The Clinical Operating Guidelines are Effective September 02, 2019 until revised.

Mark E. Escott, MD, MPH, FACEP, FAEMS, NRP
EMS System Medical Director
Office of the Medical Director
City of Austin/Travis County

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Contact us at:
517 South Pleasant Valley Road Austin, Texas USA 78741
Office 512.978.0000 Fax 512.978.0010
E-Mail: COGS@austintexas.gov

Introductory Letter to the System

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 the communities served regardless of race, creed, religion, national origin or the 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 and; 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.

Mark E. Escott, MD, MPH, FACEP, FAEMS, NRP
EMS System Medical Director
City of Austin – Travis County

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Clinical Standards

Version 090219 (MD 19-03)

Atypical Clinical Guideline Utilization and Online Medical Direction

Standard:

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

Purpose:

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

Application:

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

Cancellation or Alteration of Response

Standard:

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

Purpose:

To give the 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.
3. If cancelled, responders may, at their discretion, reduce their response to non lights and sirens (“Code 1”) and continue to the scene in order 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).

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.
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 (in quotation marks) all statements by the patient, the parent, or caregiver, including statements made about the manner of the injuries
   - 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 CS – 12.

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 Medical Director 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.

Patient Safety

Standard:

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

Purpose:

Give general direction for providers 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:

- For all Medication Administration refer to the medication dosing charts provided in the Drug Formulary to determine and verify drug dosages.
- For all Medication Administration perform a Medication Administration Cross Check (CP-02).
- Insure that OMD credentials are on your person and visible as required by DSHS.
- At the beginning of each shift verify and document the presence of all required equipment, medications, PPE and supplies.
- 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.
- 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.
- 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.
- 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 Medical Director (Clinical Procedure CP – 67) and the Agency’s designated contact. This does not include medications or equipment failures due to operator error.
- Agencies maintain all medical equipment in accordance with manufacturer’s recommendations including: periodic testing, calibrations and/or recertifying.
- If a clinical error or adverse patient occurs, contact your Agency’s designated performance improvement person or their designee as indicated below once the error or adverse event is identified.

  <u>Notification Sequence:</u>

  - For clinical discussion or concerns related to the error or adverse event, contact the on call System Medical Director immediately.
  - 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.

- Transport Patients in accordance with Patient Transport Standards CS-28, CS-31, Appendix A-02, and Clinical Reference (Transport Grid) CR-13.

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 **potentia**l 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 incidence 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; 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. (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 CS-27) 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:
    - **The definition of an adult is a person who is 18 years of age or older**
        - Adults have the right to consent to or refuse medical treatment
    - **The definition of a minor is:**
        - 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
            - *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*

Definition of a Patient

- 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:
    - *(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*
- 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:
    - Is on active duty with the US armed services;
    - 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);
    - Consents to diagnosis and treatment of any infectious/communicable disease with a reporting requirement;
    - Is unmarried and pregnant and consents to care related to the pregnancy, other than abortion;
    - Consents to examination and treatment relating to drug or alcohol dependency;
    - Is unmarried and has custody of their biological child, they may consent to treatment for the child

- **The guideline definition of a pediatric patient is:**
    - 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)
    - For the purpose of selecting appropriate treatment guideline, any patient < 37 kg or who can be measured using a PEDIA Tape.

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 A/TCEMS System Medical Director is responsible for designating the minimum data required for patient care reporting. The following is the minimum requirements for documentation on all patient encounters.

Application:

- For every patient contact, the following documentation requirements apply and must:
  1. Be truthful, accurate, objective, pertinent, legible, and complete with appropriate spelling, abbreviations and grammar.
  2. Use only approved medical abbreviations refer to *"Approved Medical Abbreviations" (Appendix A-01).*
  3. Reflect the patient's chief complaint and a complete history or sequence of events that led to their current request or need for care.
  4. Contain a detailed assessment of the nature of the patient's complaints and the rationale for that assessment.
  5. Reflect the initial physical findings, a complete set of initial vital signs, all details of abnormal findings considered important to an accurate assessment and significant changes important to patient care. Reflect ongoing monitoring of abnormal findings.
  6. Summarize all assessments, interventions and the results of the interventions with appropriate detail so that the reader may fully understand and recreate the events.
  7. For drug administrations, include the drug name, drug concentration, volume or dosage administered, route, administration time, indication, and response.
  8. List all treatments in chronological order. Response to treatments should also be listed
  9. For patients with extremity injury, note neurovascular status before and after immobilization. For patients with spinal immobilization, document motor function before/after spinal immobilization.
  10. For IV administration, document the catheter size, site, number of attempts, type of fluid, and flow rate.
  11. Include a lead II strip for all patients placed on the cardiac monitor. Any 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.
  12. Document clearly any requested orders, whether approved or denied and MD name.
  13. Document any waste of narcotics including the quantity wasted, where wasted, and must have the name of the person who witnessed the waste.
  14. Include an explanation for why an indicated and appropriate assessment, intervention, or action prescribed by the Clinical Operating Guidelines did **NOT** occur.
  15. Be available in an acceptable time period after the patient encounter by leaving the ePCR short form at the hospital if transported.
  16. Remain confidential and be shared only with legally acceptable entities.
  17. 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 separate PCR for their Organization.
  18. Once the PCR is completed, original document will not be modified for any reason. Any changes required to correct a documentation error or for clarification shall be recorded in an addendum.

Documentation of Vital Signs

Standard:

Vital signs are an essential 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 they could not be obtained.

Purpose:

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

Application:

1. Initial vital signs will be obtained manually with subsequent vital signs obtained mechanically 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:
   - 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.
   - GCS
3. When no ILS or above treatment is provided, palpated blood pressures are acceptable for **REPEAT** vital signs.
4. Based on patient condition and complaint, vital signs may also include:
   - Pulse Oximetry (required for patients with a respiratory complaint or finding or treatment for such)
   - Temperature
   - End Tidal CO2
5. If the patient refuses this evaluation, document the refusal in the PCR in accordance with the Refusal of Treatment or Transportation Standard (CS – 27).
6. When any components of vital signs were obtained using the cardiac monitor, the data should be exported electronically to the patient care report. Where values are inconsistent with manually obtained values, values may be appropriately edited to reflect the manually obtained values. Documentation should reflect this as an edit.
7. The pulse rate should be obtained through palpation. A pulse oximeter heart rate is also acceptable.
8. Record the time 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. **At a minimum, a set of vital signs is obtained initially and just prior to disposition.**
11. An initial set of vital signs is obtained once the patient can be accessed and the patient consents to assessment.
12. A set of vital signs is obtained just prior to completing the patient's final disposition (e.g. obtaining a refusal of transport, arrival at the ED, handing off the patient to hospital staff other than ED).

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

Standard:

Domestic violence is physical, sexual, or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. 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 hand 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 people < 18 years old Refer to CS – 03.

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) hot line 800-252-5400. This phone is answered 24 hours everyday. This should occur as soon as reasonably possible after leaving the scene (if patient refuses) or 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:

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

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:
   - 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) they may close to EMS transports for that particular patient category
   - 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)
   - 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

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

4. 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.

5. 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.
   If the patient refuses the recommended destination the EMS unit should transport the patient to a facility (not on diversion) of their choosing.

6. 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.

7. 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 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.

8. 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 Medical Director 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 OMD the badges of those individuals whose credentials have been revoked, or who are no longer affiliated with the organization.

Purpose:

Due to the variety of providers with different levels of training an ID badge system is required to ensure that everyone on scene 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.
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 ATCOMD 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 OMD 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 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 a process for guidance on Emergent inter-facility transfers (ETRAN).

Purpose:

To transport a patient who requires Advanced Life Support care 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. An 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 A/TCEMS System Clinical Operating Guidelines.
5. An A/TCEMS patient care record will be completed in accordance with the Documentation of the Patient Care Report Standard (CS – 10).
6. The following items are required equipment for all transfers.
    - Cardiac monitor/defibrillator
    - Combo kit with oxygen
    - 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 the receiving physician or facility whenever possible.

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 change 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 it includes the 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 COG's 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 COG's.
5. 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.

Location/Facility <u>exceptions</u> to MOT Requirement:

- **Transfers from St David's Bee Cave Satellite Emergency Department (SED) to St David's South Austin Medical Center**
- **Transfers from St David's Pflugerville Satellite Emergency Department (SED) to St David's North Austin Medical Center**
- **Transfers from St David's Cedar Park Satellite Emergency Department (SED) to St David's Round Rock Medical Center**
- **Private Physicians Offices**
- **Urgent Care Facilities**

Minimal 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:

Required PL1 and PL2 Equipment:	
Appropriate PPE*** **(≥ PL1)**	Stethoscope **(≥ PL1)**
Defibrillator (AED or Manual) **(≥ PL1)**	B/P cuffs **(≥ PL1)**
BVM with appropriate masks **(≥ PL1)**	Suction **(≥ PL1)**
O2 + delivery devices **(≥ PL1)** (CPAP) **(≥ PL2)**	OPA / NPA **(≥ PL1)**
ITD **or** Vent. Timing Lights attached to BVM **(≥ PL1)**	igel airway **(≥ PL2)**
Epi (1mg/mL) & IM supplies kit **(≥ PL2)**	Albuterol with nebulizer kit **(≥ PL2)**
Glucometer & test strips **(≥ PL1)**	Oral glucose **(≥ PL1)**
Tape **(≥ PL1)**	4X4 **(≥ PL1)**
Kerlix **(≥ PL1)**	
Required Equipment (In addition to equipment listed above):	
Saline lock equipment **(≥ PL3)**	Mucosal Atomization Device **(≥PL1)**
D10W in 250mL S/W for Infusion **(≥ PL3)**	Needles for thoracostomy **(≥ PL5)**
Surgical Cricothyrotomy kit **(≥ PL5)**	Magill forceps for FBAO **(≥ PL4)**
Laryngoscope & blades for FBAO **(≥ PL4)**	
Naloxone (IN) **(≥ PL1)** and (IM/IV) **(≥ PL3)**	

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.*

On-scene Authority
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:
    - EMS System Medical Director or designee
    - On-Line Medical Consultation Physician
    - On-scene Physician (In accordance with Physician on Scene Standard CS-23)
    - Credentialed PL 6
    - DMO or Training Captain PL 5 on Transporting Unit
    - Medic II (Credentialed PL 5) on Transporting Unit
    - Credentialed PL 4
    - Credentialed PL 3
    - Medic I (Credentialed PL 2) Transporting Unit
    - Credentialed PL 2
    - Credentialed PL 1
3. All significant or unresolved conflicts regarding on-scene management of patients should be reported via the appropriate chain of command and will be retrospectively reviewed in accordance to each organization's Event 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 Medical Director as soon as practical without causing an additional impediment to care.

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 the 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 a 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 prehospital 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 dealing with physicians on scene and to assure 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:**
    - The Credentialed Provider on-scene is responsible for management of the patient(s) and acts as the agent of the Medical Director or OLMC
    - 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:**
    - 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
    - The patient's personal physician must document his or her interventions and/or orders on the EMS Patient Care Record
    - OLMC should be notified of the participation of the patient's personal physician either from the scene or on arrival at the emergency department
        - *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 at the receiving facility. 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:**
    - 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:
        - manage the case exclusively
        - work with the intervener physician
        - allow the intervener physician to assume complete responsibility for the patient
            - *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*
    - The intervener physician must document his or her interventions and/or orders on the EMS Patient Care Record

Physician on Scene

- 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
- Medical orders are not accepted from any non-physician health care providers unless specifically approved by OLMC

Office of the Medical Director
Credential Audit

Standard:

To establish a standardized process for the Office of the Medical Director (OMD) 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 OMD as soon as they occur.

Application:

1. The OMD 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 OMD.
3. The Organization and the OMD will work together to resolve any roster discrepancy.
4. The OMD may provide rosters to individual Organizations or, all System Organizations as needed.
5. The OMD may audit the System on an as needed basis.
6. The OMD may include additional required information in conjunction with an audit including, but not limited to, confirmation (s) of education and/or skill competency compliance.

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" (OMDR – 09) 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" (OMDR – 3) defines the interventions available to credentialed providers: http://www.austintexas.gov/page/clinical-operating-guidelines

"System Clinical Reintegration" (OMDR – 20) 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"** (CS – 29). 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.

Provider Qualifications

Standard:

Define qualifications in specialty areas that may include additional training or maintenance requirements.

Purpose:

Establish qualifications for ATCEMS System providers with specialized training, guidelines or skills. These provider qualifications may have minimum credential levels, competencies, and/or other requirements which must be completed or maintained in addition to any requirements associated with a provider's System Credential. Qualifications are created and granted by the Medical Director independent of System Credentials and may be awarded, suspended or, revoked independent of or in conjunction with any action against a providers credentials. Below are the current qualifications approved by the Office of the Medical Director. Qualifications may be added or removed by the Medical director based on the needs of the EMS System.

- **System Educator (SED)**
- **Performance Management/Improvement Officer (PMI)**
- **System Credentialing Preceptor (SCP)**
- **Community Resource Paramedic Provider (CPP)**
- **Special Operations – Tactical Medic (TAC)**
- **Special Operations – Rescue (SOR)**
- **Immunization (IMM)**
- **Transport Provider (TSP)**
- **Phlebotomy Services Provider (PSP)**

For a list of requirements for each of the qualifications (OMDR – 02) see the OMD Website at: http://www.austintexas.gov/page/clinical-operating-guidelines

Refusal of Treatment and/or Transport

Standard:

To establish guidelines for Providers (includes **all** System Credentialed participants) when addressing issues of consent or for patients who wish to refuse the treatment and/or transportation offered.

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:

- 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

- Suffering from impaired present mental capacity

  OR

  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.

Refusal of Treatment and/or Transport

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

- Parent
- Grandparent
- Adult (18 or greater) sibling
- Adult (18 or greater) aunt or uncle
- 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.
- 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.)
- Adult who has actual care, control, and possession of a child under the jurisdiction of a juvenile court
- A court having jurisdiction over a lawsuit affecting the parent-child relationship of which the child is the subject
- 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.
- A managing or possessory conservator or guardian.

Application:

1. All patients refusing treatment and/or transport must :
   - Be at least 18 years of age or an Emancipated Minor;
   - Be able to demonstrate present mental capacity in accordance with the Determination of Capacity Procedure: Clinical Procedure CP - 23.
   - 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.)
   - 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.

Refusal of Treatment and/or Transport

5. When a patient with present mental capacity wishes to refuse care:
   - The patient will be instructed that the evaluation and/or treatment is incomplete due to the limitations of the pre-hospital care environment;
   - 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.
   - 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.
   - 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.

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. EMS must provide appropriate stabilization and protection to all patients during EMS transport.

Application:

1. Drive cautiously 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 patient less than 40 lbs are restrained with an approved child restraint device secured as per manufacturer's instructions if not secured by other means as part of patient care.
4. Do not transport the pediatric patient who meets trauma activation criteria in a child seat that was involved in the collision.
5. Ensure that all EMS personnel use the available provider restraint systems during transport when not otherwise engaged in patient care activities.
6. Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
7. Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
8. Do not hold or allow the parents or caregivers to hold pediatric patients during transport.
9. For patients with medical conditions that may be aggravated by stress, make every attempt to optimize safety.

OMD 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 Medical Director Clinical Operating Guidelines. This status is simply referred to as "credentialed."

OMD Administrative Hold – Providers Credentials are deactivated for a period of time while non-clinical administrative issues are reviewed and resolved. The OMD 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 OMD 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 OMD 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 OMD.

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 OMD.

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 OMD.

OMD Modification or Revocation of Credential to Practice

OMD Administrative Hold:

The OMD Administrative Hold is applied in circumstances where non-clinical performance/behavior concerns or an administrative issue is raised by an agency other than the OMD. 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 "OMD 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 OMD based on compelling extenuating circumstances. Approval of such extension is at the discretion of the OMD. 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 OMD within five (5) business days.

    b. Upon proof of the renewal of certification/license the removal of the OMD Administrative Hold is subject to the successful completion of the Reintegration Credentialing Requirements (OMDR – 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 OMD Administrative Hold with or without official notification of the OMD. A provider is required to notify the Office of the Medical Director 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 OMD based on compelling or extenuating circumstances. Approval of such extension is at the discretion of the OMD. 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 Medical Director.

    b. In addition PL3 – PL6 credentialed providers must continue affiliation with a "Tier 2 Organization" as defined by the Office of the Medical Director 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.

OMD Modification or Revocation of Credential to Practice

3. **Action Taken By IAED and/orTDSHS** - *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 OMD 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 "OMD Administrative Hold" pending the completion of the IAED or TDSHS process. The OMD 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 OMD the Administrative Hold may be extended pending conclusion of the OMD 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 OMD 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 OMD 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 OMD 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 (*OMDR - 20*) their credential will be placed on OMD Administrative Hold pending their return and successful completion of all elements of the reintegration process.

Process: The process for applying and removing the OMD 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 OMD to accommodate the circumstances.

Notification: Notification of any of the above five (5) items from an Organization to the OMD 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, OMD Chief of Staff and the Clinical Operations, Practices and Standards Coordinator.

OMD Modification or Revocation of Credential to Practice

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 Medical Director.* 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 (*OMDR - 20*) will be granted a provisional credential to facilitate their completion of the OMD 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 OMD 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 OMD in writing of their desire to surrender their credential to practice and return their credentialing badges to the OMD.

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 Medical Director independently or in conjunction with the provider's organization(s) or other appropriate authority. The decision of the Medical Director to revoke a provider's credential to practice is final and not subject to appeal. 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 OMD 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 OMD within five (5) business days.

b. The OMD 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.

Additional Reference Documents:

Clinical Standards CS – 04, CS – 25, and OMD Reference Documents OMDR – 09, OMDR - 20.

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 OMD (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 EMS System Medical Director 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 OMD.
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 OMD.
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 OMDR 1, OMDR 4, OMDR 5, OMDR 12, OMDR 23, 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.

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 guardian (in the case of a minor) 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 OLMC 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 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 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 patients 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.

Transport Destination Decision

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 OLMC. 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 an MOT or if transport has been arranged by another healthcare provider the transport provider should transport the patient to the destination indicated by the MOT or sending healthcare provider in accordance with the MOT 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.

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.

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.

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 AEMT or Paramedic National Registry 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 OMD-required CE at their current National Registry level

4. The provider must complete all OMD-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 Medical Director 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, 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.

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 minimize 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.
4. All details of medication administration must be accurately and completely documented in the patient care record.

Field Guide for COGs

The COGs indicate Provider Levels not currently filled and; medications and procedures not currently approved for System distribution and/or use. These are included for future System clinical care expansion. The System's various Minimum Equipment Lists will be updated as new equipment and medications are approved for use and/or distribution per DSHS requirements.

Universal Patient Care

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **For the dosing of medications or electrical therapy a pediatric patient is < 37 Kg and also defined by the PEDIA Tape.**
- **If the patient does not fit on the tape, they are considered an adult**
- **Use the PEDIA Tape for ALL pediatric patients to estimate weight**

Signs & Symptoms:

-

Differential:

- **V**ascular
- **I**nfectious/Inflammatory
- **T**rauma/Toxins
- **A**utoimmune
- **M**etabolic
- **I**diopathic
- **N**eoplastic
- **C**ongenital

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Demonstrate professionalism and courtesy; Scene/Crew Safety/PPE; with appropriate equipment/medications to patient side
- Use closed loop communications with all on scene providers
- Initial Assessment/Physical Exam
- **Vital Signs**
  - BP, pulse, resp. rate at every 5 → 15 minutes per patient condition
  - Temperature as needed
- Blood Glucose Level assessment as appropriate
- Orthostatic vital sign assessment if appropriate for patient condition
- **Oxygen:** Target SPO2 92% ↔ 96%
- **Use Medication Cross Check for all Medication Administrations**

PL2 PL3 PL4 PL5

- ETCO2 as appropriate if equipped
- 12 Lead, 3 lead, 4 lead ECG lead placement/acquisition (not interpretation)
- If the patient meets any Rapid 12 lead criteria: Providers attach ECG electrodes ASAP

PL3 PL4 PL5

- IV/IO access as appropriate for patient condition

PL4 PL5

- Monitoring & Interpretation of ECG
- If the patient meets any Rapid 12 lead criteria: Providers are to obtain a 12 lead ECG within 5 minutes of patient contact. Transmit 12 Lead ASAP
- Consider ultrasound for specific conditions, when available and properly trained.

PL5

- Patients may be referred to a BLS Transport Agency in accordance with the Transport Decision Process listed on pages 4 & 5 of this COG.

-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Minimum exam for every patient is: V/S, mental status/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

Pearls Continued:

Refusal of Care, Lift Assist & Capacity Checklists

Refusal of Care/Treatment Checklist:

- ❑ Pt is ≥ 18 or emancipated minor
- ❑ Pt is not suicidal/homicidal
- ❑ Pt demonstrates capacity
- ❑ Pt understands evaluation is incomplete
- ❑ Solutions to obstacles have been sought
- ❑ Pt instructed to seek medical attention
- ❑ Pt instructed to call back at any time
- ❑ Above documented fully in PCR
- ❑ The following are considered **high risk** patient/situations:

    - o *Age greater than 65 or Less than 3?*
    - o *Pulse greater than 110 or less than 60?*
    - o *Systolic BP greater than 200 or less than 90?*
    - o *Respirations greater than 30 or less than 12?*
    - o *Serious chief complaint (chest pain, SOB, syncope)*
    - o *Significant MOI or high suspicion of injury (Trauma General COG for CDC Steps 1, 2, 3)?*

Any "High Risk" patient as defined above **must** be assessed by a **PL5** Provider or Responder.

EXCEPTION: If a **PL5** or Responder has not been dispatched to the scene and the primary complaint is ambulatory dysfunction i.e. "lift assist," then there **must** be an offer for a **PL5** evaluation. If the patient subsequently refuses a **PL5** evaluation, the On-Call System Medical Director (OCSMD) **must** be contacted. Following contact with the OCSMD, a **PL1** or above may complete the refusal form based on OCSMD recommendations.

Even when a **PL5** Provider or Responder completes a full evaluation, consultation with the On Call System Medical Director is recommended for all "high risk" refusals.

Lift Assist History Checklist for BLS and ILS Providers/Responders:

- ❑ Have you had any recent falls or illness that include fever, chills, nausea, vomiting, diarrhea, shortness of breath, chest pain, dizziness or other illness?
- ❑ 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?

In addition to the "high risk" criterion above: If **YES** to any of these 4 checklist questions; the patient is in the "high risk" category. The patient **must** be offered an evaluation as indicated above.

Pearls Continued:

Risk-Benefit Disclosure (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 fall or that occurred because of your fall. 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.

Capacity Checklist:

- ❑ Patient is able to express in their own words:
  - o An understanding of the nature of their illness
  - o An understanding of the risks of refusal including death
  - o An understanding of alternatives to EMS treatment/transport
  - o Pt can 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.
  - o Orientation to person, place or time that differs from baseline
  - o History of drug/alcohol ingestion with appreciable impairment such as slurred speech or unsteady gait
  - o Head injury with LOC, amnesia, repetitive questioning
  - o Medical condition such as hypovolemia, hypoxia, metabolic emergencies (e.g., diabetic issues); hypothermia, hyperthermia, etc.
- ❑ If any question exists about their capacity contact the On Call System Medical Director

Pearls Continued:

Transport Decision Process

Purpose: To define patients that cannot be transferred to a provider other than a Credentialed **PL5**.

Application:

For the purposes of this standard, "**PL5**" refers to an Austin/Travis County EMS System 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 credentials.

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 practice of the System Credentialed provider refer to OMD Reference OMDR – 03.
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 with the following: Trauma Alert (steps 1 and/or 2) listed in the Trauma General COG, Stroke Alert, STEMI Alert, or Syncope.
5. Any patient for which the transporting providers **do not agree** can be safely transported without a **PL5** attending in the back of the ambulance.
6. Any "High Risk" patient as defined above must be assessed by a **PL5**.

Exceptions to the above listed items:

- Patients listed as "High Risk" may be transported by a **≥ PL2** provider if, the **PL5** provider completes an assessment and; the patient does not require any care/monitoring beyond the scope of practice of the **≥ PL2**.
- Patients who received a **single dose** of intranasal (IN) narcotic for the purpose of pain control in a traumatic injury **not involving** the head, chest, or abdomen.
- Patients having a Syncopal episode, who are < 50 yrs. old, have a normal blood sugar, and a normal ECG.
- Monitor IV Saline Lock.
- Monitor PO route medications administered by a **PL5**.

Pearls Continued:

Transport Decision Process Cont.

- Any hypoglycemic patient that returns to baseline mental status after treatment.
- 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. Patients who fall under the Discontinuation of Prehospital Resuscitation and the decision for TOR must be discussed between the **PL5** and the Physician.
- Refer to OMDR-3 for additional Scope of Practice.

Any "High Risk" patient as defined above **must** be assessed by a **PL5** Provider or Responder.

EXCEPTION: If a **PL5** Provider or Responder has not been dispatched to the scene and the primary complaint is ambulatory dysfunction i.e. "lift assist," then there **must** be an offer for a **PL5** evaluation. If the patient subsequently refuses a **PL5** evaluation, the On-Call System Medical Director (OCSMD) **must** be contacted. Following contact with the OCSMD, a **PL1** or above may complete the refusal form based on OCSMD recommendations.

Even when a **PL5** Provider or Responder completes a full evaluation, consultation with the On Call System Medical Director is recommended for all "high risk" refusals.

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

Abdominal Pain

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **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 Pulmonary embolus
- Liver (hepatitis, CHF)
- Peptic ulcer disease / Gastritis
- Gallbladder
- Myocardial Infarction
- Pancreatitis
- Kidney Stone
- Abdominal aneurysm
- Appendicitis
- Bladder / Prostate disorder
- Pelvic (PID, Ectopic pregnancy, ovarian cyst)
- Mesenteric ischemia
- Diverticulitis
- Bowel obstruction
- Gastroenteritis (infectious)

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- **Oxygen**, Target SPO2 92% ↔ 96%

- IV access
- Adult: N/V Ondansetron **(Zofran)** PO/IM/IV
- Pediatric: N/V Ondansetron**(Zofran)** IV Do Not administer if < 6kg
  or Ondansetron**(Zofran)** PO Do Not administer if < 12kg
- IV fluid with **Isotonic Crystalloid** as needed for dehydration
- Diphenhydramine IV/IM/PO if N/V refractory to Ondansetron

- ECG Assessment
- Pain Management Guideline as needed

- Haloperidol IV/IM for refractory N/V

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.
- Orthostatic v/s do not need to be assessed on obviously Hypotensive patients.
- Mesenteric ischemia presents with severe pain with 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

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Avoid intubation of the pediatric patient when possible. OPA/NPA is preferred.
- Children compensate well initially but decompensate quickly and 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:

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

- BLS FBAO evaluation/removal
- Place NPA and/or OPA and ventilate with BVM
- **Oxygen**, including passive apneic oxygenation 25 LPM with Nasal Cannula
- SPO_2 monitor

- BIAD (Cardiac Arrest only)
- EtCO2 if equipment is available
- 12 lead placement and acquisition if equipment is available

- BIAD if patient is obtunded and without gag reflex
- IV as appropriate to patient condition (IO in cardiac arrest/critical)

- May use IO in non-cardiac arrest patients as appropriate to patient condition
- Direct Laryngoscopy FBAO evaluation/removal
- Gastric Tube as needed
- Evaluate ECG

- All Advanced Airway procedures will include passive apneic oxygenation where possible
- ETCO2 is mandatory for intubations
- Video laryngoscopy intubation (King Vision)
- Direct laryngoscopy intubation with Gum bougie
- Nasotracheal intubation
- Post intubation medications
  - Ketamine IM
  - Midazolam IV
  - Vecuronium IV
- Surgical cricothyroidotomy (Patient ≥10 years of age)
- Needle cricothyroidotomy (pediatrics)

- Push dose Epinephrine IV for hypotension prior to intubation
- **Rocuronium** IV or **Succinylcholine** IV for RSI

Consult:

On call **System Medical Director** as needed.

Pearls:
• **Refer to Drug Formulary Charts for <u>ALL</u> Medication Dosing for Adult 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. • Adult BVM bag volume is 1700mL, Pediatric BVM bag volume is 470mL. Normal adult tidal volume is around 500 mL. Do not over ventilate. • 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 in any hypotensive 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, and 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 patients respiration rate if tachypnea prior to intubation for (respiratory acidosis/buffering). • Vecuronium should never be given without a sedative.

Pearls Continued:

Gastric Tube Insertion

Clinical Indications:

- Adult and pediatric cardiac arrest or comma following placement of advanced airway
- Patients who are vomiting or, at risk for aspiration due to altered mental status
- When requested by On-Line Medical Control

Contraindications:

- Actual or suspected laceration or perforation of the esophagus
- Suspected fractures of the cribiform plate as evidenced by severe maxillofacial trauma (Nasal gastric tube placement only)
- Ingestion of a caustic substance
- Anticoagulant use (e.g., coumadin, warfarin) or disorders of coagulopathy (hemophilia) is a relative contraindication

Procedure:

1. Select appropriate sized tube according to patient size and measure the correct length for insertion.
   - 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
   - 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.

Pearls Continued:

Needle Cricothyrotomy

Indications:

- Patients <10 years of age
- With obstructed airway or in whom all conventional methods of oxygenation have failed

Contraindications:

- Anytime a less invasive maneuver would allow oxygenation of the patient
- Tracheal transection

Notes/Precautions:

- Cricothyroid membrane is located by:
  - Palpating the protuberant midline portion of the thyroid cartilage ("Adams apple")
  - Move the fingertip inferiorly until it rests in the soft, flat depression between the thyroid cartilage and the cricoid cartilage
- In order to minimize the risk of dislodgement:
  - The individual completing the procedure should direct any/all patient movement
  - BVM is to be disconnected from the ET tube adapter any patient movement
  - The catheter is to be reassessed following any patient movement
- Appropriate size angiocath is generally 14-18 gauge, depending on size of the child

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 Chlorohexadine.
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 appropriate sized angiocath to a 12 cc 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.
    - Catheter and ET tube adapter are to be secured at all times by hand
    - Catheter should secured with tape and benzoin to prevent slipping
11. Providers may continue to use backboards to assist in patient movement as needed.

Pearls Continued:

Surgical Cricothyrotomy

Clinical Indications:

- Patient ≥10 years of age with a failed airway

Contraindications:

- Anytime a less invasive maneuver would allow oxygenation of the patient
- Tracheal transection
- Fractured larynx, significant damage to the cricoid cartilage or larynx or inability to identify appropriate landmarks

Notes/Precautions:

- In order to minimize the risk of dislodgement:
  - The individual completing the procedure should direct any/all patient movement
  - BVM is to be disconnected from the ET tube during any patient movement
  - The ET tube is to be reassessed following any patient movement

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 chlorohexadine as time allows.
3. 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.
4. 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.
5. Visualize the CT membrane and perform a horizontal punch incision through the CT membrane. Upon completion of this incision, activate the blade safety component.
6. After blade safety activation place finger of non-dominant hand into the incision to dilate the incision and serve as a landmark.
7. Advance the angled end of an eschmann introducer (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”.
8. Advance an appropriate sized cuffed endotracheal tube (ETT) over the bougie (1-2 cm past cuff) and remove the bougie.
9. Maintaining control of the proximal end of the ETT, inflate the cuff and confirm placement of the ETT.
10. Secure the ETT with tape maintaining continuous stabilization by hand. ETT is to be secured by hand at all times.
11. Providers may continue to use backboards to assist in patient movement as needed.

Pearls Continued:

Tracheostomy Pearls:

- **Always talk to family / caregivers as they have specific knowledge and skills.**
- **Important to ask if patient has undergone laryngectomy. This does not allow mouth/nasal ventilation by covering stoma.**
- Use patient's equipment if available and functioning properly. Estimate suction catheter size by doubling the inner tracheostomy tube diameter and rounding down.
- 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.
- DO NOT force suction catheter. If unable to pass, then tracheostomy tube should be changed.
- Always deflate tracheal tube cuff before removal. Continual pulse oximetry and EtCO2 monitoring if available.
- **DOPE: D**isplaced tracheostomy tube / ETT, **O**bstructed tracheostomy tube / ETT, **P**neumothorax and **E**quipment failure.

