressure ATCEMS System will use to validate a "Trauma Alert" decision in an Adult will be a systolic blood pressure of < 90 mmHg.

BP of < 70mmHg + (age in years x 2), with associated signs and symptoms is considered hypotensive in a child.

Hyperglycemic

Blood Glucose level of > 300 mg/dl.

Hypoglycemic

Blood Glucose level of < 50 mg/dl with signs of Altered Mental Status.