Tracheostomy Tube Change/Replacement

Clinical Indications:

Presence of Tracheostomy site with urgent or emergent indication to change the tube, such as:

- Obstruction that will not clear with suction
- Dislodgement
- Inability to oxygenate/ventilate the patient without other obvious explanation

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 PCR

Allergic Reaction

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Fluids and Medication titrated to maintain a SBP >70 + (age in years x 2) mmHg

Signs & Symptoms:

- Edema / Voice Changes
- Itching or hives
- Coughing / wheezing or respiratory distress
- Chest or throat constriction
- 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** Hypotension
- If patient does not have EPI Pen then: **Epinephrine** IM **Do Not admin. if <8kg**
- **Oxygen:** Target SPO2 92% ↔ 96%
- Cold pack to insect bite or sting site & remove bee stinger if present
- Basic Airway Management as needed

- **Albuterol** via Nebulizer
- CPAP up to 5 PEEP if refractory to Albuterol

- IV access
- IV Fluid Therapy with **Isotonic Crystalloid** titrated to Adult SBP ≥ 100
- **Diphenhydramine** PO/IV/IM **Do Not admin if <5kg**
- Dystonic Reaction: **Diphenhydramine** IV/IM **Do Not admin if <5kg**

- **Epinephrine** IM up to 3 additional doses **Do Not admin. if <8kg**
- **Methylprednisolone** IV
- Cardiac Monitor and 12 lead ECG
- ETCO2 if appropriate

- **Epinephrine** infusion until the patient stabilizes **Do Not admin. if <8kg**
- Advanced Airway Management as needed

- Rapid sequence intubation for impending airway compromise
- Push dose **Epinephrine** IV

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Continuous reassessment for rebound reaction with need for additional EPI. Dosing.
- Lungs should be reassessed between each dose of Albuterol prior to continuing the neb.
- Any patient with respiratory symptoms or extensive reaction should receive IV or IM diphenhydramine.
- The shorter the onset from exposure to symptoms, the more severe the reaction.
- **Epinephrine is the single most important intervention. In this setting it is a small risk for high benefit.**

Altered Mental Status

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Use volume control device (IV Burette) for Dextrose Infusions.
- Upper limit BGL is 200

Signs & Symptoms:

- Decreased mental status
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin; fruity breath; Kussmaul resp; signs of dehydration)

Differential:

- Brain trauma
- CNS (stroke, tumor, seizure, infection)
- Cardiac (MI, CHF)
- Infection
- Thyroid (hyper / hypo)
- Shock (septic, metabolic, traumatic)
- Diabetes (hyper / hypoglycemia)
- Toxicologic/Carbon Monoxide
- Acidosis / Alkalosis
- Heat Stroke or Hypothermia
- Pulmonary (Hypoxia)
- Electrolyte abnormality
- CO/Cyanide

Clinical Management Options:

PL 1	PL 2	PL 3	PL 4	PL 5	PL 6	
						➢ **Oxygen:** Target SPO2 92% ↔ 96% ➢ BGL assessment: If BGL < 50: **Oral Glucose** (with intact gag reflex) ➢ If BGL > 50: Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment ➢ Basic Airway Management as needed
						➢ Positive Stroke Screen and Glucose > 50 and Last known well ≤ 24 hrs. Declare "Stroke Alert" and < 15 minute on-scene time
						➢ IV access ➢ If BGL < 50 **Dextrose Infusion**, Titrate to patient condition and response. ➢ If BGL < 50 and, no IV access **Glucagon** ➢ If BGL > 300 (> 200 Pedi) or Signs of Dehydration: IV infusion of **Isotonic Crystalloid**
						➢ IO access as needed ➢ Cardiac Monitor and 12 Lead ECG, ETCO2, CO
						➢ Advanced Airway Management as needed
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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 the clinical picture. Alcoholics frequently develop hypoglycemia.
- Hyperglycemia is treated with fluids since these patients are volume depleted.
- Patents on oral hypoglycemics or long acting insulin are at risk for repeat episodes of hypoglycemia, monitor closely and encourage transport.
- If hypoglycemic patients have returned to baseline and wish to refuse care make certain 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.

Pearls Continued:

Cincinnati Pre-hospital Stroke Screen

Clinical Indications:

- Assessment of patient currently exhibiting signs and symptoms associated with stroke

Procedure:

1. Initiate assessment and treatment of the suspected stroke patients in accordance with the Stroke Guideline. Utilize STROKE CHECKLIST listed below whenever possible.
2. Ascertain the last time the patient was seen normal to establish the time of **"last known well".**
3. Obtain a blood glucose level according to the blood glucose procedure.
4. Perform the Cincinnati Prehospital Stroke Screen (CPSS).
   - All portions of CPSS must be completed. Any abnormality in the screening is positive for stroke
5. If time of "last known well" of current symptoms (as defined above) is ≤ 24 hrs., the blood glucose reading is > 50 and the CPSS is positive declare a STROKE ALERT and initiate transport per Transport Guideline CR-13.
6. Whenever possible identify a family member or historian to accompany the patient to the hospital.

Cincinnati Prehospital Stroke Screen (CPSS)

Test	Finding
Facial Droop: Have the patient smile or show 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, for 10 seconds	❑ **Normal** – both arms move the same or both arms are 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: the forearm will pronate and the arm will drift downwards.**

Pearls Continued:

Insulin Pump

Clinical Indications

- Patient that is hypoglycemic with altered mentation and an insulin pump in place

Contraindications

- None

Notes/Precautions:

- Care is directed at treating hypoglycemia first, then stopping administration of insulin

Procedure

1. Refer to appropriate PPE procedure.
2. Turn off insulin pump, if possible.
3. If no one familiar with the device is available to assist, disconnect pump from patient by:
   - Using quick-release where tubing enters dressing on patient's skin **-or-**
   - As a last resort completely removing the dressing, thereby removing the subcutaneous needle and catheter from under patient's skin. Use caution to avoid needle stick as it will be without any safety features.
4. Transport patient to hospital.
5. If patient is refusing transport against medical advice (AMA):
   - Encourage the patient to eat,
   - Ensure the patient is with a competent person to observe the patient and assure they eat,
   - Instruct them to follow-up with their physician
   - Instruct them to call back if symptoms return.

Behavioral & Excited Delirium

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**

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:

- see Altered Mental Status differential
- Hypoxia
- Alcohol Intoxication
- Toxin / Substance abuse
- Medication effect / overdose
- Withdrawal syndromes
- Bipolar (manic-depressive)
- Schizophrenia, anxiety disorders, etc.
- Hypertensive Emergency
- Seizure/Postictal

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ Scene Safety, **Oxygen** when safe ➢ BGL and SPO2 assessments (Target SPO2 92% ↔ 96%) ➢ Physical Restraint if needed ➢ Cooling measures as needed ➢ Basic Airway Management as needed
						➢
						➢ IV Access when safe ➢ Fluid therapy as needed with **Isotonic Crystalloid**
						➢ If patient is suspected of excited delirium suffers **cardiac arrest,** consider a fluid bolus and **Sodium Bicarbonate** early
						➢ **Midazolam** IM/IV/IN ➢ Antipsychotic: **Haloperidol** ➢ Sedation: **Ketamine** IM (preferred for violent/combative patient) ➢ If sedated: Continuous Cardiac, ETCO2, SPO2 monitoring is required ➢ Advanced Airway Management as needed
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Consider your safety first. Physical Restraint should be performed/assisted by Law Enforcement when available.
- All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.
- Any transported patient who is handcuffed or restrained by Law Enforcement should be accompanied by an officer whenever possible. If not possible law enforcement must be immediately available.
- Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, domestic violence or child abuse)
- Restrained patients **must never** be maintained or transported in a prone position.
- Cold **Isotonic Crystalloid** boluses 30 ml/kg with temperature ≥ 104 (up to 2 liters max 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.

Pearls Continued:

Restraints

Clinical Indications:

- Any patient who may harm himself or others, may be gently restrained to prevent injury to the patient or crew. Physical or chemical restraint must be humane and used only as a last resort. Other means to prevent injury to the patient or crew must be attempted first. These efforts could include reality orientation, distraction techniques, verbal distraction, or other less restrictive therapeutic means

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 highly recommended.
9. **If the above actions are unsuccessful, or if the patient is resisting the restraints, sedation should be utilized** in accordance with the Behavioral/ Excited Delirium Guideline. At this time the patient must be constantly monitored by a PL5 Credentialed Provider with ECG, ETCO2, 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.

Behavioral & Excited Delirium

COG Updated: 10.01.18
(MD 18 – 08)

Pearls Continued:

Restraints Checklist:

- ❑ All other calming attempts have failed (verbal de-escalation and/or reduce stimulation)
- ❑ Adequate personnel to effect restraint (consider LE)
- ❑ Place Pt. in supine position restrained with1 arm up and 1 arm down (unless clinically contraindicated)
- ❑ PD immediately available if handcuffed
- ❑ EMS personnel in constant attendance
- ❑ Chemical sedation administered
- ❑ Continuous SPO2, ETCO2, ECG Monitor, Vital Signs
- ❑ Continuous assessment of neurovascular status every 15 min.
- ❑ Adequate personnel for transport
- ❑ Excited Delirium considered
- ❑ Documentation:
  - o Efforts prior to restraint
  - o Time of restraint
  - o Chemical sedation
  - o Continuous monitoring
  - o Neurovascular status evaluation Pulse, Motion, Sensorium (PMS)
- ❑ Physical and/or chemical restraints will be reviewed on a periodic basis.

Bites and Envenomation

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 kg**	• 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	• 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:

PL1 PL2 PL3 PL4 PL5 PL6

- If Insect Bite:
  - Remove stinger if appropriate
  - Apply ice pack
  - Minimize movement. Remove constricting items
- If Snake Bite:
  - Splint limb, bandage and place at level below heart.
  - Minimize movement.
  - Remove constricting items
  - **NO Ice**
-
- Pain Management Guideline as needed
-
-
-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.
  -- Coral snake bites are rare: Very little pain but very toxic. "Red on yellow - kill a fellow, red on black - venom lack."
  -- 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).
- 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

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 Kg** • Pediatric hypotension is defined as a SBP <70 + (age in years x 2) mmHg	• Burns, pain, swelling • Dizziness • Loss of consciousness • Hypotension/shock • Airway compromise/distress singed facial or nasal hair, hoarseness / wheezing	• 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 SPO2 92% ↔ 96% ➢ Remove rings, bracelets, and other constricting items ➢ If Thermal burn: < 10% body surface area 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 burn
						➢
						➢ IV Access as needed ➢ 2nd or 3rd degree burn >10% BSA: **Isotonic Crystalloid** IV per Parkland Burn Formula 1st hour after burn chart see page 2 of 3 ➢ **Pain Management Guideline**
						➢ Continuous ETCO2, CO monitoring
						➢ **Calcium Chloride** IV for hydrofluoric acid burns with unstable v/s (such as hypotension, tachycardia, bradycardia, ectopy and ECG changes)
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

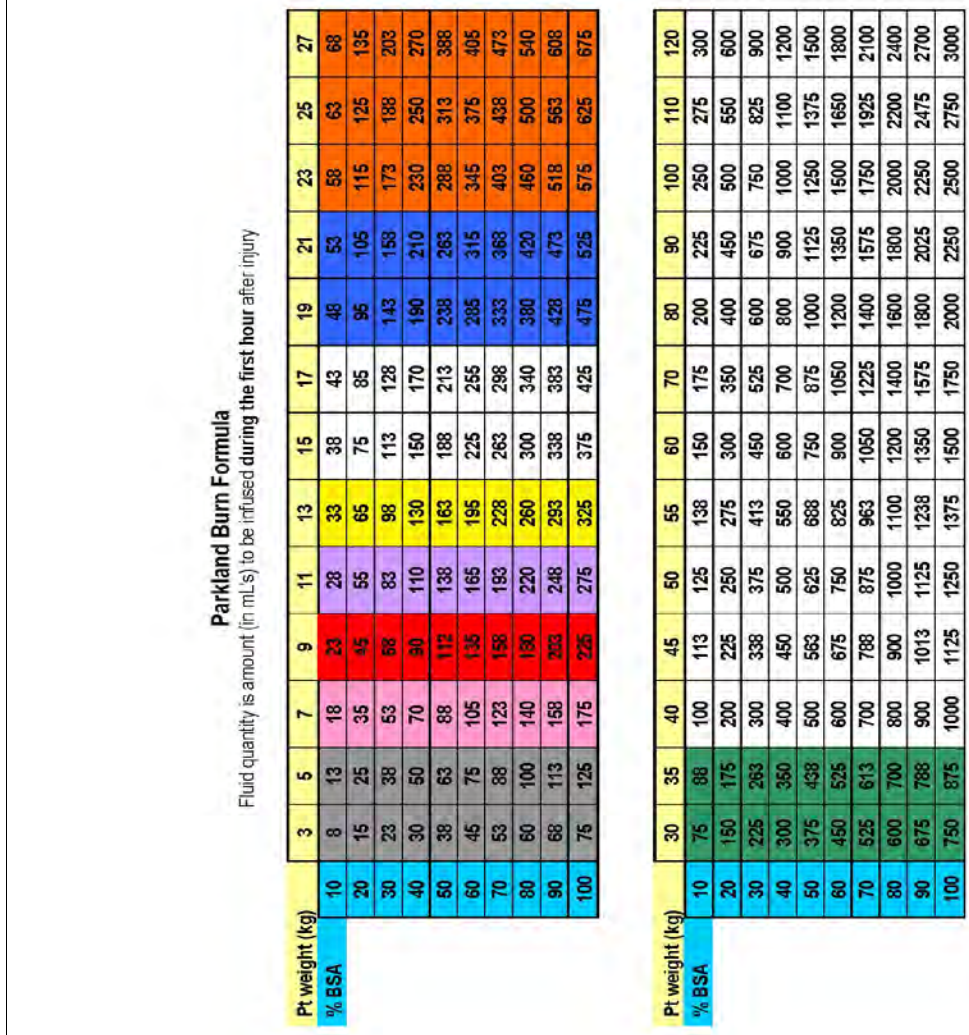
- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Evaluate BSA : Use chart or use palm side of patients hand = 1% BSA

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 - Never apply ice or cool burns that involve >10% body surface area.
- 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

Burns

Pearls Continued:



Parkland Burn Formula

Fluid quantity is amount (in mL's) to be infused **during the first hour** after injury

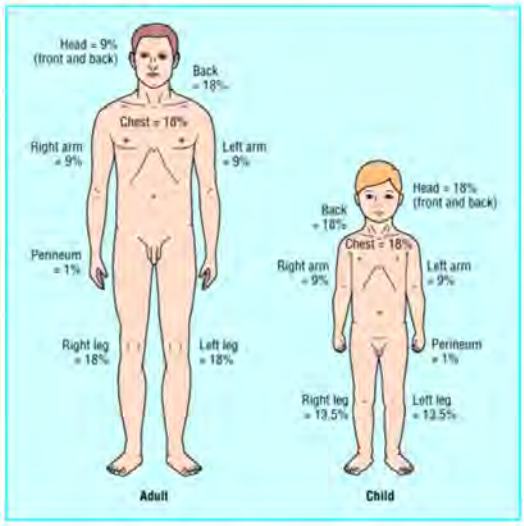
Pt weight (kg)	3	5	7	9	11	13	15	17	19	21	23	25	27
% BSA													
10	8	13	18	23	28	33	38	43	48	53	58	63	68
20	15	25	35	45	55	65	75	85	95	105	115	125	135
30	23	38	53	68	83	98	113	128	143	158	173	188	203
40	30	50	70	90	110	130	150	170	190	210	230	250	270
50	38	63	88	112	138	163	188	213	238	263	288	313	388
60	45	75	105	135	165	195	225	255	285	315	345	375	405
70	53	88	123	158	193	228	263	298	333	368	403	438	473
80	60	100	140	180	220	260	300	340	380	420	460	500	540
90	68	113	158	203	248	293	338	383	428	473	518	563	608
100	75	125	175	225	275	325	375	425	475	525	575	625	675

Pt weight (kg)	30	35	40	45	50	55	60	70	80	90	100	110	120
% BSA													
10	75	88	100	113	125	138	150	175	200	225	250	275	300
20	150	175	200	225	250	275	300	350	400	450	500	550	600
30	225	263	300	338	375	413	450	525	600	675	750	825	900
40	300	350	400	450	500	550	600	700	800	900	1000	1100	1200
50	375	438	500	563	625	688	750	875	1000	1125	1250	1375	1500
60	450	525	600	675	750	825	900	1050	1200	1350	1500	1650	1800
70	525	613	700	788	875	963	1050	1225	1400	1575	1750	1925	2100
80	600	700	800	900	1000	1100	1200	1400	1600	1800	2000	2200	2400
90	675	788	900	1013	1125	1238	1350	1575	1800	2025	2250	2475	2700
100	750	875	1000	1125	1250	1375	1500	1750	2000	2250	2500	2750	3000

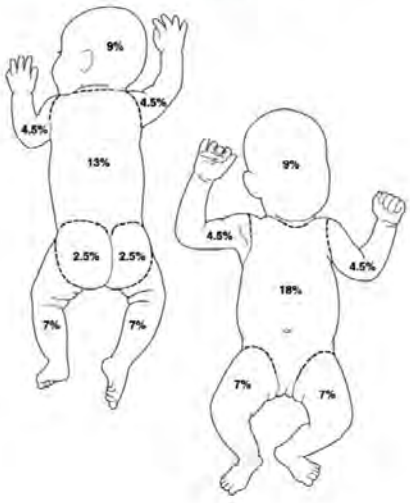
Pearls Continued:

Rule of Nines

The Rule of Nines is commonly used to provide a rough estimate of burn injury size. If the burned areas are irregular in shape or widely distributed, an alternate method of estimating the burn area is to visualize the patient's palm as being equal to 1% of body surface area. This is referred to as the "Rule of Palm."



Infant Rule of Nines Chart



Carbon Monoxide

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:		
Pediatric Pearls: • **< 37 kg**	**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	
						➢ Scene Safety ➢ Measure COHb % (SpCO) If equipment is available with covered or shielded probe ➢ If SpCO 0% to 5 %: ○ No further medical evaluation of SpCO required* ➢ If SpCO > 5 %: ○ 100% Oxygen by NRB regardless of SPO2 reading, and transport to ED
						➢ 3/4/12 Lead placement/acquisition of ECG
						➢ IV Access if needed ➢ IV fluid with **Isotonic Crystalloid** as needed
						➢ Monitoring & Interpretation of ECG ➢ In fire victims with lethargy, AMS or Cardiac Arrest, consider Cyanide Guideline
						➢
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- *** Fetal hemoglobin has a greater attraction for CO than maternal hemoglobin. Females who are known to be pregnant or who could be pregnant should be transported to the ED.**
- 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 Arrest, Pulseless VTACH & VFIB

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:		
Pediatric Pearls: • **< 37 kg** • **Pediatric cardiac arrest is most often due to respiratory arrest. Prioritize early ventilation & airway management. Children are not usually benefitted by early transport with CPR in progress.** • **Focus on rapid & early BLS airway and ventilation tools. Intubation may not be the best option for these patients.**	**Signs & Symptoms:** • Unresponsive • Abnormal Breathing (gasps) • Pulseless • No auscultated heart tones • Obvious Death	**Differential:** • Respiratory failure • Foreign body • Hyperkalemia • Infection (croup, epiglottitis) • Hypovolemia (dehydration) • Congenital heart disease • Trauma • Tension pneumothorax • Hypothermia • Toxin or medication OD • Hypoglycemia • Acidosis • Acute MI

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Assess for unresponsiveness, absence of normal breathing, and pulselessness
- Assess for obvious death criteria see page 14 of 22
- Begin Pit Crew CPR procedure see pages 7 & 8 of 22
- BLS Airway Management and BVM with **Oxygen** as available
- Passive oxygenation with nasal cannula at 25 LPM

- Airway management with iGEL as needed
- ETCO2 if equipped

- IV/IO Access
- **Epinephrine** IV/IO
- Fluid bolus with **Isotonic Crystalloid** as needed

- Monitoring & Interpretation of ECG
- Manual defibrillation: Maximum Joules for Adult
- For Pediatrics initial manual defibrillation 2j/kg. Repeat at 4j/kg maximum (Pediatric refer to Joule setting dose chart page 12 of 22)
- **Amiodarone** IV/IO
- If VF/VT refractory to Amiodarone: **Lidocaine** IV/IO
- If Torsades de Pointes: **Magnesium Sulfate** IV/IO
- If a treatable cause is identified, move that treatment up in priority

- Advanced Airway Management as needed. Intubation is not required if iGel functioning appropriately with continuous waveform capnography
- Double sequential defibrillation at maximum Joules (Adults only) (page 13 of 22)
  - **IF:** Refractory to at least 3 shocks pads placed Anterior / Anterior (V1) **AND**
  - Refractory to 1 additional shock pads placed Anterior / Posterior (V2) **AND**
  - V-fib/pulseless V-tach NEVER converted
- If ROSC: declare a Resus. Alert & use Post Resus. Checklist page 10 of 22
- If patient qualifies for Targeted Temperature Management see page 5 of 22

-

Consult:
On call **System Medical Director** as needed. **If Lidocaine converts: contact for additional bolus doses**
Pearls:
• **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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. Slow push is over 5 minutes • 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, Asystole & PEA

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **Pediatric cardiac arrest is most often due to respiratory arrest. Prioritize early ventilation & airway management. Children are not usually benefitted by early transport with CPR in progress.**
- **Focus on rapid & early BLS airway and ventilation tools. Intubation may not be the best option for these patients.**

Signs & Symptoms:

- Unresponsive
- Abnormal Breathing (gasps)
- Pulseless
- No auscultated heart tones
- Obvious Death

Differential:

- Respiratory failure
- Foreign body
- Hyperkalemia (renal failure, rhabdo)
- Infection (croup, epiglottitis)
- Hypovolemia (dehydration)
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxin or medication OD (Beta blocker, Calcium channel blocker)
- Hypoglycemia
- Acidosis
- Sepsis/Excited Delirium

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Assess for unresponsiveness, absence of normal breathing, and pulselessness
- Assess for obvious death criteria see page 14 of 22
- Begin Pit Crew CPR procedure if appropriate for patient condition page 7/8 of 22
- BLS Airway Management, BVM with **Oxygen** as available
- Passive oxygenation with nasal cannula at 25 LPM

- Airway management with iGEL as needed
- ETCO2 if equipped

- IV/IO Access
- Epinephrine IV/IO
- Fluid bolus with **Isotonic Crystalloid** as needed

- Monitoring & Interpretation of ECG, evaluate ECG for wide or narrow QRS
- Narrow PEA QRS ≤ 0.12 sec: consider Mechanical causes (Cardiac Tamponade, Tension Pneumothorax, Mechanical Hyperinflation, Pulmonary Embolism, Hypovolemia, Acute MI Pump Failure)
- Asystole or Wide QRS > 0.12 sec: consider Metabolic causes (Tricyclic OD, Severe Hyperkalemia, Acidosis, OD Calcium Channel Blocker, Acute MI Pump Failure)

- Advanced Airway Management as needed. No need to intubate if iGel functioning appropriately
- Needle Decompression for the Asthma patient in arrest
- If ROSC: declare a Resus. Alert & use Post Resus. Checklist page 10 of 22
- If patient qualifies for Targeted Temperature Management see page 5 of 22

Consult:

On call **System Medical Director** as needed.

- Simple Thoracostomy for the Asthma patient in arrest

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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. A common list of causes and therapies are listed on page 7 of 22.

- 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, with ROSC and Induced Hypothermia
(Targeted Temperature Management TTM)

COG Updated: 10.18.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 kg** • **TTM not used for < 37 kg**	• **Return of pulse from a Non-Traumatic Cardiac Arrest**	• Continue to address specific differentials associated with original dysrhythmia

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Continue **Oxygenation,** Target SPO2 92% ↔ 96%
- Expose patient, and apply Ice Packs to Axilla, Neck & Groin
-
- IV/IO access
- Cold **Isotonic Crystalloid** bolus 30 mL/kg to max of 2 liters, infused @ 100ml/min
- Monitoring & Interpretation of ECG
- Advanced Airway as needed
- Resuscitation Alert if not already done so
- STEMI activation if appropriate and transmit 12 lead PRN
- **Midazolam** IV/IO or **Ketamine** IM for sedation as needed
- **Vecuronium** IV/IO (after Advanced Airway placement only)
- **Norepinephrine (Levophed)** IV Infusion titrated to MAP ≥ 65
-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**

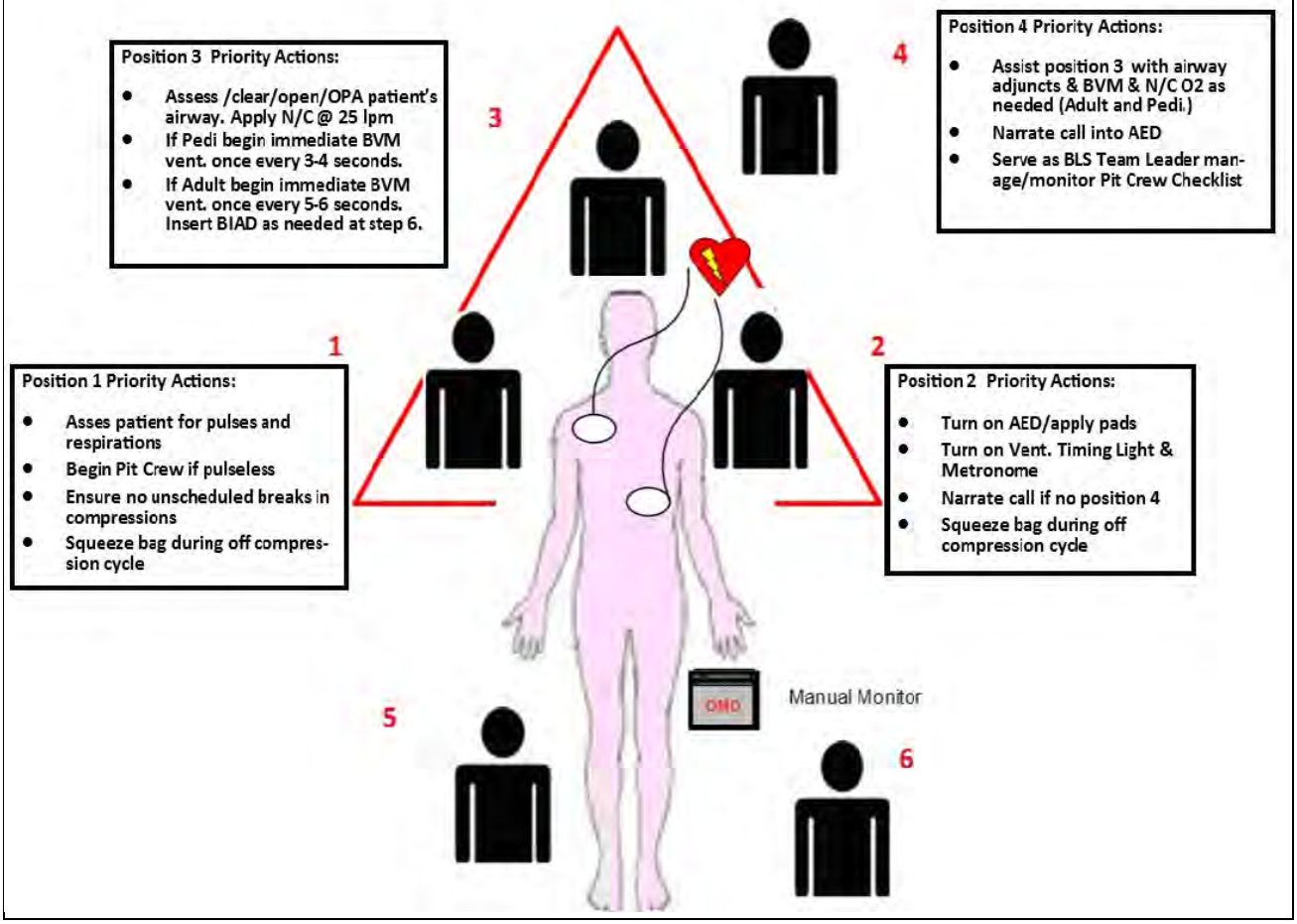
Criteria for Targeted Temperature Management (TTM):

- ROSC after cardiac arrest **not related to trauma or hemorrhage**.
- Weight ≥ 37 Kg
- Initial temperature > 34C (93.2 F)
- Patient unable to follow commands

- 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 CR-13.
- 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.
- **If Vecuronium is used for patient care for Targeted Temperature Management then Midazolam MUST also be used. If Midazolam is contraindicated then do not administer Vecuronium.**
- Targeted Temperature Management should not interfere with resuscitation.

Treatable Causes Patient in Cardiac Arrest	
Adult treatable causes:	**Pediatric treatable causes:**
Hypoxia: Airway and **Oxygen** (PL1) Hypothermia: Active warming (PL1) Hypovolemia: Fluid bolus with **Isotonic Crystalloid** IV/IO (PL3) Hypoglycemia: **Dextrose Infusion** IV/IO (PL3) Acidosis: **Sodium Bicarbonate** IV/IO (PL4) Hyperkalemia: **Calcium Chloride** IV/IO (PL4) **Sodium Bicarbonate** IV/IO (PL4) OD Calcium Channel/ Beta Blocker: **Calcium Chloride** IV/IO (PL4) **Glucagon** IV/IO (PL3) Tension Pneumothorax: Chest Decompression (PL5) Simple Thoracostomy (PL6)	Hypoxia: Airway and **Oxygen** (PL1) Hypothermia: Active warming (PL1) Hypovolemia: Fluid bolus with **Isotonic Crystalloid** IV/IO (PL3) Hypoglycemia: **Dextrose Infusion** IV/IO (PL3) Acidosis: **Sodium Bicarbonate** IV/IO (PL4) Hyperkalemia: **Sodium Bicarbonate** IV/IO (PL4) OD Calcium channel/Beta blocker: **Epinephrine infusion** IV/IO (PL5) **Glucagon** IV/IO (PL3) Anaphylaxis: **Epinephrine infusion** IV/IO (PL5) Tension Pneumothorax: Chest Decompression (PL5) Simple Thoracostomy (PL6)

CPR Procedure



Continued:

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****

LUCAS Device Clinical Ind. (page 19of19):	Lucas Device Contraindications:	Lucas Device Notes/Precautions:
• Adult patient in cardiac arrest • Transport/Movement **LUCAS device is only to be used for Compressions during required patient movement, Patient Transport to Hospital or inadequate staff to implement Pit Crew**	• Device does not fit patients • Patient <18 years of age • Traumatic Cardiac Arrest • Obviously Pregnant	• Minimize interruptions in chest compressions to place device. • Must be appropriately trained • Use an Anterior-Posterior pad placement.

Continued:

Cardiac Arrest Checklist:

- ❑ Pit crew positions identified
- ❑ Continuous compressions being performed with metronome
- ❑ Ventilation timing device activated
- ❑ Nasal Cannula & BVM are attached to oxygen and flowing
- ❑ 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
- ❑ ETCO2 waveform is present and being monitored
- ❑ IV/IO access has been obtained
- ❑ Gastric distention has been considered/addressed
- ❑ Family is receiving care and is at the patient's side

- ❑ HYPOVOLEMIA
- ❑ HYPOXIA (CO, CYANIDE)
- ❑ HYDROGEN IONS (ACIDOSIS)
- ❑ HYPOTHERMIA
- ❑ HYPER/HYPOKALEMIA (DAILYSIS)
- ❑ HYPOGLYCEMIA
- ❑ TABLETS/TOXINS (B-BLOCKER, NARCOTICS)
- ❑ TAMPONADE
- ❑ TENSION PNEUMOTHORAX
- ❑ THROMBOSIS (MI)
- ❑ THROMBOSIS (PE)
- ❑ TRAUMA

The resuscitation audio recording 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 being 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 him/her what is going on at the scene. **The audio recording is for quality improvement use only.**

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

- Team leader name & Unit #
- Witnessed arrest?
- Circumstances prior arrest
- Briefly describe the patient (age, gender)
- Bystander CPR? Who did the CPR?
- Briefly describe unusual findings

Interventions and actions should be verbalized for the recording:

- Moving patient to larger space
- Compressions started/stopped
- Switched compressors
- AED's activation/decision (shock, no shock)
- CPR Feedback Puck placed
- Vent. Smart Bag/Timing light activated
- End tidal CO2 placed
- I-gel being placed/verified
- Pulse present/absent during AED analysis
- LUCAS applied/adjusted
- Patient has ROSC/pulses

Continued:

Post Resuscitation Checklist:

- ❑ Reassess patient and obtain complete vital signs
- ❑ Does the patient meet all criteria for Targeted Temperature Management?
  - o ROSC
  - o ≥ 37 Kg
  - o Non-traumatic cause
  - o No suspected hemorrhagic cause
  - o Temp > 34 C (93.2 F)
  - o Unable to follow commands
- ❑ If Lucas used release/retract "pressure pad"
- ❑ Airway confirmed continuously and with each move
- ❑ Oxygen Target SPO2 92% ↔ 96%
- ❑ Continuous ETCO2 & ECG monitoring
- ❑ 12-Lead ECG (If STEMI, transmit 12 Lead ASAP)
- ❑ Resuscitation Alert/STEMI Alert Declared
- ❑ Versed/Vecuronium if not hypotensive (advanced airway only)
- ❑ Levophed to MAP ≥ 65
- ❑ If ice packs are needed, apply to neck, axilla, groin
- ❑ If Cold saline infused 30ml/kg max 2L
- ❑ Controlled Ventilation < 12 bpm
- ❑ Adequate personnel for transport
- ❑ If loss of ROSC go to appropriate Guideline

Continued:

MEDICAL and Trauma 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 meds/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 v-fib
- ❑ Arrest not due to suspected hypothermia
- ❑ Providers agree with decision to cease efforts

Contact an on call System Medical Director for TOR.

TRAUMATIC ARREST: Termination of Resuscitation or Withholding of Resuscitation Checklist:

- ❑ Obvious injuries incompatible with life and/or obvious signs of organ destruction.
- ❑ Pt 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 an on call System Medical Director for TOR if CPR started by System Providers.

In all cases/circumstances continue CPR (if started or continued by System Provider/Responder) while obtaining TOR:

- ❑ The lead **PL5** based upon patient presentation, clinical circumstances and their clinical judgement may contact System Medical Director for TOR with < 30 minutes of resuscitation.

Continued:

Pediatric Cardioversion and Defibrillation Dose Chart

Determine Joule Dose:

# of Joules x Kg weight = Dose setting for electrical therapy:

	3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
	6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
	in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Cardioversion 0.5 j	1 j	2 j	2 j	3 j	4 j	5 j	7 j	8 j	10 j	15 j	15 j
Cardioversion 1.0 j	3 j	4 j	5 j	6 j	8 j	10 j	15 j	15 j	20 j	30 j	30 j
Cardioversion --OR-- Defibrillation 2.0j	6 j	8 j	10 j	15 j	15 j	20 j	30 j	30 j	50 j	50 j	70 j
Defibrillation 4.0j	10 j	15 j	20 j	30 j	30 j	50 j	50 j	70 j	85 j	100 j	120 j

1. Verify joule dose for appropriate age as per each individual guideline.
2. Use the PEDIATAPE to estimate weight, and the Color Coded List to verify correct joule dose for weight range.
3. If all verifications are correct, and your partner agrees, administer the appropriate joule dose as per the chart above.
4. Select the next higher length color zone for obese children.

** This reference may include "rounding" of joule doses for weight ranges, safety and **available Monitor Joule settings** **

Continued:

Double Sequential External Defibrillation

Clinical Indications:

- Refractory to at least 3 shocks pads placed Anterior / Anterior (Vector 1) **AND**
- Refractory to 1 additional shock pads placed Anterior / Posterior (Vector 2) **AND**
- V-fib/pulseless V-tach NEVER converted

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 an additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad conduction.
4. Apply a new set of external defibrillation pads in the anterior/posterior while ensuring they do not contact the initial set of pads.
5. Assure 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 indicated assertively state, “CLEAR” and visualize from the patient’s head to toe to assure no one is touching the patient and deliver the DSED by depressing both shock buttons simultaneously.
9. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly (< 10 sec) to perform pulse check and analyze rhythm.
10. Repeat the procedure every two minutes as indicated by the patient’s response and rhythm.

Continued:

Criteria for Death or Withholding Resuscitation

Standard:

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

Purpose:

CPR and ≥ PL4 treatment are to be withheld only if the patient is obviously dead per criteria below or has a valid OOH DNR. **If you are unsure whether the patient meets criteria, resuscitate.**

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 PCR the specific indications for withholding or stopping resuscitation).

1. Signs of obvious death:
   - Rigor mortis and/or dependent lividity;
   - Decomposition;
   - Decapitation;
   - Incineration;
2. Obviously mortal wounds (severe trauma with obvious signs of organ destruction)
3. Patient submersion greater than 20 minutes from the time the patient was witnessed going underwater or, from arrival of first Public Safety entity until the patient is in a position for effective resuscitative efforts to begin
4. Fetal death with a fetus < 20 weeks by best age determination available at scene (considered products of conception and does not require time of death). Fetal death < 20 weeks may be documented on mothers PCR. If ≥ 20 weeks create separate PCR.

If the patient meets any of the above criteria and bystander resuscitative care was not continued or not initiated by System Credentialed Providers/Responders; a **PL2**, may contact communications for a time of death.

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

Should the on call System Medical Director decline the TOR request; the patient must be treated and/or transported in accordance with online Physician Direction.

Exception to the above criterion: If a valid OOH 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.

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

Continued:

DNR / 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.

Purpose:

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

Exceptions:

The provider shall begin resuscitation efforts until such time as a physician directs otherwise when:

- A patient is known to be pregnant.
- There are any indications of unnatural or suspicious circumstances.
- The Provider is unsure of the existence or validity of the DNR.

Application:

1. An advanced directive does not imply that a patient refused supportive or palliative care.

2. 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:
   - Out-of-Hospital Do Not Resuscitate (OOH-DNR) – or – OOH-DNR ID device; (Original or Copy)
   - Valid Out-Of-Hospital Do Not Resuscitate Written Order (Original or Copy) or Device from any (US) State;
   - A licensed physician on scene or in contact by telephone orders that no resuscitation efforts are to take place

3. A DNR request may be overridden by:
   - 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
   - The patient or person who executed the order telling the EMS Providers or attending physician that it is his/her intent to revoke the order
   - The attending physician or physician's designee, if present at the time of revocation, recording in the patient's medical record the time, date and place of the revocation and enters "VOID" on each page of the OOH-DNR

4. In the event there is a question regarding whether to honor or not honor an OOH-DNR or Advanced Directive, initiate resuscitation and contact an on call System Medical Director. NOTE: A Medical Power of Attorney cannot override a valid DNR executed by the patient.

Continued:

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.

Purpose:

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

Application:

1. For cardiac arrest with ongoing resuscitation efforts > 30 minutes:

   - Inclusion Criteria
     1. Adequate CPR has been administered
     2. Airway has been successfully managed with verification of device placement. Acceptable management techniques include endotracheal intubation, blind insertion airway device (BIAD) or cricothyrotomy
     3. IV/IO access has been achieved
     4. Rhythm-appropriate medications and defibrillations have been administered according to clinical guideline
     5. Ultrasound use, when available, to determine any cardiac motion.
     6. All ≥ PL4 Credentialed providers on scene agree with decision to cease efforts
     7. If all of the above are met the **PL5** Provider will contact an on call System Medical Director
     8. If you are presented with a valid DNR see exception below.

   The **PL5** Provider based upon patient presentation, clinical circumstances and their clinical judgement may contact System Medical Director for Termination of Resuscitation (TOR) with < 30 minutes of resuscitation.

   - Exclusion Criteria:
     1. Cause of arrest is due to suspected hypothermia;
     2. Sustained ROSC at any time during the resuscitation
     3. Persistently recurring or refractory ventricular fibrillation/tachycardia or any continued neurological activity (eye opening, or motor response).
     4. Ultrasound, when available, determines cardiac motionl.

2. When an on call System Medical Director is involved in the decision to terminate; resuscitative efforts must be continued while:
   - the family is counseled on the patients unchanging condition and impending discontinuation of efforts; (if termination of efforts is anticipated Victim Services should be requested as early as possible)
   - someone is requesting a TOR from an on call System Medical Director
3. Should the on call System Medical Director decline the TOR request, the patient must be immediately transported to the closest appropriate hospital
4. Document all patient care and any interactions with the patient's family, personal physician, medical examiner, law enforcement, and medical control in the EMS patient care report (PCR)

Exception to the above criterion: *If a valid OOH 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.*

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

Pearls Continued:

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.

Pearls Continued:

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.

N.B. Section 6 Death Investigations: This section outlines the indications for inquest by the medical examiner. For more information visit http://www.statutes.legis.state.tx.us/Docs/CR/htm/CR.49.htm#49.25

Pearls Continued:

LUCAS Device

Clinical Indications:

- Adult patient in cardiac arrest

Contraindications:

- Device does not fit patients
- Patient <18 years of age
- Traumatic Cardiac Arrest
- Obviously Pregnant

Notes/Precautions:

- Minimize interruptions in chest compressions to place device.
- Must be appropriately trained
- Use an Anterior-Posterior pad placement.
- LUCAS device is only to be used for Compressions during required patient movement, Patient Transport to Hospital and staffing shortages.

Procedure:

1. Remove from bag.
2. Ensure that operation knob is in the ADJUST position.
3. Assemble/Prepare device, in accordance with the type being used (electric or pneumatic)
4. Pause chest compressions at 2 minute pause (Pit-crew model).
5. Apply Posterior AED pad and Place patient on backboard.
6. Place back plate under patient on backboard below armpits.
7. Resume chest compressions.
8. Attach LUCAS device to back plate.
9. Position suction cup.
   - Lower edge immediately above end of sternum
   - Pressure pad centered over middle of sternum
   - Lower suction cup & pressure pad to the point where it just comes into contact with the patient's chest
10. If pad does not fit, return to manual chest compressions.
11. Turn operation knob to ACTIVE.
12. Check device for proper position.
13. Attach stabilization straps.
14. LUCAS device should never be left unattended or with an untrained provider.
15. To stop LUCAS, turn operation knob to LOCK.
    Should only be done:
    - if device improperly placed
    - damage to the patient is occurring
    - to assess the patient
    - while AED is analyzing and charging
16. Once patient has a sustained ROSC, release and retract the "pressure pad" to allow for greater chest excursion and tidal volume during BVM usage.

Chest Pain, Suspected Acute Coronary Syndrome

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **Pediatric patients should not receive ASA or Nitro.**

Signs & Symptoms:

- •Pain or pressure between navel and jaw
- "Heart racing", "palpitations", or "heart too slow"
- CHF signs and 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** Target SPO2 92% ↔ 96%
- Aspirin PO
- 12 Lead, 3 lead, 4 lead placement and ECG acquisition if equipped
- Nitroglycerin SL and Topical Paste if SBP ≥ 100
- IV Access
- Monitoring & Interpretation of ECG within 5 min. of patient contact
- Declaration of "STEMI Alert" and minimize scene time to < 15 minutes if poss.
- Fluid therapy for Inferior Wall MI: **Isotonic Crystalloid** IV
- Pain management: Fentanyl IV/IM/IN
- If Hypersympathetic state from stimulant abuse: Midazolam IV/IM/IN (usually presents with sustained HR >120 bpm and HTN).
-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Do not administer Nitroglycerin in any patient who has 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 page 6 of 12.
- If patient has STEMI, or is going directly to cardiac cath lab, 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 depression after administration of nitroglycerin, fentanyl, or midazolam.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- ETCO2 if multiple doses of Fentanyl or Midazolam Medication administered

Narrow Complex Tachycardia with Pulse (QRS ≤ 0.12 sec)

COG Updated: 10.30.18
(MD 18 – 11)

Assessment:

Pediatric Pearls:
- **< 37 kg**
- Titrate infusions and fluids to maintain a SBP >70 + (age in years x2) mmHg

Signs & Symptoms:
- 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 (see Hx)
- Hyperthyroidism
- Pulmonary embolus
- Alcohol Withdrawal

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- **Oxygen**, Target SPO2 92% ↔ 96%
- BLS Airway Management as needed
- 3/4/12 Lead placement/acquisition of ECG
- IV access as needed
- IV fluid with **Isotonic Crystalloid** as needed titrated to SBP ≥ 100 mmHg
- Monitoring & Interpretation of ECG
- Valsalva Maneuver (Adults only)
- Continuous 12 lead ECG during Adenosine admin. If possible
- Adenosine IV (2 doses)
- Diltiazem IV 1st dose (Adults only)
- Sedation: Midazolam IV as appropriate **Do Not admin if <5kg** or Ketamine IM (adult only) as appropriate.
- Synchronized Cardioversion at maximum Joules for Adult
- For Pediatric Cardioversion 0.5 – 1.0 j/kg may repeat if needed at 2j/kg (Pediatric refer to Joule setting dose chart page 9 of 12)
- 12 lead ECG post conversion
-

Consult:

On call **System Medical Director** as needed.

- Diltiazem IV 2nd dose (Adults only)

Pearls:

- **If patient has history of or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer Diltiazem.**
- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.
- Pediatric Pads should be used in children < 10 kg or PEDIA Tape color Purple.
- 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 A-Fib.
- 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.

Wide Complex Tachycardia with a Pulse (QRS > 0.12 sec)

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 kg**	• 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 • QRS > 0.12 sec	• 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** Target SPO2 92% ↔ 96%
- BLS Airway Management as needed
- 3/4/12 Lead placement/acquisition of ECG
- IV Access
- Fluid bolus with **Isotonic Crystalloid** as needed
- Continuous Monitoring & Interpretation of ECG
- If Torsades de Pointes: **Magnesium Sulfate** IV/IO push for Adults and infusion over 20 min. for Pediatric
- If Torsades de Points is unstable: Defibrillate at maximum Joules for Adult
- If a Treatable cause is identified, move that treatment up in priority
- If VT: **Amiodarone infusion** over 10 min. for Adults and over 20 min. for Pediatrics IV/IO
- If VT refractory to Amiodarone: **Lidocaine** IV/IO
- Sedation with **Midazolam** IV/IO **Do Not admin if <5kg** or **Ketamine** IM (adult only) as appropriate
- If hyperkalemia or tricyclic OD consider **Sodium Bicarbonate** IV early in intervention.
- Synchronized Cardioversion at maximum Joules for Adult
- For Pediatric Cardioversion 0.5 – 1.0 j/kg may repeat if needed at 2j/kg (Pediatric refer to Joule setting dose chart below page 9 of 12)
- 12 Lead ECG post conversion
-

Consult:

On call **System Medical Director** as needed.

- **If Lidocaine converts: contact for additional bolus doses**

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- For witnessed / monitored 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.

Bradycardia

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 kg** • Titrate infusions and fluids to maintain a SBP >70 + (age in years x2) mmHg • Bradycardia is frequently due to hypoxia • FBAO	• HR <60/min with hypotension, acute altered LOC, chest pain, CHF, Sz, syncope or shock secondary to bradycardia • Altered LOC • Shock/Hypotension • Syncope	• 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**, Target SPO2 92% ↔ 96%
- BLS Airway Management as needed
- If Pediatric **and** HR < 60 with poor perfusion despite oxygenation & ventilation; begin Pit Crew CPR Procedure page 10 of 12.

- 3/4/12 Lead placement/acquisition of ECG

- IV access as needed
- IV fluid with **Isotonic Crystalloid** as needed titrated to SBP ≥ 100 mmHg or (MAP of ≥ 65)
- Glucagon IV in setting of Beta Blocker OD or Calcium Channel Blocker OD.

- Monitoring & Interpretation of ECG
- If Pediatric: Epinephrine IV push

- Atropine IV
- Sedation: Midazolam IV
- Transcutaneous Cardiac Pacing (TCP)
- If Adult: Norepinephrine **(Levophed) Infusion**
- If Pediatric: Epinephrine **Infusion**
- Advanced Airway Management as needed

-

Consult:

On call **System Medical Director** as needed.

1. If Adult: Epinephrine IV Infusion titrated to MAP ≥ 65 (PL5)
2. If Adult Calcium Channel Blocker OD: Calcium Chloride IV Over 10 minutes (PL5)

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.
- IV Glucagon = Emesis
- Use volume control device (IV Burette) for Medication and Fluid infusions as needed

Treatable Causes Patient NOT in Cardiac Arrest	
Adult treatable causes: **Hypoxia: Airway and Oxygen (PL1)** **Hypothermia: Active warming (PL1)** **Hypovolemia:** **Fluid bolus with Isotonic Crystalloid IV/IO (PL3)** **Hypoglycemia: Dextrose Infusion IV/IO (PL3)** **Acidosis: Sodium Bicarbonate IV/IO (PL5)** **Hyperkalemia:** **Calcium Chloride IV/IO (PL5)** **Sodium Bicarbonate IV/IO (PL5)** **OD Calcium Channel & Beta Blocker:** **Calcium Chloride IV/IO (PL5)** **Glucagon IV/IO (PL3)** **Tension Pneumothorax:** **Chest Decompression (PL5)**	**Pediatric treatable causes:** **Hypoxia: Airway and Oxygen (PL1)** **Hypothermia: Active warming (PL1)** **Hypovolemia:** **Fluid bolus with Isotonic Crystalloid IV/IO (PL3)** **Hypoglycemia: Dextrose Infusion IV/IO (PL3)** **Acidosis: Sodium Bicarbonate IV/IO (PL5)** **Hyperkalemia:** **Sodium Bicarbonate IV/IO (PL5)** **OD Calcium channel & Beta blocker:** **Epinephrine infusion IV/IO (PL5)** **Glucagon IV/IO (PL3)** **Anaphylaxis:** **Epinephrine infusion IV/IO (PL5)** **Tension Pneumothorax:** **Chest Decompression (PL5)**

Pearls Continued:

STEMI Alert Criteria

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.

A STEMI Alert should be called when a patient is currently **"symptomatic"** for an Acute Coronary Syndrome (ACS) event **AND** has new or presumably new ST elevation ≥1 mm in two anatomically contiguous leads **AND** does not have exclusion criterion listed below in the ACS Consultation section.

The STEMI Alert notification should 1st be "declared" to Communications via radio or phone. As soon as possible transmit a 12 lead ECG and; whenever possible, the patients name should accompany the 12 lead ECG.

The transport Hospital should be notified of the STEMI Alert as soon as practical by Communications and; the Alert must be included in the Transport radio report to the Hospital with the patient condition information.

STEMI Alert Exclusions & ACS Consult Criteria

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.

- ❑ Patients that are currently "**asymptomatic**" for an ACS event however, have ECG readings consistent with the above STEMI Alert Criteria.

OR

- ❑ Patients who are "**symptomatic**" for ACS and have evidence of Isolated V1 and V2 elevation only, LBBB, LVH, Early Repolarization, Ventricular/Ventricular Paced, Diffuse ST Elevation, or Non-Specific ST Changes or other type "Abnormal" ECG findings including poor quality ECG tracing.

The declaration of the Alert or use of the ACS Consult option should be based upon the patient's current condition and the Provider's judgment.

Pearls Continued:

Rapid 12-Lead Criteria

Any patient ≥ 30 years old with the following:

- Suspected cardiac patient
  - Pain between navel and jaw
  - Pressure, discomfort, tightness or heartburn
  - "Heart racing", "palpitations", or "heart too slow"
  - CHF signs and symptoms
- Electrical injuries
- Syncope
- Severe Weakness
- New onset stroke symptoms
- Difficulty breathing (no obvious respiratory cause)
- Suspected overdose
- Patient of any age with any of the above symptoms **AND** history of: (cardiac, diabetes, obese, family history of early CHD, recent cocaine use or syncope)
- ≥ PL4 Discretion

If the patient meets any of the above criteria: PL2 providers are to attach ECG electrodes ASAP and ≥ PL4 providers are to obtain a 12 lead ECG within 5 minutes of ALS patient contact. If STEMI, transmit 12 Lead ASAP.

Suspected Cardiac Chest Pain / ACS Checklist:

- ❑ Rapid ECG criteria/acquisition
- ❑ ASA (if not allergic) chewed
- ❑ Oxygen Target SPO2 92% ↔ 96%
- ❑ IF STEMI:
  - o Symptomatic and ≥ 1 mm ST elevation in 2 contiguous leads and no STEMI Alert exclusions
  - o Immediate packaging/transport
  - o Declare STEMI Alert & Transmit 12 Lead ASAP
  - o Defer additional treatment until enroute
- ❑ NTG SL and paste if:
  - o SBP >100
  - o No allergies to NTG
  - o No Viagra/Levitra last 24 hrs.
  - o No Cialis last 48 hrs.
  - o IV as time permits
- ❑ Fentanyl for persistent pain
- ❑ Contact receiving facility
  - o Via radio preferred
  - o Via phone if radio not working

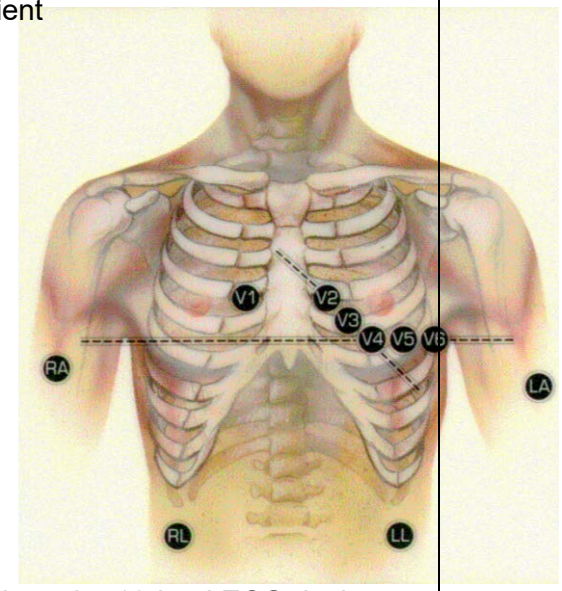
Pearls Continued:

12 Lead ECG Placement

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:
   - RA -Right arm
   - LA -Left arm
   - RL -Right leg
   - LL -Left leg
   - V1 -4th intercostal space at right sternal border
   - V2 -4th intercostal space at left sternal border
   - V3 -Directly between V2 and V4
   - V4 -5th intercostal space at midclavicular line
   - V5 -Level with V4 at left anterior axillary line
   - V6 -Level with V5 at left midaxillary line



PL4 Provider:

5. Prepare ECG monitor and connect patient cable with electrodes.
6. Enter the required patient information (patient name, etc.) in to the 12-lead ECG device.
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.
10. Monitor the patient while continuing with the treatment guideline.
11. Document the procedure, time, and results on/with the patient care report (PCR).

Pearls Continued:

Pediatric Cardioversion and Defibrillation Dose Chart

Determine Joule Dose: # of Joules x Kg weight = Dose setting for electrical therapy:

	3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
	6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
	in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Cardioversion 0.5 j	1 j	2 j	2 j	3 j	4 j	5 j	7 j	8 j	10 j	15 j	15 j
Cardioversion 1.0 j	3 j	4 j	5 j	6 j	8 j	10 j	15 j	15 j	20 j	30 j	30 j
Cardioversion --OR-- Defibrillation 2.0j	6 j	8 j	10 j	15 j	15 j	20 j	30 j	30 j	50 j	50 j	70 j
Defibrillation 4.0j	10 j	15 j	20 j	30 j	30 j	50 j	50 j	70 j	85 j	100 j	120 j

1. Verify joule dose for appropriate age as per each individual guideline.
2. Use the PEDIATAPE to estimate weight, and the Color Coded List to verify correct joule dose for weight range.
3. If all verifications are correct, and your partner agrees, administer the appropriate joule dose as per the chart above.
4. Select the next higher length color zone for obese children.

** This reference may include "rounding" of joule doses for weight ranges, safety and **available Monitor Joule settings** **

Pearls Continued:

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****

Pearls Continued:

What is a Ventricular Assist Device (VAD)?
A ventricular assist device (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.

How does a VAD work?
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.

What are the parts of a VAD?
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.

What is the power source?
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.

What does the control unit (or controller) do?
The control unit gives warnings or alarms if the power is low or if it senses that the device isn't functioning properly.

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.

Patient Management:
1. Assess the patients airway and intervene per the Airway Management Guideline
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 on the controller located around the patient's waist or in the VAD PAK and see what device it is.
5. Intervene appropriately based on the type of alarm and patient guide.
6. You may follow the standard Cardiac Arrhythmia Guidelines, EXCEPT:
    - NO Chest Compressions
    - NO Thrombolytics
7. Defibrillation/Cardioversion are the standard processes
8. Assess Vital Signs – use Mean BP with Doppler, if available. The first sound you will hear is the Mean Arterial Pressure (MAP)
9. If no Doppler available, use the Mean on the Non-Invasive BP cuff
10. Transport to the closest VAD Center. Call the number listed on the device for advice.
11. Bring all of the patient's equipment and paperwork to the Emergency Department.
12. 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 Continued:

Ventricular Assist Devices (VADs):

- ALWAYS talk to family / caregivers as they have specific knowledge and skills. CALL THE VAD COORDINATOR EARLY as per patient / family instructions or as listed on the device. They are available 24 / 7 and should be an integral part of the treatment plan.
- QUESTIONS TO ASK: DOES THE PATIENT HAVE A DNR? Can the patient be cardioverted or defibrillated if needed? Can CHEST COMPRESSIONS be performed in case of pump failure?
- Deciding when to initiate Chest Compressions is very difficult. Consider that chest compressions **may cause death by 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 in advance with a responsive patient and the VAD coordinator. 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 the on call System Medical Director.
- Common complications in VAD patients include Stroke and TIA (incidence up to 25%), bleeding, dysrhythmia, and infection.
- The Cardiac Monitor and 12 lead EKG are not affected by the VAD and will provide important information.
- Defibrillate / Cardiovert as normal. **Do NOT** place the pads over the device that is under the patient's skin.
- Keep in mind it may be difficult to obtain an accurate SpO2 because of little or no pulse.
- **BE CAREFUL WHEN REMOVING / CUTTING CLOTHING so you don't inadvertently dislodge or cut the drive line.**
- VAD patients are preload dependent. Consider that a **FLUID BOLUS** can often reverse hypo perfusion.
- 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.

Crush Injury

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

Signs & Symptoms:

- Compartment Syndrome
  - Pain on passive stretch
  - Paresthesia
  - Paralysis
  - Pallor
  - Pulselessness
- Hypotension/Shock
- Altered Mental Status

Differential:

- Skin irritant exposure
- Dust concretions 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.
- NOTE: 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%

- Large bore IV access x 2 IC at 1.5L/hr during extrication. If adequate hemodynamics may reduce to 500mL/hr once extricated

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- ECG Monitoring once practical
- If Adult patient cardiac arrests after release: Treat for Hyperkalemia with **Calcium Chloride** **and** **Sodium Bicarbonate** IV

- **Sodium Bicarbonate** IV**:** should be added to each liter IC
- Push **Sodium Bicarbonate** IV immediately prior to release
- **Fentanyl**: IV/IM/IN if SBP > 100mmHg

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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 (pain, pallor, paresthesias, pulselessness)
- Crush injury victims can 3rd space > 12L in the first 48 hrs..
- 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 (ie more limbs) the greater the likelihood of severe rhabdomyolysis and renal failure.
- Crush injury may cause profound electrolyte disturbances resulting in dysrhythmias. Monitor if possible.
- Do not overlook treatment of additional injuries, airway compromise, hypothermia/ hyperthermia.
- Nebulized saline and/or albuterol should be administered to victims with dust concretions in airway.
- ETCO2 if multiple doses of Narcotic Medication administered

Cyanide

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

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
- Stroke/TIA
- Pulmonary embolus
- Meningitis/encephalitis
- Head trauma
- Diabetes
- Acute intoxication
- CO Poisoning

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6
➢ Scene Safety and Decontaminate patient as needed ➢ **Oxygen** via NRB 15 L regardless of SPO2 reading and, Passive oxygenation with nasal cannula at 25 LPM ➢ Basic Airway Maneuvers as needed					
➢					
➢ IV Access					
➢ Hydroxocobalamin IV					
➢ Advanced Airway Maneuvers as needed					
➢					

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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- or hypotension.
- Oxygen via NRB should be applied to all patients; pulse oximeter 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 the instructions (Drug Formulary). Do NOT shake.

Drowning/Submersion

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

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
- Fresh/Salt Water

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ Scene Safety ➢ Evaluate for Cardiac Arrest ➢ **Oxygen,** Target SPO2 92% ↔ 96% ➢ BLS Airway procedures as needed ➢ Evaluate for SMR ➢ Keep patient warm
						➢ If conscious and wheezing: **Albuterol** & **Ipatropium Bromide** Neb. ➢ If conscious: CPAP up to 10 PEEP with rales/ronchi indicating wet lung sounds
						➢ IV Access as needed
						➢ Evaluate ECG
						➢
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.

Epistaxis

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Fluids and Medication titrated to maintain a 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 nostrils
- Tilt head forward
-
- IV Access as needed
- Consider IV **Isotonic Crystalloid** bolus titrate to SBP ≥ 100 mmHg (max. 2 Liters)
- If hypotensive due to hemorrhage**:** Tranexamic acid **(TXA)** IV
- Neo-Synephrine **(phenylephrine)** Nasal Spray 2 sprays into affected nostril and direct pressure (Pediatric 1 spray)
  OR
- If bleeding is refractory to Neo-Synephrine: Epinephrine IN
-

Consult:

On call **System Medical Director** as needed.

- Tranexamic acid **(TXA) –** Nasal Atomizer

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Recommended Exam: Mental Status, HEENT, Heart, Lungs, Neuro
- Avoid Neo-Synephrine and/or Epinephrine in patients who have a blood pressure of greater than 110 diastolic or known coronary artery disease.
- 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 impaired clotting.

ETOH Withdrawal

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- None

Signs & Symptoms:

- Headache
- Nausea, vomiting
- Diarrhea
- Restlessness or sleeplessness
- Tachycardia
- Hypertension
- Tremors of the hands
- Tongue fasciculation
- Confusion
- 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 SaO2 >94%
-
- Obtain IV access and begin fluid resuscitation with 20 ml/kg isotonic crystalloid
- Ondansetron PO or IV for nausea
-
- If patient meets indications for alcohol withdrawal syndrome in accordance to the screening tool on page 2 of 2, and has no exclusions, give Midazolam
-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Alcohol withdrawal has a high mortality rate without appropriate treatment.
- It is important to treat symptoms early instead of waiting for symptoms to become serious.
- Patients may not be initially forthcoming about their alcohol history.

Pearls Continued:

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 injury.
2. Presence of:
    - Delirium
    - Altered Mental Status,
    - Respiratory Distress

Additional considerations that increase the risk for respiratory depression

- opioid use
- COPD
- obstructive sleep apnea

Eye Injury/Complaint

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

Signs & Symptoms:

- Pain, swelling, blood
- deformity, contusion
- Visual deficit/Loss
- Leaking aqueous/vitreous humor
- Upwardly fixed eye
- Shooting or streaking light
- Visual contaminants
- Rust ring
- Lacrimation

Differential:

- Abrasion/Laceration
- Globe rupture
- Retinal nerve damage
- Chemical/thermal burn
- Orbital Fx
- Orbital compartment syndrome
- Neurological event
- Acute glaucoma
- Retinal artery occlusion

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Evaluate pupils
- Complete neuro exam
- Screen for unrecognized chemical/agent exposure
- Cover both eyes
- If out of socket: Cover with **sterile water** or **Isotonic Crystalloid** soaked gauze
- If impaled object: stabilize then cover both eyes
- If chemical or burn: irrigate with **sterile water** or **Isotonic Crystalloid**

-

- IV Access as needed
- May use **100 mg** Lidocaine in 1L **Isotonic Crystalloid** for irrigation

- Refer to **Nausea/Vomiting COG**

-

-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Normal visual acuity can be present even with severe injury.
- Remove contact lens when possible. If adherent to globe do not force. Irrigation may assist removal.
- Any chemical or thermal burns to the face/eyes should raise concern for respiratory insult
- Orbital fx raise concern for globe or nerve injury or compartment syndrome and need for repeat assessments
- Always cover both eyes to prevent further insult
- Use shield not pads for physical trauma to the eye. Pads ok for uninjured eye.
- DO NOT remove impaled objects
- Suspected globe rupture or compartment syndromes require emergent evaluation.

Pearls Continued:

Eye Irrigation

Clinical Indications:

- Irrigation of eye after chemical exposure/burn
- Assist with removal of foreign material from eye

Contraindications:

- Impaled object in eye
- Trauma to globe of eye

Notes/Precautions:

- 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 tip of the IV tubing at the medial canthus (corner of the eye nearest the nose) and allow to flow laterally. Do not allow irrigation fluid to come in contact with unaffected eye.
4. Continue irrigation throughout transport. All patients should receive transport to the ED to evaluate for corneal injury.

Fever/Infection Control

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **Confirm last dose of medications given to child.**
- **Failure to respond is frequently caused by inadequate dosing.**

Signs & Symptoms:

- Warm
- Flushed
- Sweaty
- Chills/Rigors

Associated Symptoms (Helpful to localize source)

- myalgias, cough, chest pain, headache, dysuria, abdominal pain, mental status changes or rash

Differential:

- Infections / Sepsis
- Cancer / Tumors / Lymphomas
- Medication or drug reaction
- Connective tissue disease
  - Arthritis
  - Vasculitis
- Hyperthyroid
- Heat Stroke
- Meningitis

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Temperature assessment (age appropriate)
- **Oxygen:** Target SPO2 92% ↔ 96%
- Cooling measures and/or unbundle
-
- If fever: > 100.4° F for (Adult & Pediatric) (NON- Environmental) Acetaminophen PO (Adult & Pedi.) **or** Ibuprofen PO (Adult only)
- If Dehydration and not able to PO fluids: IV access and fluid challenge with **Isotonic Crystalloid** titrated to effect
-
-
-

Consult:

On call **System Medical Director** as needed. **Notify of any High Consequence Infectious Disease (HCID).**

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- 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. 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).
- Rehydration with fluids increases the patient's ability to sweat and improves heat loss.
- Allergies to NSAID's (non-steroidal anti-inflammatory medications) are a contraindication to Ibuprofen.
- NSAID's should not be used in the setting of environmental heat emergencies.
- Per Texas DSHS, Region 7 an 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."

Hypertension, Acute Symptomatic

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

Signs & Symptoms:

- Systolic BP > 220 mmHg and/or diastolic BP > 110 mmHg **and**
- **Evidence of end-organ dysfunction including:**
  - **Chest pain**
  - **Dyspnea**
  - **Severe headache**
  - **Stroke Symptoms**

Differential:

- Hemorrhagic CVA
- Dissection
- Toxins
- Withdrawal syndromes
- Essential Hypertension

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6
➢ **Oxygen** Target SPO2 92% ↔ 96% ➢ For systolic BP > 220 mmHg and/or diastolic BP > 110 mmHg readings reassess BP ➢ Assess BP on both arms					
➢ If patient has **no** clinical evidence of end organ dysfunction, transport with supportive treatment					
➢ IV Access if necessary ➢ Nausea/Vomiting Management Guideline					
➢					
➢ Nitroglycerin SL & Topical if BP remains > 220/110 **and** evidence of end-organ dysfunction					
➢					

Consult:

On call **System Medical Director** as needed.

- If asymptomatic and patient may need a change in RX
- If asymptomatic and patient needs RX refill

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Titrate Nitroglycerin to a 10 to 20 percent total reduction in Systolic pressure
- Hypertension without significant symptoms should not receive medication therapy in the field.

Environmental Hyperthermia

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Fluids titrated to SBP >70 + (age in years x 2) mmHg

Signs & Symptoms:

- Weakness
- Nausea & vomiting
- Cramping
- Syncope
- Diaphoresis or anhydrosis
- Altered Mental Status
- Bizarre behavior
- Hypotension
- Tachycardia

Differential:

- CVA
- Dehydration
- Encephalopathy
- Meningitis/Sepsis
- Head Trauma
- Overdose/Toxin
- Hypoglycemia
- Excited Delirium
- Alcohol withdrawal

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6
➢ **Oxygen:** Target SPO2 92% ↔ 96% ➢ Obtain temperature appropriate to patient condition ➢ Move to shaded/cool environment, discontinue physical activity, PO fluids if tolerated ➢ If AMS: BGL assessment ➢ If AMS or temperature > 102.2; active cooling measures per patient condition: Ice packs to neck, axilla and groin, wet patient and increase airflow ➢ Cold water immersion if immediately available, if temp. ≥ 105.8					
	➢				
		➢ IV access ➢ Infuse **Isotonic Crystalloid** titrated to effect ➢ If nausea: **Ondansetron(Zofran)** IV Do Not administer if < 6kg **or Ondansetron(Zofran)** PO Do Not administer if < 12kg			
			➢ If AMS: may infuse **cold Isotonic Crystalloid** if available up to 30mL/kg or titrated to effect		
				➢ If shivering develops; Sedation: **Midazolam** IV/IO titrated to effect	
					➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Exertional heat stroke should be suspected in anyone with hx 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 is not available, ≥ PL3 may begin Isotonic Crystalloid boluses.**
- Rectal temperature should be obtained with provider and patient safety in mind and Patient's level of AMS.
- Damage caused by heat stroke is determined by how high the temperature got and how long it remained elevated. Active cooling takes precedence over rapid transport.
- Cold Water immersion is the most effective means of cooling.
- Active cooling should be removed when temp. reaches 102.2

Hypotension non-traumatic

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Pediatric hypotension is defined as a 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**, Target SPO2 92% ↔ 96% ➢ Supine Position, keep patient warm
PL2	➢
PL3 PL4 PL5	➢ IV access ➢ These fluid boluses are for volume depletion **NOT for active bleeding.** ➢ Pediatric: **Isotonic Crystalloid** bolus 20 ml/kg IV, may repeat 10ml/kg bolus x 2 PRN ➢ Adult non-cardiac: **Isotonic Crystalloid** 500 - 1000 ml bolus, may repeat (Max 2 Liters) ➢ Adult Cardiac: **Isotonic Crystalloid** 250 - 500 ml bolus, may repeat (Max 1 Liter)
PL4 PL5	➢ Tranexamic acid **(TXA)** IV for hypotension due to hemorrhage
PL5	➢ Norepinephrine **(Levophed)** IV infusion, titrated to MAP ≥ 65 (following fluid resuscitation)
	➢

Consult:

On call **System Medical Director** as needed.

Pediatrics Suggest:

- **Isotonic Crystalloid** bolus 20 ml/kg IV
- Epinephrine **infusion**

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Adult Hypotension can be defined as a systolic blood pressure of (less than) < 90 mmHg or MAP < 60. And, s/s of hypoperfusion (AMS, skin changes, poor pulses)
- Consider all possible causes of shock and treat per appropriate Guideline.
- Patients should always have adequate intravascular fluid load prior to the use of vasopressors.
- MAP calculation [(2 X diastolic) + systolic] divided by 3
- **Isotonic Crystalloid** should be avoided in patients in whom hemorrhage is suspected.

Hypothermia Environmental

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:		
Pediatric Pearls: • **< 37 kg** • **Infants are particularly susceptible to hypothermia**	**Signs & Symptoms:** • Cold, clammy • Shivering • Mental status changes • Extremity pain or sensory abnormality • Bradycardia • Hypotension or shock	**Differential:** • Metabolic disorder (hpoglycemia, hypothyroidism) • Toxins • Environmental exposure • Shock • Sepsis

Clinical Management Options:		
PL 1	PL 2	PL 3	PL 4	PL 5	PL 6	
						➢ **Oxygen,** Target SPO2 92% ↔ 96%
						➢ Temperature less than 95 F (<35 C): remove wet clothing, blankets as needed
						➢ Handle very gently if 88 F (< 30C)
						➢ BGL Assessment
						➢ Use heat packs if equipped
						➢ Increase temperature of transport compartment
						➢ IV access
						➢ Warm IV **Isotonic Crystalloid** if available
						➢
						➢
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for <u>ALL</u> Medication Dosing for Adult and Pediatric patients.**
- Extremes of age are more susceptible (young & 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 this 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.

  <u>Hypothermia:</u>

  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.

IV Access

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:		
Pediatric Pearls: • **< 37 kg**	**Signs & Symptoms:** •	**Differential:** •

Clinical Management Options:	
PL1 PL2 PL3 PL4 PL5 PL6	➢
PL2 PL3 PL4 PL5	➢
PL3 PL4 PL5	➢ Peripheral IV assess per patient condition and need for Medication/Fluids ➢ Intraosseous Procedure EZ-IO **Cardiac Arrest or Critical patient** in which initial IV attempt has failed or is not possible ➢ Lidocaine IO (Adult only for IO infusion pain PRN for Critical patient)
PL4 PL5	➢ External Jugular IV (Adult Only) ➢ Alternate vascular access (indwelling catheter) Draw and discard 10mL of blood before flushing.
PL5	➢ Umbilical vein cannulation (see Obstetrical Emergencies: New Born Care pages 8 & 9 of 9)
	➢

Consult:
On call **System Medical Director** as needed.

Pearls:
• **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
• In the cardiac arrest patient, any preexisting dialysis shunt or external venous catheter may be used. Do not expose open end to air unless clamped.
• Intraosseous with the appropriate adult /pedi device needles.
• Any prehospital fluids or medications approved for IV use, may be given through an intraosseous IV.
• All IV rates should be kept at KVO (minimal rate to keep vein open) unless administering fluid bolus/medications.
• Upper extremity IV sites are preferable to lower extremity sites (except Cardiac Arrest).
• Lower extremity IV sites are contraindicated in patients with vascular disease or diabetes.
• Vasoactive drips should be infused through large bore IV catheter through the antecubital or larger vein
• In post-mastectomy patients, avoid IV, blood draw, injection, or blood pressure in arm on affected side.
• If IV fluid bolus is not needed, use saline lock instead of line.

Pearls Continued:

Alternative Venous Access

Clinical Indications:

- Venous access when traditional means are unsuccessful
- Only in those patients with life-threatening situations such as cardiac arrest, lethal arrhythmias, or in-extremis from a readily treatable cause (i.e., CHF)

Contraindications:

- Patients where traditional IV access is available

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 injection cap from catheter or allow IV fluids to run dry

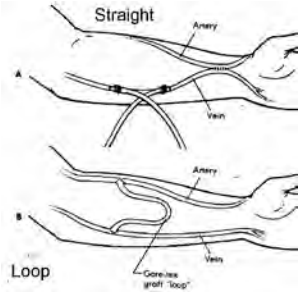
Procedure:

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 injectable port cap with chlorohexadine.
    - If ports are needleless, use appropriate needleless adapter
4. If at any time you are unable to aspirate blood or infuse fluids, 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 chlorohexadine.
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.

Multi-lumen Catheter	Internal Subcuntaneous Port	PICC Line	Hemodialysis Fistula/Graft
			

Nausea/Vomiting

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **Diabetic ketoacidosis may present as vomiting and/or abdominal pain.**

Signs & Symptoms:

- Fever
- Pain
- Constipation
- Diarrhea
- Anorexia
- Hematemesis

Differential:

- CNS (Increased pressure, headache, stroke, CNS Lesions, trauma or hemorrhage),
- Vestibular
- AMI
- Drugs (NSAIDs, antibiotics, narcotics, chemotherapy.)
- GI or Renal disorders
- Diabetic Ketoacidosis
- Uremia
- Gynecologic disease (Ovarian Cyst / PID)
- Infections (pneumonia, influenza)
- Electrolyte abnormalities
- Food or Toxin induced
- Pregnancy

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ **Oxygen**, Target SPO2 92% ↔ 96%
						➢ BGL assessment
						➢ Orthostatic vital sign assessment if appropriate
						➢
						➢ IV access
						➢ Adult: Ondansetron **(Zofran)** PO/IM/IV
						➢ Pediatric: Ondansetron**(Zofran)** IV Do Not administer if < 6kg **or** Ondansetron**(Zofran)** PO Do Not administer if < 12kg
						➢ Diphenhydramine IV/IM/PO if N/V refractory to Ondansetron
						➢ IV fluid with **Isotonic Crystalloid** as needed for dehydration
						➢ Monitoring & Interpretation of ECG
						➢ Tranexamic acid **(TXA)** IV with confirmed upper or lower GI bleeding **and** Hypotension if < 3 hours since bleeding onset.
						➢ Haloperidol IV/IM for refractory N/V

Consult:

On call **System Medical Director** as needed.

Pearls:

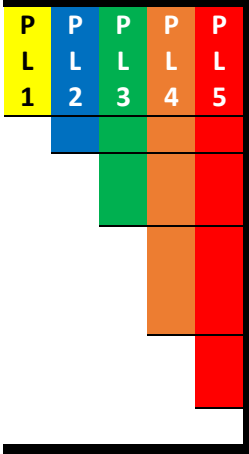
- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Number of times of emesis
- Appearance of emesis: (bloody, coffee grounds, bilious –green bile--, solids and liquid or just liquid)
- Heart Rate: One of the first clinical signs of dehydration, almost always increased heart rate, tachycardia increases as dehydration becomes more severe, very unlikely to be significantly dehydrated if heart rate is close to normal.

Obstetrical Emergency

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:		
History: • Past medical history • Hypertension meds • Prenatal care • Prior pregnancies / births • Gravida / Para	**Signs & Symptoms:** • Vaginal bleeding • Abdominal pain • Seizures • Hypertension • Severe headache • Visual changes • Edema of hands and face	**Differential:** • Pre-eclampsia / Eclampsia • Placenta Previa • Placenta abruptio • Spontaneous abortion

Clinical Management Options:



- **Oxygen**, Target SPO2 92% ↔ 96%
- If Post-Partum Hemorrhage: Fundal Massage & Encourage infant to breast feed
-
- IV access and fluid challenge with **Isotonic Crystalloid** titrated to effect for vaginal bleeding
- Suspected Eclampsia: **Magnesium Sulfate** IV placed into 50ml/IC and infuse over 5 minutes
- Monitoring & Interpretation of ECG and ETCO2
- **Tranexamic acid (TXA)** IV for hypotension due to significant hemorrhage following delivery or delayed placenta delivery
-

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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.
- Post-partum hemorrhage defined as blood loss > 1000mL or greater than 500mL with signs/symptoms of hypotension. 500mL blood loss is commonly seen in uncomplicated vaginal deliveries without signs or symptoms. The perineum should be checked for bleeding from vaginal tears which may be mistaken for uterine bleeding. 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
- If > 20 weeks, consider left lateral position.
- Ultrasound, if available, for PL-5 for fetal heart tones and movement.

Obstetrical: Labor and Child Birth

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

History:	Signs & Symptoms:	Differential:
• Due date or LMP • Time contractions started / how often • Rupture of membranes • Time / amount of any vaginal bleeding • Sensation of fetal activity • Past medical and delivery history • Gravida/Para Status • Medications • High Risk pregnancy (known)	• Episodic pain • Vaginal discharge or bleeding • Crowning or urge to push • Meconium • Urge to defecate	• Abnormal presentation -- Buttock -- Foot -- Hand • Prolapsed cord • Placenta Previa • Abruptio placenta • Premature labor

Clinical Management Options:

PL1 PL2 PL3 PL4 PL5 PL6

- Oxygen, Target SPO2 92% ↔ 96%
- When the mouth appears over the perineum. Immediately suction mouth, then nose.
- If Post-Partum Hemorrhage: Fundal Massage & Encourage infant to breast feed
- Skin to Skin contact for mother and baby
- See Pearls for Birthing Procedure, Position Complications and APGAR scoring
-
- IV access and fluid challenge with **Isotonic Crystalloid** titrated to effect for vaginal bleeding
- Tranexamic acid **(TXA)** IV for hypotension due to significant hemorrhage
-
-

Consult:

On call **System Medical Director** as needed.
For assistance with all indicated "Complications of Labor"

Pearls:

- Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.
- 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: New Born Care

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

History:	Signs & Symptoms:	Differential:
•Due date and gestational age •Multiple gestation (twins etc.) •Meconium •Delivery difficulties •Congenital disease •Medications (maternal) •Maternal risk factors - substance abuse - smoking	• Respiratory distress • Peripheral cyanosis or mottling (normal) • Central cyanosis (abnormal) • Altered level of responsiveness • Bradycardia	• Airway failure ○ Secretions ○ Respiratory drive • Infection • Maternal medication effect • Hypovolemia • Hypoglycemia • Congenital heart disease • Hypothermia

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ 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: Birth to 5 days 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 SPO2 if < 95%
						➢ If after initial ventilations pulse continues at > 100: Monitor and Reassess
						➢ BGL heel stick
						➢
						➢ After umbilical vein cannulation by PL5 or IO by PL3 (cardiac arrest/critical): • Naloxone IV if Mother received narcotics during (or just prior to childbirth) • Dextrose Infusion if BGL < 50 • **Isotonic Crystalloid** bolus titrate to perfusion
						➢
						➢ Advanced Airway Management as needed
						➢ Umbilical vein cannulation (see pages 8 & 9 of 9)
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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).
- Consider hypoglycemia in infant and administer **Dextrose with BGL < 50, use volume control device (IV Burette) for Infusion.**

Pearls Continued:

Clinical Indications:

- Imminent delivery with crowning

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 **New Born 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 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.

Pearls Continued:

10. If the head does not deliver immediately, action must be taken to prevent suffocation of the infant.
    - Place a gloved hand in the vagina with the palm toward the babies face.
    - Form a "V" with the index and middle fingers on either side of the infant's nose.
    - Gently push the vaginal wall away from the infant's face, so that the infant can breathe, until the head is delivered.
    - 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.

Complications of Labor
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.

Complications of Labor
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.

Complications of Labor
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:
    - Apply pressure with the fingertips and palm of a gloved hand and push the uterine fundus upward and through the vaginal canal.
    - If procedure is ineffective, cover all protruding tissues with moist sterile dressings and rapidly transport to hospital.

Pearls Continued:

Complications of Labor
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

Unless multiple births are anticipated, begin fundal massage.
Use TXA.

Pearls Continued:

The APGAR score is tool used to evaluate and document a newborn's response to the extra uterine environment. It is generally performed at 1 minute, and again at 5 minutes after birth.

APGAR scores

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

Thorough assessment, not APGAR scoring, should determine if, and what type of resuscitation efforts may be required for a newborn

APGAR

1 Minute		*5 Minutes*
_____ _____ _____ _____ _____	**A** Appearance **P** Pulse **G** Grimace **A** Activity **R** Respiratory **0=Absent** **1=Weak** **2=Strong**	_____ _____ _____ _____ _____
Total_____		**Total_____**

	Sign	0 Points	1 Point	2 Points
A	**Appearance** (Skin Color)	Blue-gray, pale all over	Pink except for extremities	Pink over entire body
P	**Pulse**	Absent	<100/min	>100/min
G	**Grimace** (Reflex Irritability)	No response to stimuli	Grimaces in response to stimuli	Sneezes, coughs, pulls away
A	**Activity** (Muscle Tone)	Absent, flaccid	Arms and legs flexed	Active movement
R	**Respiration**	Absent	Slow, irregular	Good, crying

APGAR scores should be assessed at 1 minute and again at 5 minutes after birth.
****Resuscitation efforts should not be stopped or delayed in order to obtain an APGAR Score****

Pearls Continued:

Umbilical Vein Cannulation

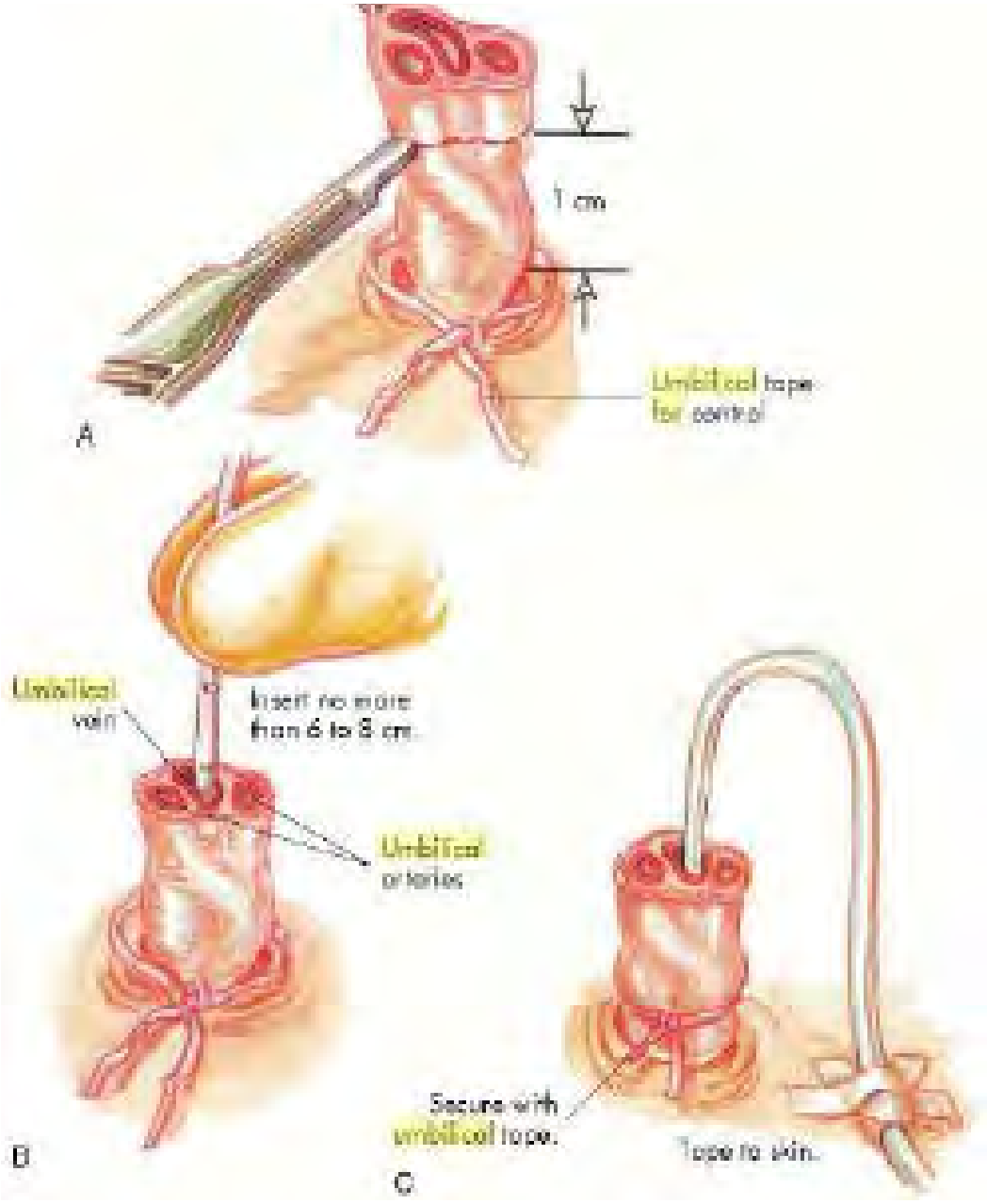
► Indication: Intravenous access needed for resuscitation and stabilization of a newborn.

► Contraindication: Ability to obtain peripheral venous/IO access.

► Procedure:

1. Prep umbilical cord with chlorohexidine solution.
2. 12 ml syringe filled with normal saline
3. Attach 3 way stopcock to syringe
4. Attach catheter to stopcock
5. Flush entire system with saline to prevent air embolus and close stopcock
6. Place a constricting loop around umbilical cord using umbilical tape, but do not tighten at this time.
7. Secure umbilicus with thumb and finger or artery clamp.
8. Straight cut the umbilical cord proximal to clamp site with a scalpel (a few cm above the abdomen).
9. Identify the umbilical vein. Typically, it is located at six o'clock and has a thinner wall and larger lumen than the umbilical arteries.
10. Insert umbilical vein catheter 3.5 Fr (preterm) or 5.0 Fr (full term) and advance 1 - 2 cm beyond point at which blood returns freely.
11. Open stopcock and gently aspirate on syringe slowly to confirm lack of resistance
12. If no "flashback" of blood is noted, catheter may be inserted too far; withdraw catheter slightly and check for flashback.
13. Flush with normal saline
14. Advancing catheter too far can result in placement within the liver and can lead to liver necrosis. If a commercial catheter is not available, a 20g peripheral angiocath (needle removed) with an extension set can be used as an alternative.
15. Gently tighten umbilical tape to help secure catheter in place and to prevent bleeding.
16. Tape/secure Fr catheter or extension set to minimize potential loss of access.
17. Secure all sharps appropriately
18. Document need for procedure and procedure as appropriate.

Pearls Continued:



Organophosphate Exposure

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:		
Pediatric Pearls: • **< 37 kg**	**Signs & Symptoms:** • Salivation • Lacrimation • Urination • Defecation • GI distress • Emesis • Bronchospasm • Bronchorrhea • Bradycardia • Seizure	**Differential:** • Stroke • MI • Asthma/COPD • Other chemical weapon • Biologic weapon • Overdose • Food borne illness • Airborne irritant (hydrogen sulfide, chlorine, etc)

Clinical Management Options:	
PL1 PL2 PL3 PL4 PL5 PL6	➢ Scene Safety, PPE ➢ Decontamination if trained and equipped ➢ **Oxygen**, Target SPO2 92% ↔ 96%
PL2 PL3 PL4 PL5	➢ If Hypersalivation: **Ipratropium Bromide** neb. ➢ CPAP when possible
PL3 PL4 PL5	➢ IV access
PL4 PL5	➢ **Atropine** IM/IV/IO titrate to secretions ➢ **Pralidoxime** IM/IV/IO **if available during MCI**
PL5	➢ If Seizures: **Midazolam** IM/IN/IV May repeat PRN
	➢

Consult:
On call **System Medical Director** as needed.

Pearls:
• **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
• Follow HazMat procedures for decontamination.
• Assure decontamination prior to initiating treatment unless specially trained and equipped.
• Atropine should be given until salivation improves. There is no max dose of Atropine in this setting.

Overdose

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- SBP >70 + (age in years x 2) mmHg

Signs & Symptoms:

- Mental status changes
- hypotension/ hypertension
- Decreased respiratory rate
- Tachycardia, dysrhythmias
- Seizures

Differential:

- Tricyclic antidepressants
- Acetaminophen (Tylenol)
- Depressants
- Stimulants
- Anticholinergic Syndrome
- Cardiac medications
- Solvents, alcohols, cleaning agents
- Insecticides (organophosphates)
- Head trauma/CVA
- Sepsis
- Hypoglycemia
- Serotonin Syndrome

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6
➢ **Oxygen**, Target SPO2 92% ↔ 96% ➢ Basic Airway Maneuvers ➢ Narcotic OD: Naloxone IN **only**, if respirations are depressed					
➢					
		➢ IV access ➢ Narcotic OD: Naloxone IV/IM, if respirations are depressed			
			➢ Monitoring & Interpretation of ECG, ETCO2		
				➢ Advanced Airway Maneuvers ➢ Sedation: Midazolam IM/IN/IV May repeat PRN Do Not admin if <5kg ➢ Pediatric if Calcium channel/Beta blocker: Epinephrine **infusion** & Glucagon IV ➢ Tricyclic overdose: Sodium Bicarbonate IV, followed by a maintenance drip run at 100mL/hr. = (100gtts/min) ➢ Transcutaneous Cardiac Pacing (TCP)	
					➢

Consult:

On call **System Medical Director** as needed.

Adult Calcium Channel/Beta Blocker OD: Calcium Chloride IV Over 10 minutes & Glucagon IV **(PL5)**

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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 alert mental status to death.
- Depressants: decreased HR, decreased BP, decreased temperature, decreased respirations, non-specific pupils.
- Stimulants: increased HR, increased BP, increased temperature, dilated pupils, seizures.
- Anticholinergic: increased HR, increased temperature, dilated pupils, mental status changes.
- Cardiac Meds: dysrhythmias and mental status changes.
- Solvents: Nausea, vomiting, and mental status changes.
- Cholinerse/Insecticides: increase or decreased HR, increased secretions, nausea, vomiting, diarrhea, pinpoint pupils.
- Consider contacting the US/Texas Poison Control Center for guidance. 1-800-222-1222
  DECON of 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 – 20 mg)

Pain Management

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**

Signs & Symptoms:

- Severity (pain scale)
- Quality
- Radiation
- Relation to movement, respiration
- Increased with palpation of area.

Differential:

- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural / Respiratory
- Neurogenic
- Renal (colic)

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ Bleeding Control ➢ **Oxygen:** Target SPO2 92% ↔ 96% ➢ Pain Scale assessment 0 – 10 or Wong-Baker faces for pediatric pain scale ➢ SMR Evaluation/Bandaging/Splinting as needed ➢ Ice Pack as needed ➢ Bilateral blood pressure measurements (for potential AAA dissection)
						➢
						➢ Acetaminophen PO ➢ Ibuprofen PO (Adults only) ➢ Ketorolac IV (Adults only & **no** OB) **OLMC or if on-scene PL5 directs also, NOT** used in Cardiac Chest Pain or non-isolated orthopedic trauma ➢ IV access and **Isotonic Crystalloid** as needed
						➢ Continuous ETCO2
						➢ Fentanyl IV/IM/IN and/or Ketamine IV/IM Adults only
						➢

Consult:

On call **System Medical Director** as needed.

- Lidocaine IV/IO - Pain Management for Kidney Stone

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Pain severity (0-10) is a vital sign to be recorded pre and post IV or IM medication delivery and at disposition.
- Vital signs should be obtained pre, 5 minutes post, and at disposition with all pain medications.
- Monitor patient closely for over sedation - refer to Overdose Guideline if needed.
- Head injury patients should not receive pain medication
- 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 severe 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 a spinal epidural abscess should be considered.
- Controlled substances are discouraged for non-traumatic back pain.

Pain Management

COG Updated: 10.01.18
(MD 18 – 08)

Pearls Continued:

Pain Assessment and Documentation

Clinical Indications:

- Any patient

Definitions:

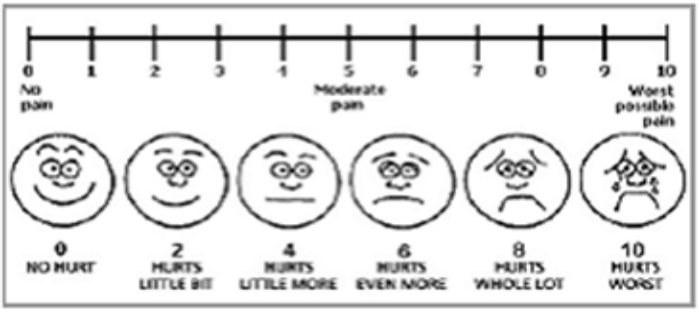
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.
- Pain is subjective (whatever the patient says it is)

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 documented in the PCR/ePCR during initial assessment, before starting pain control treatment, with each set of vitals after a pharmaceutical pain management intervention, and with vital signs until transfer of care.
3. Three pain scales are available: the 0 – 10 Scale, the Wong-Baker "faces", and the FLACC.

- **0 – 10 Scale**: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.
- **Wong-Baker "FACES" Scale**: This scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.
- **FLACC Scale**: This scale has been validated for measuring pain in children with mild to severe cognitive impairment and in pre-verbal children (including infants).

Wong-Baker Faces



Face 0	Very happy. Doesn't hurt at all
Face 2	Hurts just a little bit.
Face 4	Hurts a little more
Face 6	Hurts even more
Face 8	Hurts a whole lot
Face 10	Hurts as much as you can imagine. Don't have to be crying to feel this bad

FLACC Scale

Categories	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 and relaxed	Reassured by occasional touching hugging or being talked to, distractible	Difficulty to console comfort

Patient Referral Guideline for ATU, MCOT or Psychiatric ED

COG Updated: 08.26.19
(MD 19 – 03)

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.

General Applicability:
- Age ≥ 18 and ≤ 65 years old
- Does not require stretcher for safe & comfortable transport
- Does not require special precautions for infectious diseases
- Patient does not meet any alert criteria
- Will not require monitoring, re-evaluation of treatment or ongoing treatment during transport
- No attempted overdose using an illicit drug or medication (Prescription or OTC)

Immediate Exclusion Criterion:
- Cannot sit/stand/walk/pivot
- Any patient with on going bleeding, wounds requiring repair, or suspected head injury
- Any acute neuro-focal changes
- GCS < 14, Syncopal Episode, Seizure (< 24 hr.)
- Complaint of chest pain or shortness of breath
- Has been and /or is expected to be violent
- Evidence of GI Bleeding
- Female of child bearing age with any of the following:
  - Localized abdominal pain
  - LMP >12 weeks ago
  - Unusual or unexpected vaginal bleeding or discharge

Patients must be transported in an ambulance to an Adult or Pediatric Facility per the transport criterion in: Clinical Reference CR-13

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

Patient has **not** ingested medication (prescription or OTC) outside the normal dosing range

Respiratory rate > 10 and < 24, SPO2 ≥ 92% room air

Pulse is < 110 and > 60 bpm

SBP <200 or >100 and DBP <120 or >60 AND no associated symptoms such as headache, neurologic changes, chest pain, or shortness of breath

Patients have a blood glucose that is:
- ≥ 70 and <200 with no history of diabetes;
- <300 in patients with a history of diabetes and no complains of abdominal pain, nausea or vomiting
- No S/S of DKA

Circumstantial Evaluation all of these must apply:
- Patient understands and follow commands
- Patient does not require physical restraint(s)
- Patient is not in the custody of a peace officer
- A physician has not specifically requested ambulance transport

Out of range or contrary to statement.

Patient may be referred to ATU, MCOT or TSP to Psych. ED Center

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

Patient Referral Guideline for Sobering Center ED

COG Updated: 08.26.19
(MD 19 – 03)

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.

General Applicability:

- Age ≥ 18
- Does not require special precautions for infectious diseases
- Patient does not meet any alert criteria
- Will not require monitoring, re-evaluation of treatment or ongoing treatment during transport
- No attempted overdose using an illicit drug or medication (Prescription or OTC)

Immediate Exclusion Criterion:

- Any patient with on going bleeding, wounds requiring repair, or suspected head injury
- Any acute neuro-focal changes
- GCS < 13, Syncopal Episode, Seizure (< 24 hr.)
- Complaint of chest pain or shortness of breath
- Has been and /or is expected to be violent
- Evidence of GI Bleeding
- Evidence of suicidal/homicidal ideation
- Suicide attempt within last 48 hours
- Female of child bearing age with any of the following:
  - Localized abdominal pain
  - LMP >12 weeks ago
  - Unusual or unexpected vaginal bleeding or discharge

Patients must be transported in an ambulance to an Adult or Pediatric Facility per the transport criterion in: Clinical Reference CR-13

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

Respiratory rate > 10 and < 24, SPO2 ≥ 92% room air
Pulse is < 130 and > 50 bpm
SBP <180 or ≥ 90 and DBP <120 or >50 AND no associated symptoms such as headache, neurologic changes, chest pain, or shortness of breath

Patient may be referred to Sobering Center

Pulmonary Edema

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **Pediatric patients should not receive Nitro.**

Signs & Symptoms:

- Bilateral rales
- Jugular vein distention
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypotension, shock
- 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**, Target SPO2 92% ↔ 96%
						➢ Position of Comfort
						➢ Aspirin PO if Chest Pain/ACS
						➢ Consider CPAP up to 10 PEEP with rales/ronchi indicating wet lung sounds
						➢ NTG SL q 5min if SBP ≥100 mmHg
						➢ NTG Topical Paste to Chest Wall if SBP ≥100 mmHg
						➢ 3/4/12 Lead placement/acquisition of ECG
						➢ IV access
						➢ Monitoring & Interpretation of ECG, ETCO2
						➢ Norepinephrine **(Levophed)** IV infusion, titrated to MAP ≥ 65
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult 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 ASA.
- 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. **8L = 5PEEP, 10L = 8PEEP, 12L = 10PEEP**
- Patient BP may drop with CPAP, if CPAP is necessary for oxygenation/ventilation, may move to add pressor.

Respiratory Distress

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**

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 (Carbon monoxide, etc.)
- Croup/Epiglottis
- Congenital heart disease
- Trauma
- Hydrocarbon Ingestion

Clinical Management Options:

PL 1	PL 2	PL 3	PL 4	PL 5	PL 6	
						➢ **Oxygen**, Target SPO2 92% ↔ 96% ➢ Position of Comfort ➢ BLS Airway Management
						➢ If Wheezing: (non-cardiac) Assist with patient's MDI 2 puffs PRN -**or**- **Albuterol with Ipratropium Bro. Neb** Continuous as needed ➢ If Wheezing: Consider CPAP at 5 PEEP (if refractory to NEB) ➢ If Stridor: Nebulized **Isotonic Crystalloid** 3mL
						➢ IV access
						➢ Continuous ECG and ETCO2 monitoring ➢ If Wheezing: **Magnesium Sulfate** IV place into 50ml/NS and infuse over 20 min ➢ If Stridor: **Epinephrine** Neb mixed into 1 mL NS ➢ If Wheezing or Stridor: **Epinephrine** IM ➢ If Wheezing or Stridor: **Methylprednisolone** IV
						➢
						➢

Consult:

On call **System Medical Director** as needed.

- **Ketamine** IM for Bronchospasm in the critically ill patient that is not responding adequately to other treatments.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- ETCO2 & Pulse Oximetry must be monitored continuously if initial saturation is less than 95%, or there is a decline in patient's status despite normal pulse oximetry readings.
- Contact Medical Control if patient is refractory to therapy.
- A silent chest in respiratory distress is a pre-respiratory arrest sign.
- Chronic COPD may have elevated CO2 at baseline. Utilize assessment to determine worsening / impairment.
- Patient respiratory status must be reassessed after each Neb to determine need for additional dosing.
- CPAP if continued respiratory distress and if adequate mask seal can be established.**O2 flow rate 8 L for 5 PEEP**
- If hypotension develops with CPAP, consider decreasing PEEP and/or adding **Levophed.**
- Special Operations may provide and administer **Albuterol via MDI**
- Ultrasound, if available for PL-5, if pneumothorax/hemothorax suspected.

Seizure

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- **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
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg, K+)
- Drugs, Medications, Non-compliance
- Infection / Fever
- Alcohol withdrawal
- Eclampsia
- Stroke
- Hyperthermia
- Hypoglycemia

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6
➢ **Oxygen**, Target SPO2 92% ↔ 96%					
➢ BGL assessment, CPSS assessment					
➢ SMR assessment					
➢ BLS Airway Management					
	➢ Patient Assist: Vagus Nerve Stimulator (VNS) q 60 sec may repeat x 3				
		➢ IV access if appropriate ➢ If Pediatric Temp > 100.4: Acetaminophen PO			
			➢ Monitor ETCO2		
				➢ Active Seizure, Anti Convulsant: Midazolam IM/IN/IO/IV Titrated to effect, Do Not admin if <5kg	
					➢

Consult:

On call **System Medical Director** as needed.

- Ketamine IM **(PL5) for patient refractory to Midazolam with convulsive Refractory Status Epilepticus (RSE)**

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- **Impending Status epilepticus** is defined as two or more successive seizures or a continuous seizure lasting 5 min without a period of consciousness or recovery. This is a true emergency requiring rapid airway control, treatment, and transport.
- **Grand mal seizures (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 a focal seizure and become generalized.
- Assess possibility of occult trauma and substance abuse.
- Be prepared to assist ventilations, especially if Midazolam is used.
- **For any seizure in a pregnant or recently post-partum patient, consider eclampsia. Follow the OB Emergencies Guideline.**
- Addressing the ABCs and verifying blood glucose is more important than stopping the seizure. Hypoglycemia is the 2nd most common cause of seizure
- Be prepared to assist ventilations especially if a benzodiazepine is used. Avoiding hypoxemia is extremely important.
- In an infant, a seizure may be the only evidence of a closed head injury.
- Exam: Mental Status, HEENT, Heart, Lungs, Extremities, Neuro

Pearls Continued:

Vagus Nerve Stimulator (VNS)

Clinical Indications:

- Patients with an implanted Vagus Nerve Stimulation device used in the management of seizures and a magnet for increasing stimulation or temporarily disabling the device

Contraindications:

- Use of magnet for any other condition other than activating the VNS device

Notes/Precautions:

- The patient and/or family should be familiar with the device and are usually able to manage the patient/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 seizure:
    - Pass the magnet over the vagal nerve stimulator generator for 1-2 seconds;
    - Repeat process in 60 seconds;
    - May repeat up to total of 3 times.
3. Transport patient to hospital.

Sepsis and Septic Shock

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Pediatric patients with sepsis may have myocardial depression
- Pediatric hypotension is defined as a SBP <70 + (age in years x 2) mmHg

Inclusion Criteria:

- Trigger for sepsis guideline:
  - Known or suspected infection AND
  - ETCO2 <32 or >45
- AND 2 or more of the following:
  - Temp <96.8 or >100.4 °F
  - Heart rate >95
  - Systolic BP <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** Target SPO2 92% ↔ 96% ➢ BGL Assessment ➢ Keep patient warm
						➢ 3/4/12 Lead placement/acquisition of ECG if equipped ➢ EtCO2 if equipped
						➢ Acetaminophen PO ➢ IV access and fluid challenge with **Isotonic Crystalloid** 30 mL/kg
						➢ Monitoring & Interpretation of ECG, ETCO2
						➢ Norepinephrine **infusion**, titrate to MAP of >65 if not responsive to IV fluid
						➢ **Ceftriaxone,** or **Cefepime** for severe Sepsis or Septic Shock

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Elderly sepsis patients often become hypothermic instead of developing fever.
- Hypoglycemia is not uncommon in patients with sepsis, particularly those on beta blockers.
- Treat wheezing, hypoxia, dyspnea, and pain as per appropriate clinical guideline.
- 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.

Spinal Motion Restriction (SMR)

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

The purpose of this guideline is to assist in determining if SMR is to be used for the patient during transport. The use of a C-Collar may be appropriate and / or necessary based upon patient complaint/condition. If there are any doubts the default is to apply SMR including C-Collar. SMR may be achieved by using any of the following currently approved devices: Ambulance Stretcher or LSB or Scoop Device.

Clinical Management Options:

	Transport with SMR: may use Ambulance Stretcher or LSB or Scoop Device & Transport in a Supine Position bed flat.	Transport NO SMR Needed
PL 1	Indications for SMR following blunt trauma include: • Acutely altered level of consciousness (e.g., GCS <15, evidence of intoxication also for Pediatric Patients agitation, apnea, hypopnea, somnolence) • Torticollis (patient is unable to move neck from "abnormal position" to "normal position") • Midline neck or back pain and/or tenderness • Focal neurologic signs and/or symptoms (e.g., numbness or motor weakness) • Anatomic deformity of the spine • Distracting circumstances or injury (e.g., long bone fracture, degloving, or crush injuries, large burns, etc.) or any similar injury that impairs the patient's ability to contribute to a reliable examination • Involvement in a high-risk motor vehicle collision, high impact diving injury, or has substantial torso injury. • Communication barrier (emotional/Language/cogitative impairment)	• NO Obvious Injury • NO Midline Tenderness • NO Pain with Movement • NO Distracting Injury • NO communication impairment • No Neuro Abnormalities • No Penetrating Trauma

Consult:

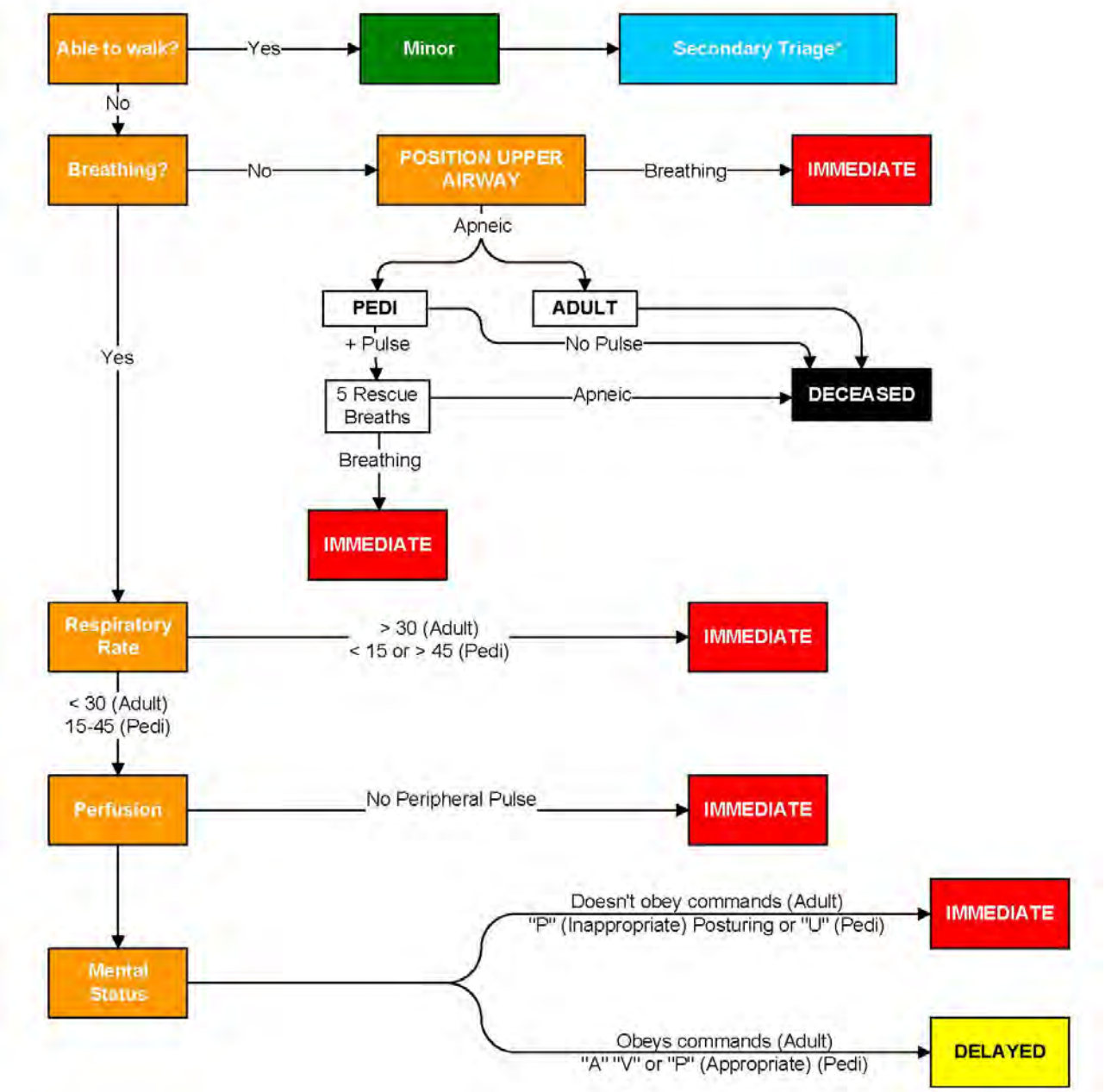
On call **System Medical Director** as needed.

Pearls:

- **Required Exam: Mental Status, Skin, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Consider SMR in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.**
- **The decision to NOT implement SMR in a patient is the responsibility of all Providers/Responders.**
- **In patients that are ≤ 5 and ≥ 65, a normal exam may not be sufficient to rule out spinal injury.**
- **Patient's Range of Motion (ROM) should NOT be assessed if patient has midline spinal tenderness**. 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.
- 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.
- Utilization of the LSB should occur in consideration of the individual patient's benefit vs. risk.
- 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.
- 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.
- 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.

START or Jump START Triage Algorithm

COG Updated: 10.01.18
(MD 18 – 08)



Pearls:

- *** Using the Jump Start Algorithm, first evaluate all children/adults who did not walk under their own power.**
- All EMS providers are encouraged to use the Triage Algorithm any time there are more than 2-3 patients requiring evaluation, treatment or transport.

Stroke

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

Pediatric Pearls:

- **< 37 kg**

Signs & Symptoms:

- Altered mental status
- Weakness / Paralysis
- Blindness or other sensory loss
- Aphasia / Dysarthria
- Syncope
- Vertigo / Dizziness
- Vomiting
- Headache
- Seizures
- Respiratory pattern change
- Hypertension / hypotension

Differential:

- Altered Mental Status
- TIA (Transient ischemic attack)
- Seizure
- Hypoglycemia
- Hypoxia/Hypercarbia
- Stroke
- Thrombotic/Embolic (85%)
- Hemorrhagic (15%)
- Tumor
- Trauma
- Atypical migraine

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ **Oxygen**, Target SPO2 92% ↔ 96% ➢ BGL Assessment ➢ Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment
						➢ Positive Stroke Screen and Glucose > 50 and Last known well ≤ 24 hrs. Declare "Stroke Alert" and < 15 minute on-scene time ➢ MRI Safety Screen (needs to be NO to all): ○ Implanted Electronics (Defibrillator, Pacemaker, Medication Pump) ○ Vascular Clips in Brain (previous aneurism) ○ Metallic Foreign Bodies (shrapnel, metal worker, screws)
						➢ IV Access ➢ 2nd IV if time and patient conditions permit
						➢ 12 Lead ECG
						➢
						➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for <u>ALL</u> Medication Dosing for Adult and Pediatric patients.**
- Stroke Patients are transported per criterion below and Hospital Transport Grid CR-13.
- Onset of symptoms is defined as the last time the patient was seen symptom free (i.e. awakening with stroke symptoms would be defined as an onset time of the previous night when patient was 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 listed on the Altered Mental Status Guideline should also 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). <u>Venous blood samples may produce artificially high blood glucose values and should be avoided.</u>
- IV access: preferred catheter sizes are 20g or 18g with A/C placement.

Pearls Continued:

Stroke Alert Criterion:

This criterion is for patients exhibiting current signs and symptoms of a Stroke as evidenced by using the "Cincinnati Prehospital Stroke Scale" (CPSS).

If the patient's current presentation and history (last known well) are suggestive of stroke (≤ 24 hours), early notification **(STROKE ALERT)** and rapid transport to a designated Stroke Center per Hospital Transport Grid Clinical Reference CR-13 is warranted. The "ALERT" status declaration is made to Communications for their assistance in advance notification of the Hospital that is selected by the Transport Providers.

Transport Guidelines for patients designated as "STROKE ALERT" are as follows.

If "last known well" is **< 3 hours**.

- These patients are transported to Hospital Facilities that are System designated as Primary **or** Comprehensive Stroke Centers.
- Transporting to a Primary Stroke Center is appropriate if**: the transport time to a Comprehensive Stroke Center is > 15 minutes (approx.) longer than the transport time to a Primary Stroke Center.** This time is **estimated** by the Transport Providers based upon their immediate location and known current traffic/travel conditions. Should traffic/travel conditions deteriorate during transport; the Providers should advise communications and divert to the nearest Primary Stroke Center.

If "last known well" is **≥ 3 hours** or evidence of a LVO.

- These patients are transported to Hospital Facilities that are System designated as Comprehensive Stroke Centers.
- Patients that present with current Stroke signs and symptoms ≤ 24 hours are to be transported to a Comprehensive Stroke Center for an evaluation taking into account the above 3 hour transport criterion

Patient's that are without a current Stroke presentation and have a history suggestive of a T.I.A.; are to be transported to a Primary **or** Comprehensive Stroke Center for an evaluation. These T. I. A. patients' are **not** considered Stroke Alert Patients.

Pearls Continued:

Cincinnati Pre-hospital Stroke Screen

Clinical Indications:

- Assessment of suspected stroke patient.

Procedure:

1. Initiate assessment and treatment of the suspected stroke patients in accordance with the Stroke Guideline. Utilize STROKE CHECKLIST listed below whenever possible.
2. Ascertain the last time the patient was seen normal to establish the time of **"last known well".**
3. Obtain a blood glucose level according to the blood glucose procedure.
4. Perform the Cincinnati Prehospital Stroke Screen (CPSS).
   - All portions of CPSS must be completed. Any abnormality in the screening is positive for stroke
5. If time of "last known well" of current symptoms (as defined above) is ≤ 24 hrs, the blood glucose reading is > 50 and the CPSS is positive declare a STROKE ALERT and initiate transport to a designated Stroke Center.
6. Whenever possible identify a family member or historian to accompany the patient to the hospital. Or, provide the hospital with contact information of someone who can.

Cincinnati Prehospital Stroke Screen (CPSS)

Test	Finding
Facial Droop: Have the patient smile or show 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, for 10 seconds	❑ **Normal** – both arms move the same or both arms are held steady ❑ **Abnormal** – one arm drifts downward or the palm turns towards the ground (pronator drift*) when compared with the other or, cannot 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: the forearm will pronate and the arm will drift downwards.**

Pearls Continued:

Stroke Checklist

- ❑ Time patient "last known well" ≤ 24 hrs.
- ❑ Blood glucose >50
- ❑ Cincinnati Prehospital Stroke Screen (CPSS):
  - o Facial droop
  - o Arm drift
  - o Slurred speech
- ❑ Declare STROKE ALERT
- ❑ ID family/historian to accompany
- ❑ Scene time < 15 min

Syncope

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:		
Pediatric Pearls: • **< 37 kg**	**Signs & Symptoms:** • Loss of consciousness with recovery • Lightheadedness, dizziness • Palpitations, slow or rapid pulse • Pulse irregularity • Decreased blood pressure	**Differential:** • Vasovagal • Hypotension/Shock • 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**, Target SPO2 92% ↔ 96% ➢ Blood Glucose Level Assessment ➢ Spinal Motion Restriction Assessment ➢ Cincinnati Pre-hospital Stroke Screen (CPSS) Assessment ➢ Orthostatic vital sign assessment if appropriate
PL2 PL3 PL4 PL5	➢ 3/4/12 Lead placement/acquisition of ECG
PL3 PL4 PL5	➢ IV access if necessary ➢ IV fluid with **Isotonic Crystalloid** as needed for dehydration or hypotension not caused by hemorrhage.
PL4 PL5	➢ Monitoring & Interpretation of ECG
PL5	➢
	➢

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Refer to Drug Formulary Charts for <u>ALL</u> Medication Dosing for Adult 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 causes of syncope.
- More than 25% of geriatric syncope is cardiac dysrhythmia based.
- Anyone > 65 years old should have continuous cardiac monitoring.

Trauma, General

COG Updated: 08.26.19
(MD 19 – 03)

Assessment:

Pediatric Pearls:

- **< 37 kg**
- Consider non-accidental trauma (child abuse)
- **Fluids and Medication titrated to maintain a SBP >70 + (age in years x 2) mmHg**
- **Hypotension: (SBP < 70+ 2x Age in years)**

M – Massive Hemorrhage
A – Airway
R – Respirations (decompression)
C – Circulation (IV, TXA)
H – Hypothermia/Head Inj. (keep warm, Hyperventilate)

P – Pain
A – Antibiotics
W – Wound care
S - Splinting

Clinical Management Options:

PL1

- Control external hemorrhage and apply tourniquet (s) as necessary
- Wound Packing (Junctional/Extremity) with pressure dressing as appropriate for patient. May use Quick Clot Combat Gauze if available.
- Junctional Tourniquets if needed and if available.
- BLS Airway management
- Place occlusive dressing/chest seal over open pneumothorax
- Evaluate for SMR
- Assess GCS score
- Apply pelvic binder if appropriate
- Supine position and keep patient warm
- **Oxygen,** Target SPO2 92% ↔ 96%
- Bandage/splint injuries as appropriate for patient condition
- Declare Trauma Alert if appropriate for patient condition
- If amputation: **Do not delay transport for tissue retrieval**
  - Rinse amputated part with sterile (IC or water).
  - Wrap part in IC moistened gauze
  - Place tissue into plastic bag or container.
  - Place bag / container on ice
- If evidence of brain herniation: hyperventilate the patient 20 – 24 breaths per minute. If available titrate to: Adult and Pediatric ETCO2 30 - 35 mmHg.

PL2

- 12 lead placement and acquisition if appropriate and equipped
- End-tidal CO2 assessment if appropriate and equipped

PL3

- IV Access as needed
- **Isotonic Crystalloid** IV bolus 250 mL if patient shows signs of shock
- **Ketorolac** IV for pain (Adults only & no OB) If available, **OLMC or if PL5 directs**

PL4

- **Tranexamic Acid** IV/IO
- Continuous ETCO2

PL5

- Needle decompression of the chest
- Advanced Airway management
- **Fentanyl** IV/IM/IN and/or **Ketamine** (IM only & Adults only)
- If Spinal Shock Adult: **Norepinephrine (Levophed)** IV Infusion titrated to MAP ≥ 65

PL6

- Finger Thoracostomy, Blood Products Transfusion
- Ceftriaxone, or Cefepime for contaminated wounds

Consult:

On call **System Medical Director** as needed.

- For continued Hypotension in **Pediatric** patients: Suggest additional **Isotonic Crystalloid** bolus 20 ml/kg IV and/or **Epinephrine** **infusion** IV
- For Field Amputation and Escharotomy

Pearls:

- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Consider Chest Decompression with signs of shock and diminished/absent breath sounds. If patient arrests perform bilateral decompression immediately.
- See Regional Trauma Guidelines for criteria when declaring trauma alert. Record "Trauma Alert" in patient record
- If patient meets Trauma Alert criteria interventions should be performed enroute. Minimize scene time.
- 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 ≤ 45 years old. **If suspected neurologic injury maintain Adult SBP ≥ 90**
- 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 documented on all extremity injuries and before and after splinting procedures. Same for neuro status before and after extrication, placement on LSB and before and after transport.
- In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
- If an amputation is incomplete, splint affected digit or limb in physiologic position.
- 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.
- **If evidence of brain herniation (blown pupil, Cushing's reflex, rapid decline in GCS, or bradycardia) and in absence of capnometer, hyperventilate the patient 20 – 24 breaths per minute. If available titrate to: Adult and Pediatric $ETCO_2$ 30 - 35 mmHg.** ETCO2 < 30 is associated with poor neurologic outcomes.
- 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 Restraint Procedure.
- Any documented loss of consciousness, prolonged confusion or mental status abnormality should be evaluated by a physician ASAP.
- Ultrasound, if available for PL-5 for EFAST exam.

Field Triage of Injured Patients

Measure vital signs and level of consciousness

1

- Glasgow Coma Scale ≤ 13
- Systolic Blood Pressure < 90 mmHg
- Respiratory Rate < 10 or >29 breaths per minute, or needed for ventilatory support.(<20 in infant age < 1yr.)

YES → Transport to System Appro
1 or 2 Trauma Center Refe
Appendix A-02 and Clinica
Reference CR-13.

NO

Assess anatomy of injury

2

- All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
- Chest wall instability or deformity (e.g. flail chest)
- Two or more proximal long-bone fractures
- Crushed, degloved, mangled or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralyses

YES → Transport to System Appro
1 or 2 Trauma Center Refe
Appendix A-02 and Clinica
Reference CR-13.

NO

Assess mechanism of injury and evidence of high-energy impact

3

- **Falls**
  - Adults: > 20 ft. (one story is equal to 10 ft.)
  - Children: > 10 ft. or two or three times the height of the child
- **High-risk auto crash**
  - Intrusion, including roof: > 12 in. occupant site; > 18 in. any site
  - Ejection (partial or complete) from vehicle
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with a high risk of injury
- Auto vs. pedestrian/bicyclist thrown, run over, or with significant (> 20 mph) impact
- Motorcycle crash > 20 mph

YES → Transport to System Approve
or 2 Trauma Center Refer to
A-02 and Clinical Reference
Consider consult with Systen
Director if Patient/Family requ
alternate transport destinatio

NO

Assess special patient or system considerations

4

- Older Adults
  - Risk of injury/death increases after age 55 yr.
  - SBP < 110 may represent shock after age 65
  - Low impact mechanisms (e.g. ground level falls) may result in severe injury
- Children
  - Should be triaged preferentially to pediatric capable trauma centers
- Anticoagulants and bleeding disorders
  - Patients with head injury are at high risk for rapid deterioration
- Burns
  - Without other trauma mechanism: triage to burn facility
  - With trauma mechanism: triage to trauma center
- Pregnancy
- EMS provider judgement

NO

Spinal Motion Restriction (SMR)

COG Updated: 10.01.18
(MD 18 – 08)

Assessment:

The purpose of this guideline is to assist in determining if SMR is to be used for the patient during transport. The use of a C-Collar may be appropriate and / or necessary based upon patient complaint/condition. If there are any doubts the default is to apply SMR including C-Collar. SMR may be achieved by using any of the following currently approved devices: Ambulance Stretcher or LSB or Scoop Device.

Clinical Management Options:

	Transport with SMR: may use Ambulance Stretcher or LSB or Scoop Device & Transport in a Supine Position bed flat.	Transport NO SMR Needed
PL 1	Indications for SMR following blunt trauma include: • Acutely altered level of consciousness (e.g., GCS <15, evidence of intoxication also for Pediatric Patients agitation, apnea, hypopnea, somnolence) • Torticollis (patient is unable to move neck from "abnormal position" to "normal position") • Midline neck or back pain and/or tenderness • Focal neurologic signs and/or symptoms (e.g., numbness or motor weakness) • Anatomic deformity of the spine • Distracting circumstances or injury (e.g., long bone fracture, degloving, or crush injuries, large burns, etc.) or any similar injury that impairs the patient's ability to contribute to a reliable examination • Involvement in a high-risk motor vehicle collision, high impact diving injury, or has substantial torso injury. • Communication barrier (emotional/Language/cogitative impairment)	• NO Obvious Injury • NO Midline Tenderness • NO Pain with Movement • NO Distracting Injury • NO communication impairment • No Neuro Abnormalities • No Penetrating Trauma

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Required Exam: Mental Status, Skin, Neck, Heart, Lungs, Abdomen, Back, Extremities, Neuro**
- **Consider SMR in any patient with arthritis, cancer, dialysis or other underlying spinal or bone disease.**
- **The decision to NOT implement SMR in a patient is the responsibility of all Providers/Responders.**
- **In patients that are ≤ 5 and ≥ 65, a normal exam may not be sufficient to rule out spinal injury.**
- **Patient's Range of Motion (ROM) should NOT be assessed if patient has midline spinal tenderness**. 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.
- 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.
- Utilization of the LSB should occur in consideration of the individual patient's benefit vs. risk.
- 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.
- 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.
- 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.

Pearls Continued:

Taser Probe Removal

Clinical Indications:

- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin

Contraindications:

- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal
  - Probes embedded in skin above level of clavicles, genitalia or female breasts
  - Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure

Procedure:

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body using dominate hand.
4. Remove probe in single quick motion.
5. Wipe wound with chlorohexadine wipe and apply dressing.
6. Treat probes as exposed sharps hazard and dispose of accordingly.
7. Law Enforcement may need to keep as evidence

Pearls Continued:

GCS

Eyes Open

- ❑ Spontaneous (4)
- ❑ To Voice (3)
- ❑ To pain (2)
- ❑ None (1)

Best Verbal

- ❑ Oriented (5)
- ❑ Confused (4)
- ❑ Inappropriate (3)
- ❑ Garbled (2)
- ❑ None (1)

Best Motor

- ❑ Obeys (6)
- ❑ Pain-Local (5)
- ❑ Pain withdrawal (4)
- ❑ Pain-Flexion (3)
- ❑ Pain-Extended (2)
- ❑ None (1)

Pearls Continued:

Kendrick Traction Device (KTD)

Clinical Indications:

- Open or closed mid-shaft femur fracture

Contraindications:

- Injuries immediately proximal, or involving the knee joint
- Injury to the pelvis
- Partial amputation
- Lower leg or ankle injuries
- If use would delay transport of a patient with a life-threatening condition

Notes/Precautions:

- Isolated proximal femur fractures in the elderly are usually best managed with anatomical splinting utilizing a scoop stretcher. Traction splints are not appropriate for proximal femur fractures

Procedure:

1. Patient should be supine.
2. Check distal circulation, sensation, and motion.
3. Apply the ankle hitch tightly, slightly above the ankle bone.
4. Tighten stirrup by pulling the GREEN tabbed strap until the hitch fits snugly under the heel.
5. Apply upper thigh system by sliding male buckle under the leg at the patella, and using a “see-saw” motion, slide the strap upward until positioned in the groin.
6. Engage the buckle and cinch the strap until the traction pole receptacle is positioned at the belt-line or pelvic crest. Assure that genitalia is clear of strap.
7. Snap out traction pole making sure that each joint of the pole is securely seated.
8. Place traction pole alongside the leg so that one section (8”) extends beyond the bottom of the foot.
9. Adjust pole length as required (i.e., pediatric vs. adult). Insert pole end, or ends, into the traction pole receptacle.
10. Secure elastic strap around knee.
11. Place YELLOW tab over pointed (dart) end of traction pole and apply traction by pulling RED tab.
12. Patient comfort will be the primary objective. Traction should be applied smoothly by grasping the strap on each side of the buckle and simultaneously feeding and pulling with equal pressure.
13. Finish packaging by applying upper (thigh) and lower (ankle) elastic straps.
14. Reassess distal circulation, sensation, and motion.
15. Secure to long spine board, scoop, etc.

TRAUMATIC CARDIAC ARREST

COG Updated: 08.26.19
(MD 19 – 02)

Assessment:

Pediatric Pearls:	Signs & Symptoms:	Differential:
• **< 37 kg** • Consider non-accidental trauma (child abuse) • **Focus on rapid & early BLS airway and ventilation tools. Intubation may not be the best option for these patients.**	• Traumatic Mechanism • Apnea • Pulseless • EKG: Any non-perfusing rhythm	• Medical Cardiac Arrest

Clinical Management Options:

PL1	PL2	PL3	PL4	PL5	PL6	
						➢ Pit Crew CPR for Trauma ➢ Guidelines per Trauma, General ➢ Pelvic Binder if blunt trauma involving the pelvis
						➢ 4-lead EKG placement if appropriate and equipped ➢ EtCO2 assessment if appropriate and equipped
						➢ IV/IO access with Isotonic Crystalloid bolus until ROSC or up to 1 L
						➢ Needle Decompression ➢ Tranexamic Acid (TXA) (IVP Cardiac Arrest)
						➢ Simple Thoracostomy
						➢ Blood Product administration if appropriate and equipped (instead of crystalloids)

Consult:

On call **System Medical Director** as needed.

Pearls:

- **Scene time and proximity to trauma center should be taken into consideration before performing any advanced procedures prior to transport.**
- **If injuries are obviously incompatible with life (e.g., decapitation, incineration, massive deformity of head or chest) DO NOT ATTEMPT RESUSCITATION and provide survivor/responder grief support and assist law enforcement as needed**
- **Chest decompression SHOULD NOT BE DELAYED for any other medical procedure to be accomplished, including CPR**
- **CPR should be paused during Simple Thoracostomy to minimize risk of provider injury**
- **In multi-patient events, traumatic arrests should not receive intervention until there are sufficient responders present to meet the needs of the living patients.**
- **Refer to Drug Formulary Charts for ALL Medication Dosing for Adult and Pediatric patients.**
- Ultrasound, if available for PL-5 for EFAST exam and/or cardiac motion.

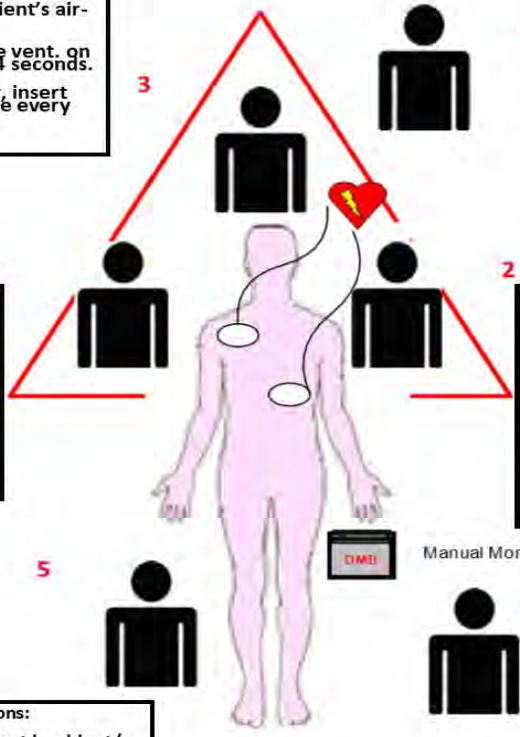
CPR Procedure

Position 3 Priority Actions:

- Assess /clear/open patient's airway
- If Pedi begin immediate vent. on room air once every 3-4 seconds.
- If Adult manage airway, insert BIAD and Ventilate once every 5-6 seconds

Position 4 Priority Actions:

- Assist position 3 with airway adjuncts as needed (Adult and Pedi.)
- Narrate call into AED
- Serve as BLS Team Leader manage/monitor Pit Crew Checklist



Position 1 Priority Actions:

- Asses patient for pulses and respirations
- Begin Pit Crew if pulseless
- Ensure no unscheduled breaks in compressions
- Squeeze bag during off compression cycle

Position 2 Priority Actions:

- Turn on AED/apply pads
- Turn on Vent. Timing Light & Metronome
- Narrate call if no position 4
- Squeeze bag during off compression cycle

Position 5 Priority Actions:

- Identify if the patient has blunt/penetrating injuries to the chest/abdomen
- If ≥PL-5: Simple Thoracostomy procedure if indicated
- If PL-4: Needle Thoracostomy procedure if indicated
- Pelvic Binder if indicated

Position 6 Priority Actions:

- IO / IV access
- Crystalloid Bolus 1 L (Blood product infusion if trained and equipped)
- TXA Bolus
- E-FAST Ultrasound

Continued:

Traumatic Cardiac Arrest Checklist:

- ❑ Pit crew positions identified
- ❑ Continuous compressions being performed with metronome
- ❑ Ventilation timing device activated
- ❑ Nasal Cannula & BVM are attached to oxygen and flowing
- ❑ 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
- ❑ ETCO2 waveform is present and being monitored
- ❑ Simple Thoracostomy completed
- ❑ Chest seals placed (If ROSC)
- ❑ IV/IO access has been obtained
- ❑ 1 L Crystalloid or Blood Products if trained and equipped
- ❑ TXA bolus completed
- ❑ Pelvic Binder if appropriate
- ❑ E-FAST if trained and equipped
- ❑ Gastric distention has been considered/addressed
- ❑ H's and T's addressed:
  - ❑ HYPOVOLEMIA
  - ❑ HYPOXIA (CO, CYANIDE)
  - ❑ HYDROGEN IONS (ACIDOSIS)
  - ❑ HYPOTHERMIA
  - ❑ HYPER/HYPOKALEMIA (DAILYSIS)
  - ❑ HYPOGLYCEMIA
  - ❑ TABLETS/TOXINS (B-BLOCKER, NARCOTICS)
  - ❑ TAMPONADE
  - ❑ TENSION PNEUMOTHORAX
  - ❑ THROMBOSIS (MI)
  - ❑ THROMBOSIS (PE)
  - ❑ TRAUMA

The resuscitation audio recording 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. **The audio recording is for quality improvement use only.**

Continued:

Post Resuscitation Checklist:

- ❑ Reassess patient and obtain complete vital signs
- ❑ Airway confirmed continuously and with each move
- ❑ Oxygen Target SPO2 92% ↔ 96%
- ❑ Continuous ETCO2 & ECG monitoring
- ❑ 12-Lead ECG (If STEMI, transmit 12 Lead ASAP)
- ❑ Resuscitation Alert/Trauma Activation declared
- ❑ Sedative and Paralytics if indicated and if not hypotensive (advanced airway only)
- ❑ Goal to maintain MAP 55-65 (Permissive Hypotension if indicated)
- ❑ Controlled Ventilation < 12 bpm
- ❑ Adequate personnel for transport
- ❑ If loss of ROSC go to appropriate Guideline

Simple Thoracostomy

Indications:

- Traumatic Cardiac Arrest with known or suspected injury to the chest/abdomen.

Contraindications:

- Definite loss of pulse for greater than 10 minutes prior to arrival of first unit.
  - May consider the procedure if PEA present at a rate ≥60.
- Any patient that has cardiac output, including hypotensive patients.
- Injuries incompatible with life.
- Any child that appears too small for utilization of Simple Thoracostomy Kit.

Equipment:

- Simple Thoracostomy Kit
  - Scalpel
  - Curved Kelly Forceps
  - Chlorhexadine Sponge
  - Permanent Marker
  - Chest Seals

PEARLS:

- IV access, Oxygenation & ventilation should be performed by other crew members and not delay the thoracostomy.
- Errors often occur due to poor positioning of the patient or paramedic
- It will be helpful to have a crew member support the arm in an abducted position (elbow to ear)
- Appropriate site identification may be made by placing four fingers of the paramedic's hand in the axilla and making an incision just inferior to that point. (approximately the level of the origin of the nipple).
- Incision should be directly over the rib to prevent over-penetration and lung injury.
- Blunt dissection is essential to limit the effect of any bleeding and to allow soft tissues to act as a flutter valve.
- The hole through the intercostal muscles should be large enough for you to pass your finger easily through into the thoracic cavity.

Procedure:

1. Ensure patient is in the supine position and begin on the side most likely to be affected by a tension pneumothorax.
2. Cleanse the site with Chlorohexidine.
3. Using the scalpel, make a 1-2 inch incision directly over the 5^{th} or 6^{th} rib, between the anterior axillary line and midaxillary line. It is important not to extend or make incisions in or through the penetrating wounds when at all possible.
4. Use the scalpel for skin only, there after use blunt dissection to pass through the intercostal muscles.
5. 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.

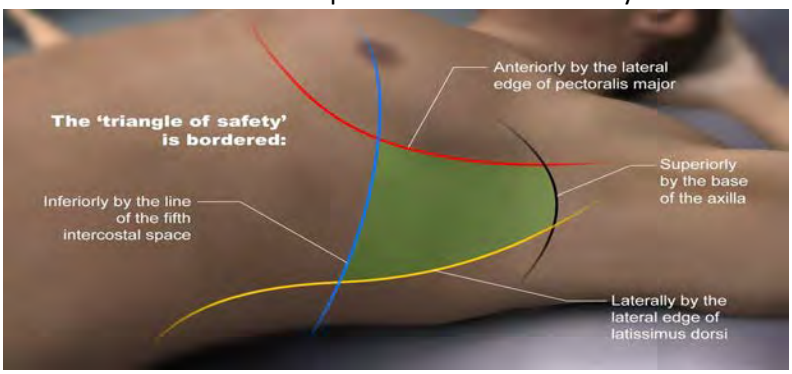
6. Following penetration into the thoracic cavity, with the tips of the forceps, open the forceps maintaining control of the depth and withdraw to create an adequate opening sufficient to place your finger in the chest.
7. Insert finger into pleural space. Ensure the lung is palpated and, if possible, feel caudally for the diaphragm.
8. Allow the soft tissues to fall back over the wound to act as a flutter valve.
9. Repeat the procedure on the opposite side.

Post Procedure:

- If ROSC: Place an occlusive dressing over the wound, such as:
  - Pediatric defib pad
  - HyFin Vent Chest Seal
- If no ROSC and Termination of Resuscitation: Prior to pronouncement - Circle each wound with a permanent marker and label them “EMS” to aid in identification for post mortem examination.
- If evidence of tension pneumothorax occurs, including cardiac arrest following ROSC: Remove occlusive dressing and re-insert finger to relieve tension.

Simple Thoracostomy Checklist

- ☐ **Position the patient**
  a. Place the patient supine with the arm on the affected side abducted and externally rotated
  b. Palm of the hand behind the patient's head, if possible.
- ☐ **Identify Site**
  a. 5th intercostal space anterior mid-axillary line



- ☐ **Cleanse the site thoroughly**
- ☐ **Incise the skin directly over the rib to prevent over-penetration**
  a. The scalpel is used for the skin only
  b. Make a 1-2-inch incision to the identified site. The incision should be large enough to fit a gloved finger.
- ☐ **Penetrate the pleural space with Kelly clamp**
  a. Using a large, curved clamp in a cephalad direction, bluntly dissect the tissue beneath the skin, over the top of the rib
  b. Pass the curved clamp, in a controlled fashion, through the intercostal muscles to penetrate the pleural space
- ☐ **Allow expulsion of air and blood**
  a. Open the clamp widely to allow the expulsion of air and blood
  b. Pull Kelly clamp out while spreading clamps
- ☐ **Confirm entry into the thoracic cavity**
  a. Palpate the parietal pleura and the lung with one gloved finger to confirm placement in the thoracic cavity
- ☐ **Mark your incision**:
  a. Prior to pronouncement: Circle each incision with permanent marker and label "EMS" if there is no ROSC and resuscitation is terminated
- ☐ **Place a vented chest seal over the incision.**
  a. If there is ROSC obtained or if the patient is transported
- ☐ **If the patient experiences a cardiac arrest after ROSC**
  a. Remove chest seal and re-insert gloved finger into chest to relieve tension
  b. Replace chest seal

Office of the Medical Director System Reference Documents

Version 090219 (MD 19-03)

	Baylor Scott & White - Buda	Baylor Scott & White - Lakeway	Baylor Scott & White - Pflugerville	Baylor Scott & White - Round Rock	Cedar Park Regional Medical Center	Dell Children's Medical Center	Dell Seton Medical Center	Heart Hospital of Austin	North Austin Medical Center	North Austin Medical Center Children's Hospital	Round Rock Medical Center	Seton Medical Center - Austin	Seton Medical Center - Hays	Seton Medical Center - Williamson	Seton Northwest Hospital	Seton Southwest Hospital	Sobering Center	South Austin Medical Center	St. David's - Bee Cave SED	St. David's - Cedar Park SED	St. David's - Pflugerville SED	St. David's Medical Center	Westlake Medical Center
Basic Receiving Facilities																							
All Ages Alpha - Charlie < 20 weeks OB	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
All Ages Alpha - Charlie OPEN fractures	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓				✓	✓
Psychiatric ≥ 18 y/o **NOT OB**	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓				✓	✓
ETOH or Narcotic only ODs per COG																	✓						
Comprehensive Receiving Facilities **If OB and STEMI, Stroke, Medical ROSC, or Sexual Assault - must go to a Perinatal Facility with those capabilities.**																							
≥ 18 y/o Alpha - Echo **NOT OB**		✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓			✓				✓	✓
Burns to: Face, Hands/Feet, Genatalia, Inhalation, Chemical, Electrical and/or ≥ 10% BSA 2nd or 3rd degree ≥ 15 y/o **OB is OK**						✓																	
Resuscitation Alert **NOT OB**		✓			✓		✓	✓	✓		✓	✓	✓	✓				✓				✓	
Sexual Assault ≥ 18 y/o **NOT OB**	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
STEMI Alert **NOT OB**		✓		✓	✓		✓	✓	✓		✓	✓	✓	✓				✓				✓	
Stroke Alert < 3 hours, **NOT OB**, **and** TSP time > 15 min longer to Comp. **or** all T.I.A.		✓		✓	✓		✓		✓		✓	✓	✓	✓				✓				✓	
Stroke Alert ≤ 24 hours **and/or** NOT Stroke Alert **and NOT OB** (Comprehensive Ctrs.)						✓					✓											✓	
Trauma Alert ≥ 15 y/o **OB is OK**						✓					✓		✓	✓				✓					
Perinatal Centers ≥ 20 weeks OB																							
Alpha - Charlie		✓	✓	✓	✓						✓	✓	✓		✓			✓				✓	
Alpha - Echo		✓	✓	✓	✓						✓	✓	✓		✓			✓				✓	
Pediatric Facilities																							
≤ 14 y/o Injured **NO** Trauma Alert						✓				✓													
≤ 14 y/o Injured **Trauma Alert**						✓																	
≤ 17 y/o Stroke Alert **NOT OB**						✓																	
≤ 17 y/o Alpha-Echo < 20 weeks OB or STEMI, Resusciation Alerts or **NOT OB**						✓				✓													
≤ 17 y/o Injured **NO** Trauma Alert										✓													
Sexual Assault ≤ 17 y/o **NOT OB**						✓																	

Clinical Procedures

AED (≥ PL1)

Current clinical science on the subject of out-of-hospital cardiac arrest supports the value of minimally interrupted, high quality CPR along with periodic assessment of the need for defibrillation. Survival from sudden cardiac arrest depends on a focus on CPR and defibrillation with pauses in compressions only as needed to analyze the rhythm and deliver a shock if needed.

Clinical Indications:

- Patients in cardiac arrest (pulseless, non-breathing)

Contraindications:

- None

Notes/Precautions:

- Age < 8 years, use Pediatric Pads, if available, or if device has "energy attenuating" key, be sure to activate key.
- If Pediatric pads are **not** available use Adult pads
- If AED Pads touch due to patient size use an Anterior-Posterior pad placement.

Procedure:

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, begin narration 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

AED (≥ PL1)

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 are also sent to the OMD Performance Improvement Coordinator at tellemsmd@austintexas.gov (512-978-0011). Should you have questions regarding any of these topics, please contact the OMD.

Adult Assessment (≥ PL1)

Clinical Indications:

Any patient requesting a medical evaluation that is too large to be measured with a PEDIA Tape or ≥ 37 Kg.

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 PCR.

Pediatric Assessment (≥ PL1)

Clinical Indications:

- Any child that can be measured with the PEDIA Tape or < 37 Kg

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:
   - Appearance: (TICLS) tone, interactiveness, consolability, look/gaze, and speech/cry
   - 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
   - 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 PEDIA Tape.
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:
   - Ideally the use of infant or child/pediatric BP cuff sizes when appropriate and available
     - 50^{th} percentile BP estimate = (age in years x 2) + 90 mm Hg
     - Hypotension when BP ≤ (age in years x 2) + 70 mm Hg
   - To assess perfusion when obtaining a BP is not possible:
     - Age appropriate heart rate
       - *Tachycardia is usually the most common sign of compensated shock in children,*
       - *BP doesn't drop until about 30% of circulating blood volume is lost*
     - Mottled extremities
     - 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:

- When guideline indicates medication delivery via auto-injector
- When other administration routes are unsuccessful or unavailable

Contraindications:

- None

Notes/Precautions:

- Appropriate equipment
- Chlorohexadine wipe and Band-aids
- Appropriate injection sites
- Do NOT place thumb over either end of the auto-injector at any time.

Procedure:

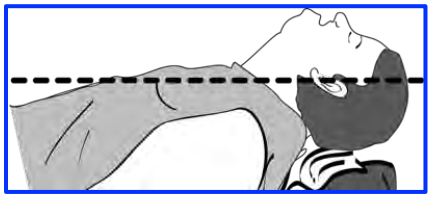
1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Locate appropriate injection site.
   - Vastus lateralis located on the lateral aspect of the thigh
   - Injection is given into the mid thigh
4. When time permits expose target site and prep with chlorohexidine (not required as injectors are designed to work through clothing.).
5. Remove the auto-injector from its storage container.
6. **Do 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 1000 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 94-99%
    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.

Bimanual Trachea Manipulation (≥ PL1)

Clinical Indications:

- All patients in need of airway protection due to gastric insufflation and/or vomitus entering airway
- As needed during advanced airway procedures to enhance Intubation attempts

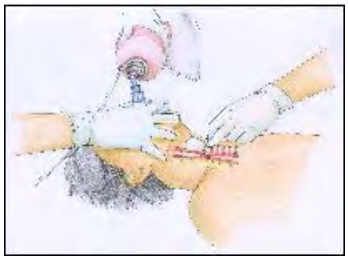
Contraindications:

- Forceful downward cricoid pressure should not be applied.

Notes/Precautions:

- Caution should be exercised when utilizing this technique on children of any age. The cricoid cartilage is not as firm in children as it is in adults. As a result, less pressure is needed to achieve the same effect

Procedure:



1. Locate the cricoid cartilage by:
   - Palpating the protuberant midline portion of the thyroid cartilage ("Adams Apple")
   - 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.

Beck Airway Airflow Monitor (BAAM) (≥ PL5)

Clinical Indications

- As an adjunct to blind nasotracheal intubation in the patient with spontaneous respirations
- As an aid to re-confirming airway placement or re-assessing respiratory effort in the intubated patient with respiratory effort

Contraindications

- Apnea, or inability to hear device during endotracheal tube insertion due to ambient noise
- Not to be used as the primary method for assessing airway placement in the intubated patient

Notes/Precautions

- An unobstructed endotracheal tube with its tip located in the pharynx can also produce the whistle sound. Always confirm proper tube placement
- 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

Procedure

1. Pre-oxygenate and/or ventilate while preparing the patient for nasotracheal intubation;
2. Attach BAAM® device to the 15 mm adapter of the appropriate sized endotracheal tube. The device will attach to the tube only one way.
3. 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.
4. Carefully advance the endotracheal tube through larynx, into the trachea when device and airway sounds are at their peak.
5. Quickly remove the BAAM® device and begin ventilating the patient.
6. Confirm tube placement by ETCO2 and auscultation.

Blood Glucose Assessment (≥ PL1)

Clinical Indications:

- Any patient with an altered mental status
- Patients with metabolic or endocrine disorders, and presenting with non-specific complaints
- Bradycardia or hypothermia in infants
- Stroke Assessment

Procedure:

1. Gather and prepare equipment.
2. Cleanse site with Chlorohexidine
3. 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.
4. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.
5. Time the analysis as instructed by the manufacturer.
6. Document the glucometer reading and treat the patient as indicated by the analysis and guideline.
7. Repeat glucose analysis as indicated for reassessment after treatment and as per guideline.
8. If any clinically suspicious readings are noted perform quality assurance test immediately after the call and notify a supervisor as appropriate.

Cardioversion (≥ PL 5)

Clinical Indications:

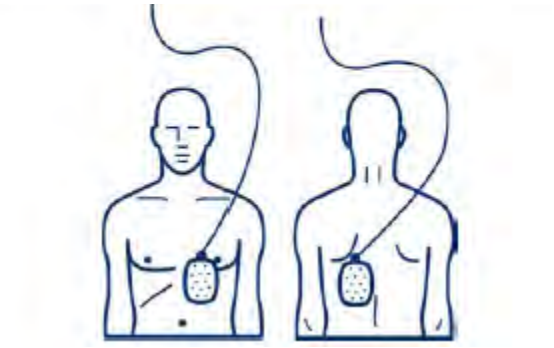
- Unstable tachydysrhythmia with a pulse (monomorphic regular ventricular tachycardia, SVT, A-fib/Flutter with RVR, etc.) in accordance with the appropriate tachydysrhythmia guideline

Contraindications;

- Repetitive, self-terminating, short-lived tachycardia (i.e., runs of non-sustained VT)
- Sinus mechanism tachycardia

Procedure:

1. Confirm that the rhythm on the monitor coincides with a patient in an unstable condition
2. Set to synchronized cardioversion mode watching for R wave markers on each QRS complex.
3. 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.
   - If markers still do not appear, select another lead or reposition the ECG electrodes
   - If these methods are ineffective unsynchronized cardioversion may be required
4. Apply self-adhesive pads in the anterior/posterior position, ensuring firm contact with patient's skin.
5. Consider the use of pain/sedating medications.
6. Charge device to appropriate energy level per Patient Care Guidelines and clear all personnel from direct patient contact.
7. 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).
8. Reassess the patient. If rhythm deteriorates into VF/pulseless VT, switch to asynchronous mode and immediately defibrillate per Patient Care Guidelines.
9. Document the procedure, time performed and patient response in the patient care report.



Contact Precautions (≥ PL1)

Clinical Indications:

- Used when the organism is transmitted by direct contact with patient or environmental surfaces
- Patients with large infected ulcers and drainage that is not contained by dressing
- Any drug resistant organism*, Clostridium difficile, Scabies, E. coli O157:H7 and, Noro type Viruses.*

Contraindications:

Not Applicable

Notes/Precautions:

Not Applicable

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:

- Congestive Heart Failure/Pulmonary Edema
- Submersion / Drowning
- Chronic Obstructive Pulmonary Disease
- Acute Respiratory Distress

Contraindications:

- Respiratory arrest
- Agonal respirations
- Unconsciousness
- Shock associated with cardiac insufficiency
- Pneumothorax
- Facial trauma, burns

Notes/Precautions:

Possible complications include

- Gastric distention
- Reduced cardiac output
- Hypoventilation
- Pulmonary barotrauma
- Excessive secretions

Procedure:

1. Ensure all necessary equipment is available and assembled.
2. Connect CPAP to O2 source and select liter flow setting to generate appropriate PEEP for patient condition per guideline. **8L = 5PEEP, 10L = 8PEEP, 12L = 10PEEP**
3. Oxygen must be flowing prior to placing device on patient's face.
4. Fully explain procedure to patient.
5. Have patient hold mask to face and instruct him/her to breathe slowly and deeply.
6. Once patient is comfortable with mask, securely attach headpiece and tighten to fit.
7. Continuously monitor patient's respiratory status and SPO_2.
8. The adjunctive delivery of an albuterol Neb with the CPAP device is an approved procedure and treatment modality. Patient presentation and distress level should dictate the timing or use of this procedure. The addition of albuterol in this fashion should not create delays in the use of CPAP and, only providers who are trained and appropriately equipped should use this.
9. If the patient decompensates as indicated by:
   - Decreased LOC
   - Decreased SPO_2 (from initial reading with CPAP application)
   - Bradycardia with Hypotension
   - Agonal Respirations
   - Respiratory Arrest
   - Pneumothorax

   Discontinue CPAP and manage the patient per the appropriate Clinical Guideline.

CPR – Pit Crew

Clinical Indications:

- Patient in cardiac arrest > 36 kg (80 lbs.)

Contraindications: None

Notes/Precautions:

- Focus is on:
  - Minimally interrupted compressions
  - Appropriate depth and quality of compressions
  - Consideration of compressor fatigue and change compressors as needed
  - Use of a consistent and uniform Team approach
- This procedure is based on a 4-person crew of providers.
- 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.
- If there is only a 2-person crew, see modified procedure.
- Exception for Witnessed Arrest where a manual defibrillator is immediately available.

Procedure:

1. Initial Actions

1. Upon arrival at patient's side, assess for cardiac arrest
2. Ensure adequate personnel, move patient to appropriate space before compressions
3. Position 1 immediately begins compressions
4. Position 2 or 4 immediately powers AED On and on FR3 press "CPR Button" when displayed) and places AED near position 2 (patient's left shoulder); Position 4 begins narrating all actions.
5. Position 4 assumes team leader role and performs each of the following throughout resuscitation:
   a. assists position 3 with OPA, O2 tubing logistics (Nasal Cannula and BVM) connections so there is no delay in immediate patient airway management and ventilation
   b. narrates steps as they are being done (speaks into the AED recorder),
   c. monitors compressor use of CPR quality feedback and monitors pause times
   d. directs action in response to CPR quality feedback from AED as needed (rate, depth, release, pauses)
   e. directs actions based on Pit-Crew Checklist

2. CPR/BVM/Nasal Cannula (1st set of 200 compressions with metronome)

1. Position 1 performs 100 manual compressions with metronome
2. Position 2 places CPR feedback puck between Position 1's compressions as soon as ready for use
3. Position 2 retrieves metronome, powers on and places on the patient's left side
4. Position 2 both AED pads to patient's anterior chest and connects cable to AED
5. Position 3 assembles BVM, places OPA, Nasal Cannula (connected to O2 source at 25 lpm), mask, and makes a two-handed mask seal (with bag directed toward compressors). Position 3 turns on timing light
6. Position 2 squeezes bag using timing light
7. After 100 compressions (approx. 1 minute), Position 2 immediately begins compressions.
8. Position 1 squeezes bag using timing light
9. Position 1 resumes after 100 compressions until time for rhythm analysis (after 200 total compressions total). Position 2 squeezes bag using timing light.

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/Shock (1st AED Analysis & Shock)

1. AED auto-analysis or manual rhythm analysis and shock/no shock decision made
2. Position 1 checks carotid pulse DURING rhythm analysis.
3. Position 2 is ready to deliver shock; Position 1 is ready to resume compressions.
4. Position 2 delivers shock (if indicated) after quickly clearing patient
5. Position 1 immediately resumes chest compressions

4. CPR (2nd set of 200 compressions with metronome)

1. Position 1 performs 100 manual compressions
2. Position 3 creates mask seal
3. Position 2 squeezes bag using timing light
4. Position 2 prepares BIAD.
5. After 100 compressions (approx. 1 minute), position 2 immediately begins 100 compressions.
6. Position 1 resumes after 100 compressions until time for rhythm analysis.

5. AED/Shock (2nd AED Analysis & Shock)

1. AED analysis and shock/no shock decision made
2. Position 1 checks carotid pulse DURING rhythm analysis
3. Position 2 is ready to deliver shock; Position 1 is ready to resume compressions;
4. Position 2 delivers shock (if indicated) after quickly clearing patient.
5. Position 1 immediately resumes chest compressions.

6. CPR/BIAD (3rd set of 200 compressions with metronome)

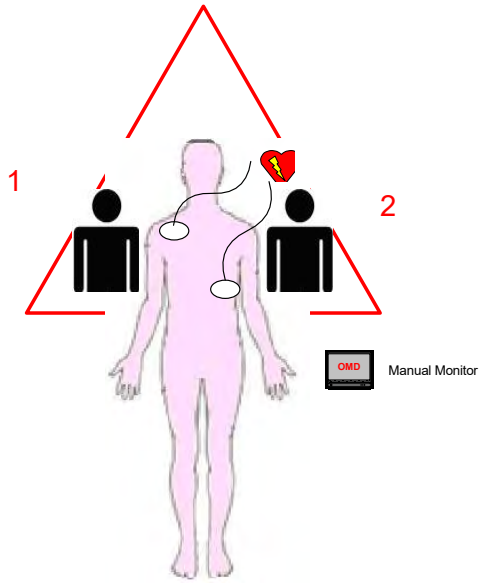
1. Position 1 performs 100 manual compressions.
2. Position 3 creates mask seal
3. Position 2 squeezes bag using timing light
4. Position 3 inserts and secures BIAD without stopping chest compressions
5. Position 3 squeezes bag using timing light.
6. After 100 compressions (approx. 1 minute), Position 2 immediately begins 100 compressions.
7. Position 1 resumes after 100 compressions until time for rhythm analysis.
8. When time for AED/rhythm analysis, Position 3 holds bag (connected to I-gel).

CPR – Pit Crew
Modified Two (2) Person Version

Procedure:

1. First arriving providers establish the following pit crew positions:

- **Position 1** (patient's right side)
  - Assesses responsiveness/pulses
  - Initiates 100 chest compressions immediately if needed
  - Alternates 100 chest compressions with Position 2
  - If not completed by Position 2; assemble/place Nasal Cannula 25 Lpm O2
  - If Transport Provider, may reach over and charge manual monitor at the appropriate 70th compression cycle timelines (at 2 minutes)
- **Position 2** (patient's left side)
  - Activates metronome at 100 beats/minute
  - Brings and operates the AED or Manual monitor. If AED power on and begin narration immediately
  - Apply and connect pads if Manual monitor or FR3 AED
  - Connect pads to AED after 200 compressions if using FR1 or FR2 AEDs
  - Rhythm analysis after each 200 compression cycle.
  - Open/clear Airway, insert OPA, assemble/place Nasal Cannula 25 Lpm O2
  - Alternates 100 chest compressions with Position 1
  - Once additional trained providers arrive, return to normal Pit Crew operations.



CPR – Pit Crew Infant/Pediatric < 37 kg (81 lbs.)

Clinical Indications:

- Patient in cardiac arrest > 5 days old and < 37 kg (81 lbs.)
- Patients new born to 5 days old use Obstetrical Clinical Guideline (New Born Care)

Contraindications: None

Notes/Precautions:

- Focus is on:
  - Immediate airway management and ventilations
  - Minimally interrupted compressions
  - Appropriate depth and quality of compressions
  - Consideration of compressor fatigue and change compressors as needed
  - Use of a consistent and uniform Team approach
- Infants and small children may require modification of the procedure due to size.
- This procedure is based on a 4-person crew of providers.
- 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 connection when they become available.
- If there is only a 2-person crew, see modified procedure.
- Exception for Witnessed Arrest when a manual defibrillator is immediately available.

Procedure:

1. Initial Actions

1. Upon arrival at patient's side, Position 1 assess for cardiac arrest & begins compressions
2. Position 3 immediately assess airway, clears obstructions if found, places BVM and makes a one-handed mask seal (2 handed preferred if position 2 is available with bag directed toward position 2). Immediately begins ventilations on room air.
3. Position 2 or 4 immediately powers AED On (FR3 press "CPR Button" when displayed) and places AED near position 2 (patient's left shoulder); Position 4 begins narrating all actions.
4. Position 4 assumes team leader role and performs each of the following throughout resuscitation:
   a. assists position 3 with OPA, O2 tubing logistics (Nasal Cannula and BVM) connections so there is no delay in immediate patient airway management and ventilation
   b. narrates steps as they are being done (speaks into the AED recorder),
   c. monitors compressor use of CPR quality feedback and monitors pause times
   d. directs action in response to CPR quality feedback from AED as needed (rate, depth, release, pauses)
   e. directs actions based on Pit-Crew Checklist

2. CPR/O2 (1st set of approximately 200 compressions with metronome)

1. Position 1 performs 100 manual compressions with metronome
2. Position 2 retrieves metronome, turns it on and places on the patient's left side
3. Position 2 places appropriate size AED pads to patient's anterior chest (or anterior/posterior if necessary) activates Pediatric Key if appropriate and connects cable to AED

CPR – Pit Crew Infant/Pediatric < 37 kg (81 lbs.)

4. Position 3 initiates or continues a two-handed mask seal and monitors airway.
5. While room air ventilations are managed by position 3; position 4 assists with OPA placement, applies/connects Nasal Cannula to O2 source and, sets flow rate to 25Lpm.
6. Position 2 squeezes BVM (on room air until 2nd O2 source is available) every 3-4 seconds.
7. After 100 compressions (approx. 1 minute), Position 2 immediately begins compressions.
8. Position 1 squeezes bag every 3-4 seconds.
9. Position 1 resumes after 100 compressions until time for rhythm analysis (after approx. 200 compressions total). Position 2 squeezes bag every 3-4 seconds.
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/Shock (1st AED Analysis & Shock)

1. AED auto-analysis or manual rhythm analysis and shock/no shock decision made
2. Position 1 checks carotid pulse DURING rhythm analysis.
3. Position 2 is ready to deliver shock; Position 1 is ready to resume compressions.
4. Position 2 delivers shock (if indicated) after quickly clearing patient
5. Position 1 immediately resumes chest compressions

4. CPR (2nd set of 200 compressions with metronome)

1. Position 1 performs 100 manual compressions
2. Position 3 continues 2 handed mask seal and monitors airway
3. Position 2 squeezes bag every 3-4 seconds.
4. After 100 compressions (approx. 1 minute), position 2 immediately begins 100 compressions.
5. Position 1 squeezes bag every 3-4 seconds.
6. Position 1 resumes after 100 compressions until time for rhythm analysis.

5. AED/Shock (2nd AED Analysis & Shock)

1. AED analysis and shock/no shock decision made
2. Position 1 checks carotid pulse DURING rhythm analysis
3. Position 2 is ready to deliver shock; Position 1 is ready to resume compressions;
4. Position 2 delivers shock (if indicated) after quickly clearing patient.
5. Position 1 immediately resumes chest compressions.

6. CPR (3rd set of 200 compressions with metronome)

1. Position 1 performs 100 manual compressions.
2. Position 3 continues 2 handed mask seal and monitors airway.
3. Position 2 squeezes bag every 3-4 seconds.
4. After 100 compressions (approx. 1 minute), Position 2 immediately begins 100 compressions.
5. Position 1 squeezes bag every 3-4 seconds.
6. Position 1 resumes after 100 compressions until time for rhythm analysis.

Repeat steps 5 & 6 until ROSC or Termination of Resuscitation (TOR)

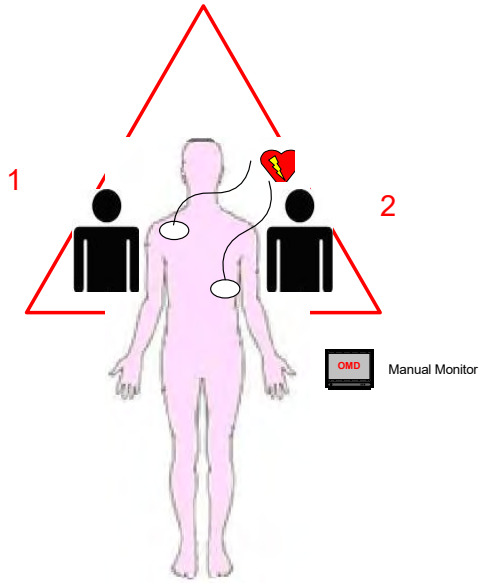
CPR – Pit Crew Infant/Pediatric < 37 kg (81 lbs.)

Modified Two (2) Person Version

Procedure:

1. First arriving providers establish the following pit crew positions:

- **Position 1** (patient's right side)
  - Assesses responsiveness/pulses
  - Initiates 100 chest compressions immediately if needed
  - Alternates 100 chest compressions with Position 2
  - If not completed by Position 2; assemble/place Nasal Cannula 25 Lpm O2
  - If Transport Provider, may reach over and charge manual monitor at the appropriate 70th compression cycle timelines (at 2 minutes)
- **Position 2** (patient's left side)
  - Activates metronome at 100 beats/minute
  - Brings and operates the AED or Manual monitor. If AED power on and begin narration immediately
  - Apply and connect pads if Manual monitor or FR3 AED
  - Connect pads to AED after 200 compressions if using FR1 or FR2 AEDs
  - Rhythm analysis after each 200 compression cycle.
  - Open/clear Airway, insert OPA, assemble/place Nasal Cannula 25 Lpm O2
  - Alternates 100 chest compressions with Position 1
  - Once additional trained providers arrive, return to normal Pit Crew operations.



Decontamination (≥ PL1)

Clinical Indications:

- Any patient who may have been exposed to significant hazardous materials, including chemical, biological, or radiological weapons

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 protective equipment and training.
3. In coordination with other public safety personnel, assure that each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
   - Removal of patients from Hot Zone
   - Simple removal of clothing
   - Irrigation of eyes
   - Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or 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 #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 which 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 per CR-13.

Determination of Capacity (≥ PL1)

Clinical Indication:

- 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 the Definition of a Patient Standard

Procedure:

1. Determine scene safety.
2. If the patient is suicidal or homicidal contact police immediately.
3. In order to have decision making capacity the patient must be 18 years of age or if a minor, be emancipated, must not be suicidal or homicidal or have had their decision making capacity removed by determination of a court of law.
4. If the above criteria in #3 have been met the patient must be assessed for their ability to demonstrate the following:
   - Does the patient understand their illness or injury and the benefits of treatment and/or evaluation **AND**
   - Does patient understand consequences (including death) of not seeking treatment and/or evaluation for their illness or injury **AND**
   - Does the patient understand the alternatives to immediate care by EMS **AND**
   - Can the patient describe, in his own words, the above components and provide and defend a reason for their decision not to submit to treatment or transportation?
5. Utilize the Determination of Capacity checklist. If there is any uncertainty about the patient's present mental capacity contact On-Line Medical Control.
6. 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.
7. If it is determined that a patient who wishes to refuse care lacks the present mental capacity to do so contact medical control and a supervisor to assist with the process.
8. Document any allowed history and exam, the absence of suicidal or homicidal ideation, the components of the capacity assessment and contact with medical control.

Refer to Universal Patient Care COG for Capacity Checklist.

Equipment Failure (≥ PL1)

(includes single patient use disposables)

Purpose:

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.

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 Medical Director 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**. www.atcomd.org for form.
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.

Emergency Escharotomy

Full-thickness circumferential and near-circumferential skin burns result in the formation of a tough, inelastic mass of burnt tissue (eschar). The eschar, by virtue of this inelasticity, results in the burn-induced compartment syndrome. The circumferential eschar over the torso can lead to significant compromise of chest wall excursions and can hinder ventilation. Escharotomy is the surgical division of the nonviable eschar, which allows the cutaneous envelope to become more compliant. Hence, the underlying tissues have an increased available volume to expand into, preventing further tissue injury or functional compromise.

Flame burns of the chest are often accompanied by burns to the face and neck and are commonly associated with an inhalation injury.

Consider the inhalation injury high priority.

- Provide supplemental oxygen via nonrebreather/BVM and high flow nasal cannula
- Endotracheal intubation should be considered early if the airway is compromised.

Once the airway has been secured consider chest escharotomy if there is:

- Circumferential full thickness burns of the thorax and abdomen.
- Restricted movement of the chest wall or abdomen
- Reduced air entry bilaterally
- Shallow respiratory effort
- Tachypnea
- Hypoxemia

Indications:

Impending or established respiratory compromise due to circumferential torso burns

Equipment:

#10 scalpel

Chlorhexidine skin prep

Kerlix or gauze for management of bleeding

Positioning:

Patient should be positioned supine if possible

Anesthesia:

The patient who is pulseless does not require anesthesia.

Patients who are possibly conscious should receive Fentanyl or Ketamine in appropriate doses.

Procedure:

• Prep wound with chlorhexidine skin prep

• Cut with scalpel along lines (see diagram) THROUGH BURNED TISSUE ONLY. Do not cut through viable or superficially burned tissue.

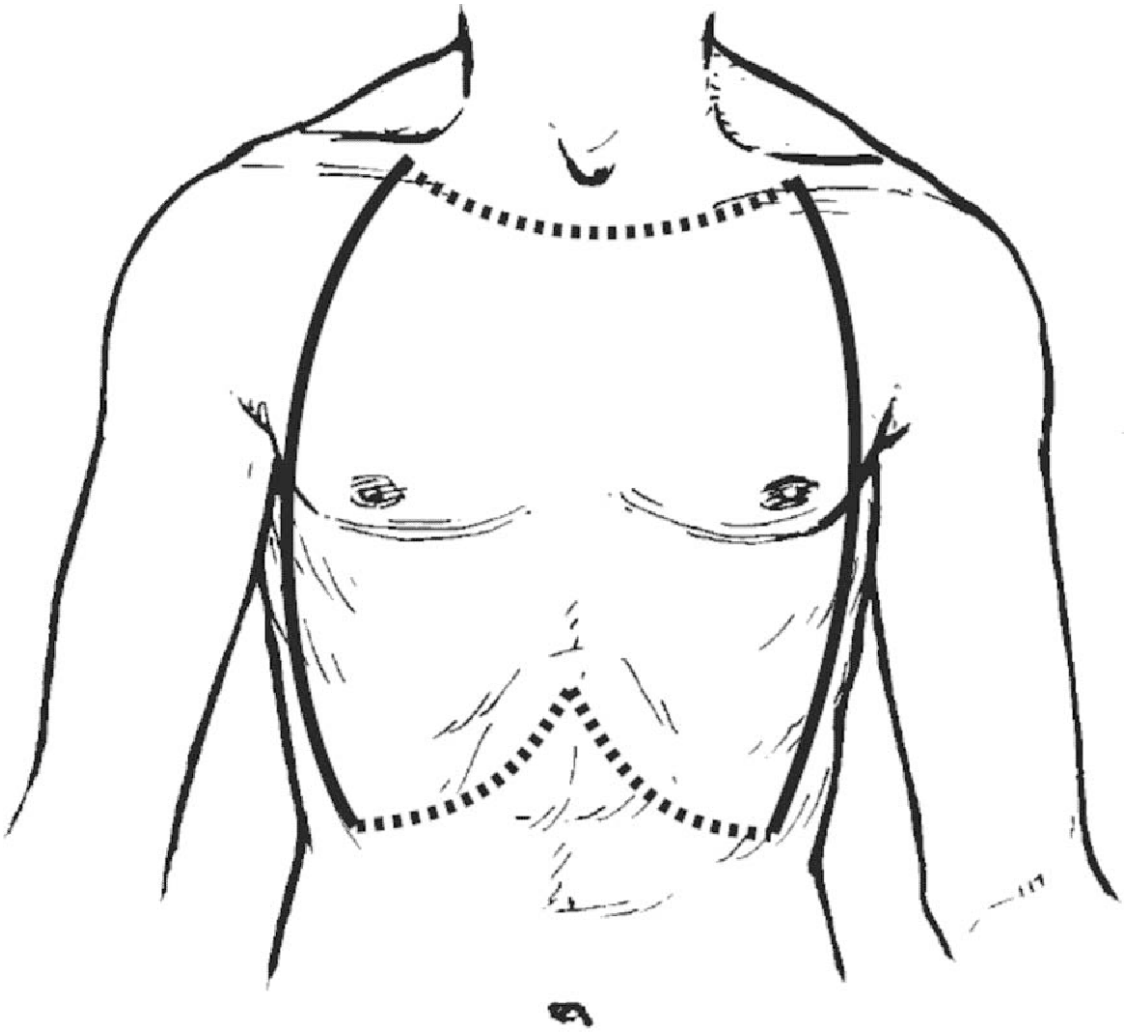
Chest – release bilateral mid axillary lines, superior along clavicles and superior border of sternum, and inferior transverse elliptical below costal margin joining vertical incisions

• Ensure incision is SKIN DEPTH ONLY- See fat not muscle at base of wound

• Ensure adequacy of release - No remaining tight bands – run finger along wound

- Monitor for return or preservation of breathing

- Control minor bleeding with gauze as needed



ETCO2 - EZ Cap (≥ PL2)

Clinical Indications:

- As an adjunct for initial confirmation of proper advanced airway placement
- On intubated or BIAD patients until quantitative capnography becomes available or in the event of End Tidal CO_2 device failure

Contraindications:

- Not used to detect main-stem bronchial intubation

Notes/Precautions:

- Due to potential increased airway resistance, do not use Pedi-Cap on patients weighing ≥15 kg
- Reflux of gastric contents, mucous, edema fluid, endotracheal medication administration, or nebulization can discolor detector. Contamination of this type may increase resistance, alter color changes, and affect ventilation. If this occurs, discard the device

Procedure:

1. Select appropriate detector according to patient size and weight. Remove detector from packaging.
2. Patient ≥15 kg - Easy-Cap.
3. Patients <15 kg - Pedi –Cap.
4. Match initial color of indicator to the PURPLE color labeled CHECK around the detector window.
   - If the purple color of the indicator is not the same color, or darker, than the area marked CHECK, do not use the detector
   - If the indicator color appears pink, the separate color chart for fluorescent light must be used for accurate color matching
5. Insert advanced airway according to the appropriate procedure.
6. Attach detector to advanced airway; then attach BVM to the detector.
7. Deliver six ventilations of moderate tidal volume. (Interpreting results before confirming 6 breaths can yield false results).
8. After 6 breaths, compare indicator color in the window on full-end expiration. If $C0_2$ is detected, the PURPLE CHECK color will change to TAN (Range C).
9. If the results are not conclusive, and correct anatomic location cannot be confirmed with certainty by other means, the advanced airway should be immediately removed and BVM ventilations resumed.

End – Tidal CO2 Wave Form Monitoring (≥ PL2)

Clinical Indications:

- All patients with a potential, or actual, change in metabolism, circulation, and/or respiratory function
- Hypoventilation states
- Shock states
- Shortness of breath/Bronchospastic disease
- Chest pain with respiratory distress
- Congestive Heart Failure
- All patients with advanced airways or receiving CPR
- Patients experiencing altered mental status
- Any patient receiving/having received sedating medications or magnesium

Contraindications:

- None

Notes/Precautions:

- A patient with normal cardiac and pulmonary function will have an $ETCO_2$ level between 35-45 mmHg
- When no CO_2 is detected, 3 factors must be quickly evaluated for the cause:
  - Loss of airway function- Improper tube placement, apnea
  - Loss of circulatory function- Massive PE, cardiac arrest, exsanguination
  - Equipment malfunction- Tube dislodgement or obstruction
- All advanced airway patients will have capnography applied and a printed/electronic copy of the pre and post intubation readings included with the Patient Care Record (PCR/ePCR). A copy of the waveform will also be left with hospital staff whenever possible.

Procedure:

1. Turn on monitor.
2. Verify ETCO2 display is on and functioning.
3. Connect ETCO2 Filterline tubing. Tubing should be connected to monitor before being connected to patient's airway.
4. Connect tubing to patient airway.
5. Record waveform.
6. For patients meeting the indications for capnography the capnometer shall remain in place and be monitored throughout prehospital care and transport.
7. Continuous capnometry should be monitored as airway procedures are performed to aid in verification or correction of an airway problem.
8. Any loss of CO2 detection or waveform should be immediately evaluated for loss of airway or circulatory compromise and should be documented.
9. In all patients with a pulse an ETCO2 reading > 20 is expected. In the post resuscitation patient no effort should be made to lower ETCO2 by modification of the ventilatory rate. Do to possibility of causing cerebral hypo-perfusion.
10. In the pulseless patient an ETCO2 waveform with an ETCO2 value > 10 may be utilized to confirm the adequacy of an airway to include BVM and advanced devices when SpO2 will not register.

External Jugular Access (≥ PL4)

Clinical Indications:

- External jugular vein cannulation is indicated in a critically ill patient ≥ 8 years of age who require intravenous access for fluid or medication administration and in whom an extremity vein or intraosseous access is not obtainable
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted and intraosseous access is contraindicated or undesirable

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 using cervical collars with external jugular venous access. If needed, other methods of cervical motion restriction should be used.
8. Document the procedure, time, and result (success) on/with the Patient Care Report (PCR).

Extremity IV
Intravenous Fluid Therapy (≥ PL3)

Clinical Indications:

- Any patient where intravenous access is indicated (significant trauma or mechanism, emergent or potentially emergent medical condition)
- Patients requiring intravenous fluids or medications
- Patients in which a potential for hemodynamic compromise or vascular system instability exists

Contraindications:

- None

Procedure:

Saline locks may be used as an alternative to an IV tubing and IV fluid in every guideline at the discretion of the provider.

EMT-I and Paramedics can use intraosseous access where threat to life exists as provided for in the Venous Access- Intraosseous Procedure CP-38.

1. Locate 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. Suitable venipuncture sites include:
   - Back of the hand
   - Forearm
   - Antecubital fossa
   - Leg
   - Scalp vein (infants only)
3. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
4. Connect the IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding 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, deliberate motion until a "pop" is felt and a blood flashback is visualized in the catheter.
7. Advance the catheter into the vein. **Never** reinsert the needle through the catheter. Dispose of 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 and then adjust to a keep vein open (KVO) rate or as clinically indicated.
10. Cover the site with a sterile dressing and secure IV line.
11. Label the IV with date, time, catheter gauge, and name/ID of the person starting the IV.
12. Document the procedure, time and result on the patient care report (PCR).

Saline Lock:

1. Prepare equipment.
2. Flush air from "saline lock" with 1 to 3 mL of fluid.
3. Follow steps 1 through 8 as above for venipuncture.
4. Remove protective cap on the Luer lock device and carefully twist it onto the IV hub. Confirm that firm contact has been established and no fluid leaks exist.
5. Flush saline lock with 3 mL of normal saline looking for infiltration.
6. Tape or secure as previously noted.

Flex Guide ETT Introducer (Gum-elastic Bougie) (≥ PL5)

Clinical Indications:

- Any patient who meets clinical indication for orotracheal intubation
- **Must be used for each intubation attempt for DL**.
- Predicted difficult intubation
- Digital intubation

Contraindications:

- None

Notes/Precautions:

- Soft tissue damage or bronchial rupture may occur:
  - During blind intubation
  - Positioning past the carina
  - If undue pressure is applied
  - If ET tube is passed over introducer without the use of a laryngoscope
- This is a single patient device. Do not attempt to clean or sterilize
- For optimal use, store flat in the same shape as packaged. Do not fold or roll up to save space

Procedure:

1. Prepare and perform an optimal direct laryngoscopy in accordance with the orotracheal intubation procedure.
2. Begin insertion of introducer.
   - Tactile confirmation of tracheal clicking will be felt as the distal tip of the introducer bumps against the tracheal rings
   - If tracheal clicking cannot be felt, continue to gently advance the introducer until "hold up" is felt
   - Tracheal "clicking" and "hold up" are positive signs that the introducer has entered the trachea
3. Lack of tracheal clicking or hold-up is indicative of esophageal placement.
4. While holding the introducer securely, and without removing laryngoscope, advance endotracheal tube over the proximal tip of the introducer.
5. As the tip of the endotracheal tube passes beyond the teeth, rotate the tube 90 degrees counter clockwise (1/4 turn to the left) so tube bevel does not catch on the arytenoid cartilage.
6. Advance endotracheal tube to the proper depth.
7. Holding endotracheal tube securely, remove introducer.
8. Verify correct placement of ET tube in accordance with the orotracheal intubation procedure.

Foreign Body Airway Obstruction (Conscious Patient) (≥ PL1)

Clinical Indications:

- Sudden onset of respiratory distress often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway
- Respiratory arrest where ventilation cannot be accomplished after repositioning of airway

Procedure:

If the victim remains conscious:

1. Assess the degree of foreign body obstruction.
    - Do not interfere with a mild obstruction, allow the patient to clear their airway by coughing
    - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign
2. **For an infant**, deliver five (5) back blows followed by five (5) chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.
3. **For a child**, perform a sub diaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.
4. **For adults**, a combination of maneuvers may be required.
    - First, sub diaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved or the victim becomes unresponsive.
    - Chest thrusts should be used in obese patients and in patients who are in the late stages of pregnancy

Document the method (s) used and the result of these procedures in the Patient Care Report (PCR/ePCR).

Foreign Body Airway Obstruction (Unconscious Patient) (≥ PL1)

Clinical Indications:

- Unconscious patient with FBAO.

Procedure:

If the victim is or becomes unresponsive; safely lower patient to hard surface and **Initiate Pit Crew Positions**.

1. **Position 1**: Begin 100 Chest Compressions immediately with Metronome, alternates compressions, attempted ventilations and periodic pulse checks with Position 2.
2. **Position 2**: Activates Metronome, applies AED pads, and alternates 100 compressions, attempted ventilations and periodic pulse checks with Position 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.
4. Paramedic and Intermediate 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.

If the **FBAO is removed and patient has pulses:**

1. **Position 1 & 2**: Stop Chest Compression Cycle and support patient with 10 – 12 ventilations per minute (as needed) with O2 and, provide ongoing periodic pulse checks.
2. **Position 3**: Secure and maintain patient's open Airway and continues to hold mask seal (as needed) during patient ventilations.

If the patient **becomes pulseless with FBAO in place:**

1. **Position 2**: Immediately Activate AED and follow prompts.
2. **Position 1, 2, and 3**: Continue efforts indicated above to relieve continuing obstruction.

If the patient **becomes pulseless and FBAO has been removed or relieved:**

1. **Position 1, 2, and 3**: Activate Pit Crew Resuscitation efforts including all Airway adjuncts.

Document the methods (s) used and the result of these procedures in the Patient Care Report (PCR/ePCR).

i-gel O_2 Airway (BIAD) (≥ PL2)

Clinical Indications:

- Cardiac arrest after assuring continuous compressions, defibrillation and BLS airway management has been completed **≥ PL2**
- Non-cardiac arrest patient without a gag reflex. **≥ PL3**
- Intubation is difficult/impossible due to patient access or airway anatomy **≥ PL5**

Contraindications:

- Patients who are conscious or who have an intact gag reflex
- Patients under/over weight for airway size used
- Patients with known esophageal disease (varices, alcoholism, cirrhosis etc.) or ingestion of caustic substances
- Deforming facial trauma that prevents proper seating of the airway

Size Selection:

Select the appropriate size i-gel o2 by assessing the patient's anatomy/weight.

	Weight	Size
i-gel O_2 Resus Pack Yellow	30-60 kg (66-132 lbs)	size 3.0
i-gel O_2 Resus Pack Green	50-90 kg (110-198 lbs)	size 4.0
i-gel O_2 Resus Pack Orange	90+ kg (198 lbs and up)	size 5.0

Pre-use checks:

1. Inspect the packaging and ensure it is not damaged prior to opening.
2. Inspect the device carefully, check that the airway is patent and confirm there are no foreign bodies or a bolus of lubricant obstructing the distal opening of the airway or gastric channel.
3. Carefully inspect inside the bowl of the device ensuring surfaces are smooth and intact and also that the gastric channel is patent
4. Discard the device if the airway tube or the body of the device looks abnormal or deformed.

Pre-insertion preparation:

1. Always wear gloves.
2. Open the i-gel O2 package, and on a flat surface remove the inner tray containing the airway support strap and sachet of lubricant and place to one side (Figure 1).
3. In the final minute of pre-oxygenation, remove the i-gel o2 open the sachet of supplied lubricant and place a small bolus of the lubricant on the base of the inner side of the main shell of the packaging (Figure 2).
4. Grasp the i-gel O2 along the integral bite block and lubricate the back sides and front of the cuff with a thin layer of lubricant. This process may be repeated if lubrication is not adequate, but after lubrication has been completed. Check that no BOLUS of lubricant remains in the bowl of the cuff or elsewhere on the device. Avoid touching the cuff of the device with your hands. (Figures 3, 4, and 5).

5. Ensure the supplementary oxygen port is firmly dosed with the integral cap until it is required for use.
6. Place the i-gel back into the main shell of the packaging in preparation for insertion. (Figure 6).

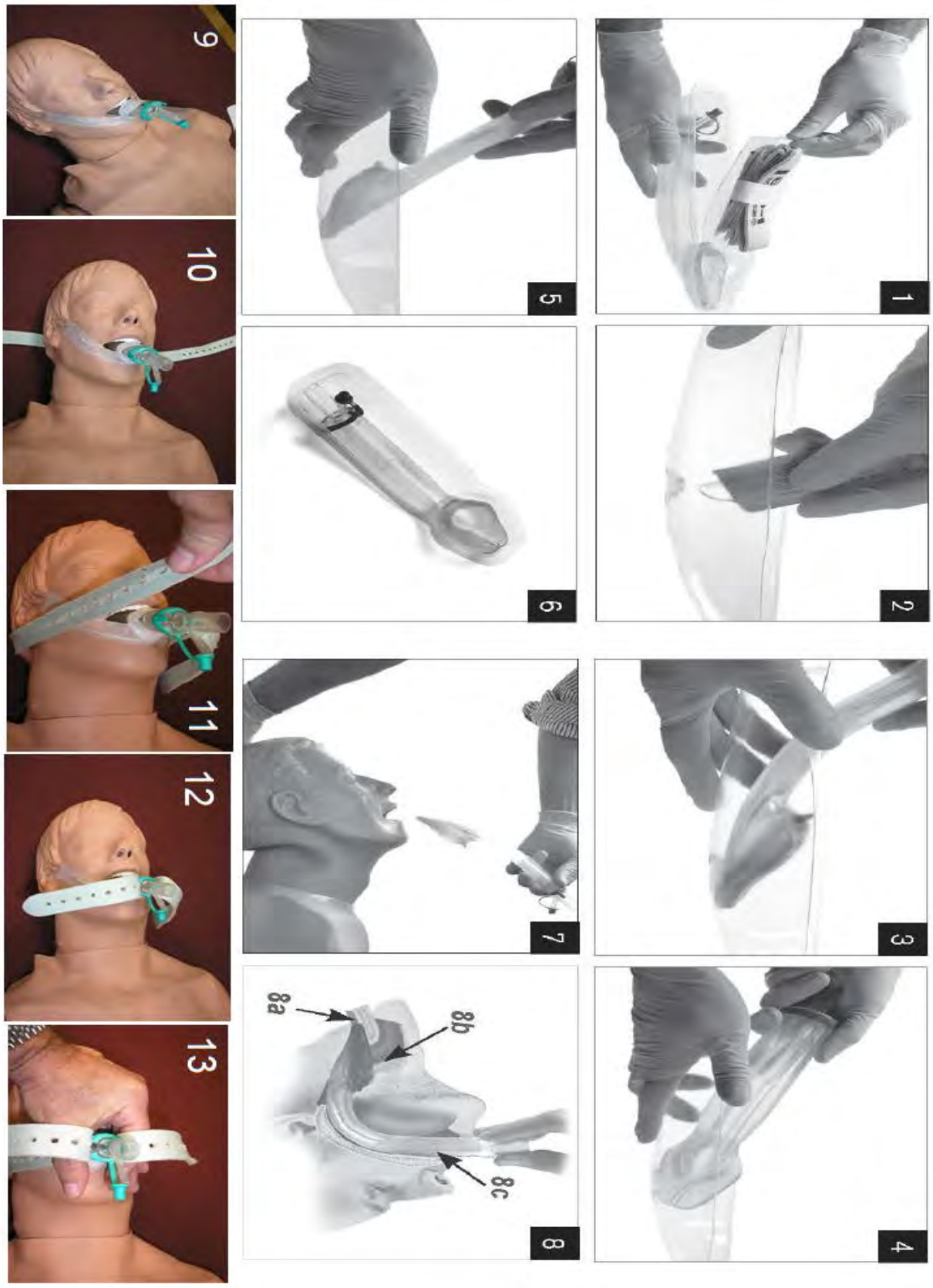
Recommended insertion technique:

WARNING: REMOVE DENTURES OR REMOVABLE PLATES FROM THE MOUTH BEFORE ATTEMPTING INSERTION OF THE DEVICE. DO NOT APPLY EXCESIVE FORCE DURING INSERTION.

IT IS NOT NECESSARY TO INSERT FINGERS OR THUMBS INTO THE PATIENT'S MOUTH DURING THE PROCESS OF INSERTING THE DEVICE.

1. Grasp the lubricated i-gel O_2 firmly along the integral bite block. Position the device so that the i-gel O2 cuff outlet is facing towards the chin of the patient (Figure 7).
2. The patient should be in the 'sniffing the morning air' position (Figure 7) with head extended and neck flexed. The chin should be gently pressed down by an assistant before proceeding to insert the i-gel O_2.
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 (Figure 8a) and the cuff should be located against the laryngeal framework (Figure 8b). The incisors should be resting on the integral bite-block (Figure 8c)
6. i-gel O2 should be secured with an appropriate size commercial tube holder **OR** taped down from maxilla to maxilla **and** secured with the airway support strap provided (Figures 9,10,11 and 12 illustrate the tape, strap and hold).
7. If an ITD is to be used it must be placed at this time, connected directly to the airway.
8. Apply CO2 detection device (or capnography if available).
9. Confirm proper position by auscultation, chest movement and verification of CO2 by capnography/ capnometry after 6 breaths.
10. Once proper position in confirmed by auscultation and/or chest rise; secure the commercial tube holder to the i-gel and patient or; if taped and strapped, the provider must continue to stabilize the i-gel with their free hand. (Figure 13).
11. Providers may continue to use backboards to assist in patient movement as needed.

i-gel O_2 Airway (BIAD) (≥ PL2)



Inter-Facility Transfer with Precautions (≥ PL2)

Clinical Indications: 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. Isolation procedures are consistent with the recommendations of the Centers for Disease Control and Prevention Guideline for Isolation Precautions in Hospitals.

These procedures are specific for the proper inter-facility transfer of all patients identified or suspected of being infected with a communicable disease. **The goal is to establish practical and effective measures for isolating the disease organism, not the patient.**

Contraindications: Not Applicable

Notes/Precautions: Patients with any communicable disease shall be transferred only when medically necessary and with the full knowledge and consent of the receiving facility.

Transport providers within the Austin/Travis County EMS System are responsible for providing care in accordance with this policy.

1. All System Providers are responsible for:
    a. Complying with isolation precautions. Specifically, those outlined in the System Clinical Operating Guidelines
        i. Clinical Procedure 60 - Standard Precautions
        ii. Clinical Procedure 16 – Contact Precautions
        iii. Clinical Procedure 56 – Respiratory Precautions
    b. Precautions may be used in combination for diseases that have multiple routes of transmission.
    c. 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.
    d. Providers will bring the appropriate amount of sheets to properly undertake patient and stretcher covering.
    e. Providers will wear N-95 respirator masks 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 (Rubeola).
    f. Appropriate hand hygiene before and after touching the patient.
    g. 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.

Procedure:

Undertaking Patient transport

Departing Transferring Facility

1. Isolated patients are transported only for essential purposes and only using appropriate barriers to prevent transmission. All providers must follow the appropriate isolation precautions and hand hygiene
2. Ensure transferring facility has notified the receiving facility of implementation of isolation precautions.
3. Put on gown, gloves, and a mask if indicated before going into the patient's room.
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
5. Ensure drainage or infectious area is contained with fresh dressing(s) or impervious coverings prior to transport
6. Remove gown, gloves, and mask (if worn) as you exit the door of the patient's room
7. Wash hands or use alcohol based hand sanitizer
8. Begin movement to vehicle via the designated area by the least traveled route
9. There is no need for PPE precautions except as specified above.
10. Place patient into the vehicle
11. Use Standard Precautions. Don appropriate PPE for anticipated procedures that may be initiated during vehicle transport
12. Non-medical personnel should not be permitted in the patient care compartment during transport.

Arrival At Receiving Facility

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.
2. Remove PPE upon exiting the vehicle and upon entrance into the receiving medical facility.
3. Ensure PPE is disposed of in an appropriate container
4. Begin movement to the patient's destination traveling directly to the designated area by the least traveled route
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
6. Cover the patient with another clean sheet
7. Remove linen from stretcher and dispose of in the appropriate container
8. Utilizing a disinfectant saturated cloth:
    a. Wipe down stretcher
    b. Stretcher hand rails
    c. Other potentially contaminated stretcher mechanisms
    d. Mattress
9. Remove gown, gloves and mask (if worn) at the door of the patient's room
10. Take stretcher into the hall
11. Wash hands or use alcohol based hand sanitizer
12. Clean contaminated environmental surfaces and equipment with approved disinfectant saturated cloth and allow to air dry

Intramuscular Injections (≥ PL1)

Clinical Indications:

- When the rate of absorption needs to be slower and/or prolonged in action
- When other administration routes are unsuccessful or unavailable.
- Route indicated by guideline

Contraindications: None

Notes/Precautions:

- Appropriate equipment
- Needles size and length
  - 1/2 to 1 inch for deltoid, 1 to1.5 inch for larger muscles
  - 25 gauge for aqueous medications, 21 gauge for oily or thicker medications
- Appropriate size mL syringe for medication dose
- Chlorohexadine wipe and Band-aids
- Appropriate injection sites
  - Posterior deltoid for injections of up to 2 mL in adults contingent upon muscle mass development
  - Vastus Lateralis for injections of 2 mL or less in children and adults
  - Ventrogluteal site for injections of 2 to 5 mL in adults or 2 mL or less in children

Procedure:

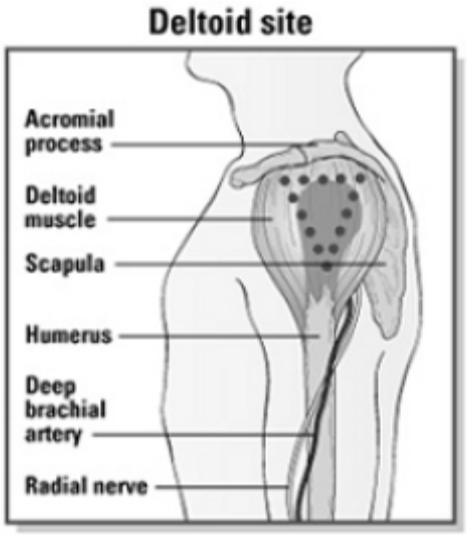
1. Prepare equipment.
2. Check label, date, and appearance of medication.
3. Five "R's" : Right patient / Right drug / Right dose / Right route / Right time.
4. Locate appropriate injection site.
5. Deltoid:
   - Identify the bony portion of the shoulder where the clavicle and scapula meet [the acromioclavicular joint (AC)]
   - Measure 3 to 4 fingers-width down the arm from AC joint
   - Slide one to two fingers-width posteriorly on the arm
6. Vastus lateralis sites:
   - Located on the anterior and lateral aspects of the thigh
   - Divide the area into thirds between the greater trochanter of the femur and the lateral femoral condyle
   - Injection is given into the middle third
7. Ventrogluteal site:
   - Place heel of palm on patient's greater trochanter of the femur
   - 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

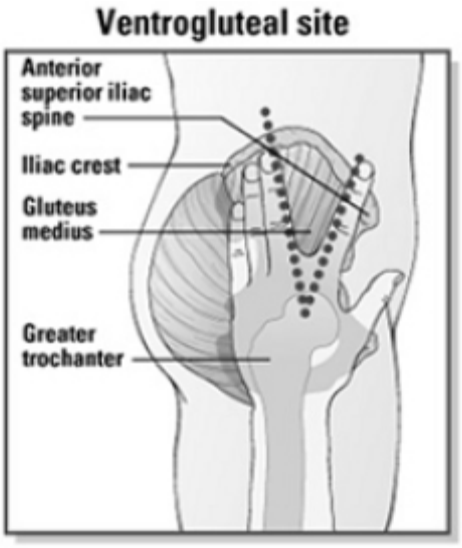
---A diagram of approved injection sites can be found on the following page---

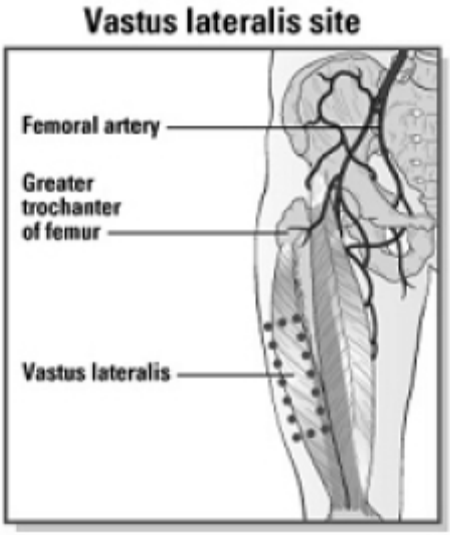
8. **Do Medication Administration Cross Check**
9. Using a circular motion from selected site outward, cleanse site with Chlorohexadine.
10. With one hand, stretch or flatten the skin overlying the selected site. This will allow for smoother entry of the needle.
11. In the other hand, hold syringe like a dart and quickly thrust the needle into the tissue and muscle at a 90-degree angle.
12. Slowly inject medication.
13. After all medication is injected, quickly withdraw syringe and dispose of in an approved container.
14. Gently massage over the injection site to increase absorption and medication distribution.
15. Apply firm pressure and place band-aid over site.

Intramuscular Injections (≥ PL1)

Injection Sites







Intraosseous Infusion- EZIO (≥ PL3)

Clinical Indications:

- As the initial means of circulatory access in cardiac arrest
- Critical patient where rapid vascular access is unavailable by other means in the following conditions:
  - Multisystem trauma with severe hypovolemia
  - Severe dehydration with vascular collapse and/or loss of consciousness
  - Respiratory failure or respiratory arrest
  - After 3 unsuccessful attempts & patient is unstable

Contraindications:

- Fracture proximal to proposed intraosseous site
- History of Osteogenesis Imperfecta
- Current or recent infection at proposed Intraosseous site
- Previous Intraosseous insertion within 24 hours or joint replacement at or above the selected site

Procedure:

1. Prepare EZ-IO assuring that complete needle set with trochar and needle is present.
   - Examine needle set to insure that seal is intact and needle is sterile, unused
2. Landmark for insertion as follows:
   - Humeral head: Place the patient palm on the 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
   - 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
   - Distal Tibia: (reserved for > 12 years of age) Identify the anteriormedial aspect of the distal tibia (2 cm proximal to the medial malleolus)
   - 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 Chlorohexadine.
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 approved 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 IV tubing and adjust flow rate as desired. A pressure bag may be used to enhance flow where appropriate.
8. Stabilize and secure the needle.
9. If the patient experiences pain with infusion or medication administration lidocaine may be instilled in the IO catheter line. Discontinue fluid/medication administration prior to administering lidocaine and wait 15 seconds prior to restarting. **Lidocaine** dosing as follows may be repeated once if pain persists:
   - Adult: 40 mg (2 mL of 2% solution)
10. When administering medications via the IO route delivery should be followed with a 10mL flush of NS.
11. Document the procedure, time and result on the patient care report and apply wrist band as appropriate if time allows.

KING VISION VIDEO LARYNGOSCOPY (≥ PL5)

Use of this device is approved for System (≥ PL5) Credentialed Providers who are appropriately equipped and; have successfully completed the required System competency verification process.

Indications:

- Any Adult patient who is a candidate for orotracheal Intubation with conventional direct Laryngoscopy.

Contraindications:

- The diameter of the oral cavity will not accommodate the blade size:
  - A channeled blade requires a 18mm opening
  - Non-channeled blade requires a 13mm opening
- Anytime a less invasive maneuver would allow oxygenation & ventilation of the patient

Procedure:

1. Select blade style and attach to display (listen & feel for "click" to confirm proper connection).
2. Lubricate blade and ET tube keeping lubricant away from imaging sensor.
   - Channeled blade – ET tube should be preloaded into the channel.
   - Non-channeled blade – A rigid stylet should be placed into the ET tube.
     - A rigid stylet is preferred, but if unavailable a malleable type stylet must be formed to the shape of the blade
3. Power device on and check for a functional moving image.
   - If a static, split, or frozen image is displayed power the device off; assure the blade is seated correctly to the display and power back on.
4. Place patients head in a neutral or sniffing position and pre-suction airway from oropharynx to cords.
5. Utilizing a standard scissor technique to open the mouth, place the blade into 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 (not 45 degree or "corner of the room" angle); displace the mandible anteriorly to expose the glottic aperture (Macintosh approach).
   - An alternative approach is to 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.
   - Channeled Blade
     - ET tube can be twisted within channel for lateral adjustment
     - If ET tube impacts right arytenoids retract tube and twist to the left (counter clockwise)
     - Bougie can be utilized for additional anterior deflection
8. Non-Channeled Blade
   - Follow blade curve with ET tube tip to avoid losing tip in the oropharynx

- Align ET tube tip with vocal cords
- Retract stylet as ET tube is advanced

9. Stabilize and hold the ET tube laterally while withdrawing blade from the mouth.
10. Disconnect the blade from display; dispose of blade and clean / disinfect display.

Considerations:

- During placement of the blade, maintain as anterior an approach as possible to avoid pooled secretions in the posterior pharynx. Suction should be readily available to manage secretions, blood, or vomitus.
- If suctioning is anticipated the provider may elect to utilize the non-channeled blade, which can be more easily used in conjunction with yankauer suction.
- Airway axis alignment is generally not necessary, but may be employed as provider deems appropriate
- Device can be utilized with a c-collar in place
- Device should be held below the purple ring during use to avoid inadvertent disconnection, which can occur by lifting on display during use.
- The following techniques can be utilized to avoid the chest in large body habitus patients:
  - Insert blade sideways (like an OPA) and rotate into a midline position.
  - Insert blade without display attached, then attach display while blade is in the mouth and power on.
  - Ramping may also be effective in these situations.
  - Blade must be connected to display before powering device on.
  - Channeled blade will accommodate 6.0 – 8.0 ET tube.
- Cleaning and disinfecting:
  - Blade is disposable
  - Display should be cleaned and disinfected with IPA wipes, or commercially available disinfecting wipes.
  - Display should not be submersed, and electrical connections at the bottom should be kept dry at all times.
- Stylet cleaning instructions:
  1. Remove visible contaminants with germicidal wipes
  2. Allow stylet to air dry
  3. Rinse stylet with water
  4. Submerse stylet in Cidex or Sporox bath
  5. Allow to remain submersed 10-20 minutes
  6. Remove from bath and allow stylet to air dry
  7. Rinse with water
  8. Return to King Vision Kit

Manual Defibrillation (≥ PL4)

Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Contraindications:

- None

Procedure:

1. Ensure that chest compressions are adequate and interrupted only at two minute pause (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 defibrillation exists. This is a SHOCK/NO SHOCK interpretation ONLY.
4. Select energy level to be delivered per guideline and charge defibrillator to the desired energy level. (this may be performed 15 seconds in advance of an anticipated break in CPR). Ensure chest compressions continue while the device is charging.
5. Discontinue compressions, assertively state, "CLEAR" and visualize from the patient's head to toe to assure no one is touching the patient.
6. Deliver shock by depressing shock button.
7. Immediately resume chest compressions. After 2 minutes of continuous CPR, pause briefly (< 10 sec) to perform pulse check and analyze rhythm.
8. Repeat the procedure every two minutes as indicated by the patient's response and rhythm.

Medication Administration and Cross Check (≥ PL1)

Clinical Indications:

Before administering any medication, the provider should know:

1. Is this medication indicated? (why are you using it?)
2. What is the safe and effective dose?
3. What is the correct administration route?
4. Does the patient have an allergy or other contraindication to this medication?
5. What are the expected effects, side effects and adverse effects?
6. Is the medication expired?

Patient Considerations:

The "Six Rights" of medication administration:

1. Right patient –indicated for this patient; no contraindications; no allergies
2. Right drug – the correct name (trade name vs. generic name); **correct concentration**
3. Right dose –Per System dosing chart; if medication not listed use Clinical Guideline
4. Right route – oral, topical, IV/IO/IN/IM, nebulized
5. Right time – slow IVP vs. rapid IVP vs. infusion over time
6. Right documentation

Procedure:

1. Assemble required delivery devices for medication to be administered
2. Tap v i a l / ampule gently until all medication is at the bottom as needed
3. Cleanse ampule with a Chlorohexidine prep pad
4. Remove sterile cap to access the vial or safely snap the ampule neck at the scored line to access the medication
5. **With the appropriate size needle or needleless device, draw up ONLY the amount to be administered in a single dose per System dosing chart or Guideline if medication is not listed in chart**
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 (sharps and glass containers) in approved sharps containers

Documentation:

Correct documentation of medications administered will include:

1. Time of medication administration
2. Route of administration
3. Site location for IM medication
4. Dose or volume administered
5. Name of provider administering the medication
6. Any medication related complications and steps made to correct
7. Patient's response to medication treatment

Other Requirements

1. Prefilled syringe medications must remain in their original box package until prepared for patient use
2. The current COG System Medication and Infusion Dosing Charts and the Medication Cross Check Safety Tool are required for each medication administration

Medication Administration Cross Check (Check List)

- ❑ **Provider 1** initiates the procedure by stating ”cross-check” or “med-check”

- ❑ **Provider 2** responds that he or she is “ready.” It is important to avoid using ambiguous responses such as “okay” since they may be interpreted many different ways and they 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 provides the following information: the dose (using the System dosing chart or Guideline), drug name, route, rate, patient weight and the reason.

  If and only if there is concurrence on provider 2’s behalf, does the cross-check procedure continue. Provider 2 verifies using System dosing chart or Guideline (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**, he or she responds 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 he or she has not done so already, verify that the patient’s V/S are appropriate, and any drug allergies. Provider 1 should respond either by saying “no contraindications” or by stating any relative contraindications present.

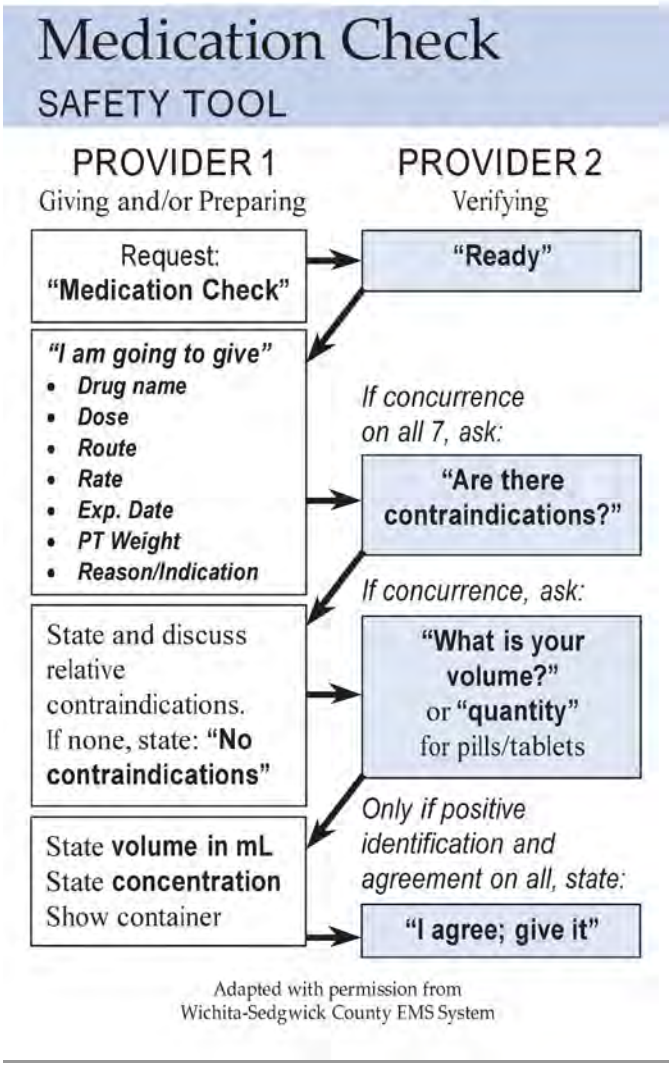
- ❑ **If provider 2** concurs, he or she response with the question “what’s your volume?” or simply “volume?”

- ❑ **Provider 1** should state the drug concentration, the volume he or she intends to deliver, and should show the vial 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, he or she should respond with the phrase “sounds good” or “I agree” and the order to “give it” in some form or another, again, avoiding ambiguous words like “okay.”

Note: If the patient condition changes before the medication is administered, and/or an interruption occurs during the cross-check; return to the beginning of the cross-check.

Medication Administration and Cross Check (≥ PL1)



Modified Valsalva Maneuver (≥ PL4)

Clinical Indications:

- Alert and Stable patients with a symptomatic narrow complex SVT. Not believed to be Sinus Tachycardia

Contraindications:

- Should not be attempted in patients with history of sick sinus syndrome, carotid bruits, cerebrovascular disease or when digitalis toxicity exists.
- Pediatric Patients
- Carotid sinus massage
- Ice water emersion of the face

Notes/Precautions:

- Syncope, Altered Mental Status, CVA, sinus arrest, high grade AV block, prolonged asystole and ventricular tachycardia in patients with digitalis toxicity.

Procedure:

1. Place the patient on the ECG monitor.
2. Run a continuous rhythm strip throughout the procedure.
3. Have 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 seated position
6. May Repeat x2 as needed
7. Document all changes on PCR/ePCR.

Nasal Drug Delivery Device (≥ PL1)

Clinical Indications:

- Patients requiring rapid medication administration in accordance with guideline and other route(s) of administration are not immediately available
- Medications currently System approved for this route:
  - Midazolam (Versed) see individual Guideline for application (Adult and Pedi)
  - Fentanyl (Sublimaze) for Pain management (Adult and Pedi)
  - Naloxone (Narcan) for opiate overdoses (Adult and Pedi)

Procedure:

1. Airborne PPE (N95 and eye protection) should be worn when administering medication via this route.
2. Dose appropriate medications should be drawn up into syringe.
3. Attach MAD 300 device to syringe.
4. Do Medication Administration Cross Check
5. Administer medications by aerosolizing medication in patient nostril (limit of 1.0 mL per nostril).
6. Due to fluid contamination dispose of in an approved sharps container.

Nasotracheal Intubation (≥ PL5)

Clinical Indications:

- A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection)
- Rigidity or clenched teeth prohibiting other airway procedures

Contraindications:

- Non-breathing or near apneic patient
- Patient age less than 12 years
- Use with caution in
  - Acutely hypertensive patients
  - Patients suspected of experiencing elevated ICP
- Known or likely fracture/instability of mid-face secondary to trauma
- Anytime a less invasive maneuver would allow oxygenation & ventilation of the patient

Relative Contraindications:

- Blood clotting abnormalities/Anticoagulant use
- Nasal polyps
- Upper neck hematomas or infections

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 to 10 cc of air.
10. Apply end tidal carbon dioxide monitor. After 3 ventilations, ETCO2 must be >10. If less than 10 check for adequate circulation and check equipment. Remove the ET tube if pCO2 remains <10 in the absence of a physiologic explanation. Record initial, ongoing, and final ETCO2 values on the PCR/ePCR.
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. Providers may continue to use backboards to assist in patient movement as needed.
16. Complete the airway verification form on arrival at destination.
17. 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.
18. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
19. Providers may continue to use backboards to assist in patient movement as needed.
20. Document in PCR/ePCR confirmation indications of successful orotracheal intubation.

Nebulized Medication (≥ PL2)

Clinical Indications:

- Patients requiring medication administration via nebulized route in accordance with the appropriate Clinical Guideline

Contraindications:

- Hypersensitivity to medication
- Medications not approved for nebulized delivery

Procedure:

1. Ensure all required pieces are available.
   - T-piece
   - 6” tubes X 1
   - Mouthpiece and/or face mask
   - Medication chamber
   - 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 6” tube.
7. If patient is NOT intubated insure the nebulizer chamber is 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.
    - Attach non-rebreathing patient valve of bag-valve-mask to free 6” tube
    - Ensure suctioning port on 90-degree adapter is closed
    - Begin ventilating patient
16. Nebulized medications may be used with CPAP device. Refer to CPAP device instructions for appropriate assembly and administration.
17. Treatment should be provided until medication is depleted.
18. Monitor patient for medication effects including reassessment of vital signs and breath sounds.
19. Document the medication administration including dose and time as well as any observed patient response in the patient care record.

Orotracheal Intubation (Direct Laryngoscopy) (≥ PL5)

Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or prolonged EMS transport
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort
- Risk to benefit ratio of oral tracheal intubation to BIAD insertion favors oral tracheal intubation
- **Inability to adequately oxygenate/ventilate a patient after attempted BIAD insertion**
- Concern for impending airway loss due to inhalation injury, anaphylaxis, expanding hematoma

Contraindications:

- None in the presence of the need for definitive airway management
- 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 (HFNC) at 25 LPM for Apneic Oxygenation during intubation.
3. Select proper ET tube 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.**
   - Tactile confirmation of tracheal clicking will be felt as the distal tip of the introducer bumps against the tracheal rings
   - If tracheal clicking cannot be felt, continue to gently advance the introducer until “hold up” is felt
   - Tracheal “clicking” and “hold up” are positive signs that the introducer has entered the trachea
8. Lack of tracheal clicking or hold-up is indicative of esophageal placement.
9. While holding the introducer securely, and without removing laryngoscope, advance endotracheal tube over the proximal tip of the introducer.
10. As the tip of the endotracheal tube passes beyond the teeth, rotate the tube 90 degrees counter clockwise (1/4 turn to the left) so tube bevel does not catch on the arytenoid cartilage.
11. Advance endotracheal tube to the proper depth. While visualizing the ETT passing through vocal cords.
12. Holding endotracheal tube securely, remove introducer.
13. Inflate ETT cuff with 3-10 mL of air.
14. Apply ETCO2 monitor. After 3 ventilations ETCO2 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.

15. 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.
16. Record initial, ongoing and final ETCO2 values in the PCR/ePCR.
17. Secure the ETT using commercial device whenever possible or other available method.
18. 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.
19. Continuously monitor ETCO2 to detect tube dislodgement or obstruction. Reconfirm correct placement after each patient movement.
20. Consider gastric distention and place an NG/OG tube after airway is secured with ETT.
21. Providers may continue to use backboards to assist in patient movement as needed.
22. Document in PCR/ePCR confirmation indications of successful orotracheal intubation.

Orthostatic Vital Sign Assessment (≥ PL1)

Clinical Indications:

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization
- Lightheadedness or dizziness
- Patients ≥ 8 years of age, or patients larger than the PEDIA Tape

Contra Indications:

- Patients that are obviously hypotensive

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 20 mmHg or pulse increases more than 20 beats per minute or the patient develops symptoms such as lightheadedness, weakness or pre-syncopal symptoms the patient is considered to be orthostatic.
6. If no symptoms or significant change in vital signs have the patient stand. Repeat steps #4 and #5 above.
7. If a patient is symptomatic while sitting, lying or is obviously volume depleted based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.

Pelvic Binder (SAM Sling®) (≥ PL1)

Clinical Indications:

- Potential unstable pelvic fracture

Contraindications:

- Provided the patient is of appropriate size for the size of SAM Sling® available, there are no contraindications for its use in the presence of appropriate assessment findings

Notes/Precautions:

- Anytime application of the SAM Sling® is a consideration, application of the A/TCEMS Spinal Restriction Algorithm should be considered as well
- The SAM Sling® is a force-controlled device that won't allow the belt to be over tightened
- "Auto-stop" buckle has spring-loaded prongs that lock the buckle in place when the right amount of force is applied
- Except for two small metal springs in the buckle, the SAM Sling® is transparent to X-rays
- Once properly applied, the Sling should be removed only under the supervision of a physician
- If necessary to remove the Sling
    - Do not cut to remove
    - Release orange pull handle in order to remove

Procedure:

1. Unfold Sling with white surface facing up.
2. Place white side of Sling beneath patient at level of buttocks along a line drawn between greater trochanters and the symphysis pubis.
3. Firmly close 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:

- Patients with suspected tension pneumothorax as evidenced by:
  - Hypotension (SBP<90), clinical signs of shock and at least one of the following:
    - Jugular vein distention
    - Absent or decreased breath sounds on the affected side
    - Hyper-resonance to percussion on the affected side
    - Increased resistance when ventilating a patient
    - Tracheal deviation away from the side of injury (a late sign)
- 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
- Asthma patient in Cardiac Arrest (bilateral)

Contraindications:

- None

Procedure:

1. Administer high flow oxygen.
2. Prepare equipment and don appropriate PPE.
3. Identify and prep the site:
    1. Lateral placement at the fourth intercostal space in the mid-axillary line.

    ---or---

    2. 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 exits 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 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:
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:

- Inadequate gravity flow of IV fluid

Contraindications:

- Controlled drip rates required for fluid or medication administration
- IV/IO where patency of line is in question

Procedure:

1. Purge the air from the IV bag.
2. Spike the bag as usual.
3. Invert the bag and squeeze to expel all of the air from the IV bag, drip chamber, and tubing.
4. Establish IO/IV and assure patency.
5. 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.
6. Once patient has been delivered to receiving facility, deflate infusion bag and remove the IV fluid bag.
7. If the bag is grossly contaminated, dispose of it.
8. If the bag is not grossly contaminated, decontaminate it in the same fashion as a blood pressure cuff.

Pulse Oximetry (≥ PL1)

Clinical Indications:

- As an adjunct to patient assessment
- Any patient who receives a narcotic, sedative, or paralytic medication
- Before, during, and after advanced airway, CPAP or other airway intervention

Contraindications:

- None

Notes/Precautions:

Specific circumstances that may result in inaccurate pulse oximetry readings:

- States of decreased peripheral perfusion (hypotension, hypothermia)
- Carbon monoxide poisoning, methemoglobinemia, cyanide poisoning
- Excessive ambient light (sunlight, florescent lights) on the pulse oximeter probe

Procedure:

1. Apply probe to finger or other site as recommended by the device manufacturer.
2. Allow device to register initial saturation level and record the time and result on the patient care report. Initial readings should be on room air when possible and patient condition allows.
3. Correlate patient pulse with oximeter pulse and waveform.
4. Monitor critical patients continuously throughout pre-hospital care.
5. Remember to treat the patient not the pulse oximeter reading. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress.

System Target SPO2 92% ↔ 96%

Respiratory Precautions (≥ PL1)

Clinical Indications:

In cases where infectious agents transmitted by an airborne route are prevalent in the community or have reached pandemic status a provider pre-alert system may be implemented in the communications center. In these cases providers will be advised of the potential need for increased precautions at the time of dispatch.
In the absence of pre-arrival notification respiratory protection 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:

Not Applicable

Notes/Precautions:

- 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.
- 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.
- More often in the field of emergency medicine, the etiologic agents of infections are unknown.

Procedure:

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.

Airborne Precautions (All Hazard):

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, small pox 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 protracted cough lasting 3 weeks or longer
- Cough productive of bloody sputum
- Cough in conjunction with the following:
    - Fever/chills and
    - Night sweats and/or
    - Weight loss

1. Utilize the incident information provided by Communications that alerts providers to a possibly 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.”
3. Such a view can provide the necessary impression that will assist to determine the need for extensive medical intervention requiring multiple providers.
4. Should such an impression not be clearly evident, only 1 first responder, in the appropriate PPE (described above), should make patient contact and conduct the initial patient assessment.
5. Providers should don a fitted N95 mask for all patient contact and perform a "fit check" by molding the mask to the face and checking for air leaks after donning.
6. Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement.
7. 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.
8. 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.

RSI Checklist (≥ PL6)

RESUSCITATE then INTUBATE

Risks (HOp)

H hypotension

O hypoxia

pH hypoventilation (pH metabolic acidosis)

	ATT GETTER
C	CONCERN
R	PROBLEM
M	SOLUTION
	CLOSE LOOP

READY

Crew Brief - PACE Plan

Postion
C-Spine PRN
Ear2Notch, Face||, PRN Ramp
Head of bed up, 30°
360 Access
Tube tamer strap behind neck
Monitor visible (NiBP, SpO2, EtCO2)
SpO2 Opposite side of NiBP

HFNC on patient

Equipment
Suction x2 Checked, Verified Working
O2 Cylinder x **2** > half full
DL Handle/Blade chosen, tested
VL Blade chosen, tested
ETT size chosen, cuff tested
+/- 1 size ETT ready
EtCO2 reading confirmed
Bougie
iGel sized and ready
Cric kit ready
NiBP Cycle q 60 secs

SET

Meds
IV access x 2, flow verified
INDUCTION Agent drawn up, dose confirmed
PARALYTIC Agent drawn up, dose confirmed
PUSH DOSE PRESSOR drawn up, dose confirmed

Administer INDUCTION Agent

PreOx/DeN$_2$ate/apOx
HFNC ≥ 15lpm
BVM/HME/Inline EtCO2/PEEP Valve
Select PEEP pressure
2 Person, 2 Hand technique
Jaw Thrust/OPA/NPA as appropriate
SpO2 >93%, begin **3 Min Countdown**

Crew Briefed - PACE Plan - PostIntubation Plan

Confirm ability to BVM prior to paralysis
Administer PARALYTIC Agent
Begin **90 Sec Countdown**

Go

Place Advanced Airway

Verify EtCO2 Waveform
Verify depth, +BBS
Verify cuff pressure
Gastric Tube?
Secure Tube

Optimise hemodynamics

Post intubation sedation/analgesia

BVM mask on O2 tubing
Titrate FiO2

Safe Injection Practices (≥ PL2)

Clinical Indications:

To ensure adherence to basic principles of infection control and aseptic technique to prevent or diminish the risk of disease transmission during:

- Initiation of IV access
- Intramuscular/subcutaneous injections
- Drawing of medications
- Preparation and delivery of parenteral medications

Contraindications:

Not Applicable

Notes/Precautions:

- The primary breaches in infection control practice that contribute to potential disease transmission include, but not limited to: reinsertion of used needles into a multiple-dose vial or solution container (e.g., saline bag) and use of a single needle/syringe to administer intravenous medication to multiple patients
- Adherence to basic principles of aseptic technique includes the use of a sterile, single-use, disposable needle and syringe for each injection given and prevention of contamination of injection equipment and medication
- Whenever possible, use of single-dose vials is preferred over multiple-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.

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Simple Thoracostomy

Indications:

- Traumatic Cardiac Arrest with known or suspected injury to the chest/abdomen.

Contraindications:

- Definite loss of pulse for greater than 10 minutes prior to arrival of first unit.
  - May consider the procedure if PEA present at a rate ≥60.
- Any patient that has cardiac output, including hypotensive patients.
- Injuries incompatible with life.
- Any child that appears too small for utilization of Simple Thoracostomy Kit.

Equipment:

- Simple Thoracostomy Kit
  - Scalpel
  - Curved Kelly Forceps
  - Chlorhexadine Sponge
  - Permanent Marker
  - Chest Seals

PEARLS:

- IV access, Oxygenation & ventilation should be performed by other crew members and not delay the thoracostomy.
- Errors often occur due to poor positioning of the patient or paramedic
- It will be helpful to have a crew member support the arm in an abducted position (elbow to ear)
- Appropriate site identification may be made by placing four fingers of the paramedic's hand in the axilla and making an incision just inferior to that point. (approximately the level of the origin of the nipple).
- Incision should be directly over the rib to prevent over-penetration and lung injury.
- Blunt dissection is essential to limit the effect of any bleeding and to allow soft tissues to act as a flutter valve.
- The hole through the intercostal muscles should be large enough for you to pass your finger easily through into the thoracic cavity.

Procedure:

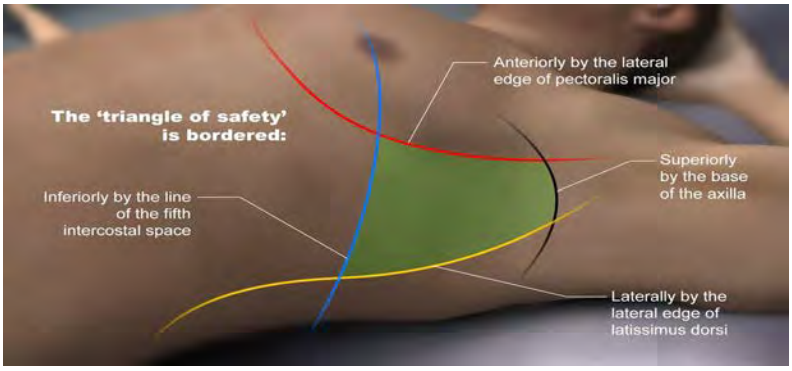
1. Ensure patient is in the supine position and begin on the side most likely to be affected by a tension pneumothorax.
2. Cleanse the site with Chlorohexidine.
3. Using the scalpel, make a 1-2 inch incision directly over the 5th or 6th rib, between the anterior axillary line and midaxillary line. It is important not to extend or make incisions in or through the penetrating wounds when at all possible.
4. Use the scalpel for skin only, there after use blunt dissection to pass through the intercostal muscles.
5. 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.
6. Following penetration into the thoracic cavity, 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.
7. Insert finger into pleural space. Ensure the lung is palpated and, if possible, feel caudally for the diaphragm.
8. Allow the soft tissues to fall back over the wound to act as a flutter valve.
9. Repeat the procedure on the opposite side.

Post Procedure:

- If ROSC: Place an occlusive dressing over the wound, such as:
    - Pediatric defib pad
    - HyFin Vent Chest Seal
- If no ROSC and Termination of Resuscitation: Prior to pronouncement - Circle each wound with a permanent marker and label them “EMS” to aid in identification for post mortem examination.
- If evidence of tension pneumothorax occurs, including cardiac arrest following ROSC: Remove occlusive dressing and re-insert finger to relieve tension.

Simple Thoracostomy Checklist

- ☐ **Position the patient**
  a. Place the patient supine with the arm on the affected side abducted and externally rotated
  b. Palm of the hand behind the patient's head, if possible.
- ☐ **Identify Site**
  a. 5th intercostal space anterior mid-axillary line



- ☐ **Cleanse the site thoroughly**
- ☐ **Incise the skin directly over the rib to prevent over-penetration**
  a. The scalpel is used for the skin only
  b. Make a 1-2-inch incision to the identified site. The incision should be large enough to fit a gloved finger.
- ☐ **Penetrate the pleural space with Kelly clamp**
  a. Using a large, curved clamp in a cephalad direction, bluntly dissect the tissue beneath the skin, over the top of the rib
  b. Pass the curved clamp, in a controlled fashion, through the intercostal muscles to penetrate the pleural space
- ☐ **Allow expulsion of air and blood**
  a. Open the clamp widely to allow the expulsion of air and blood
  b. Pull Kelly clamp out while spreading clamps
- ☐ **Confirm entry into the thoracic cavity**
  a. Palpate the parietal pleura and the lung with one gloved finger to confirm placement in the thoracic cavity
- ☐ **Mark your incision**:
  a. Prior to pronouncement: Circle each incision with permanent marker and label "EMS" if there is no ROSC and resuscitation is terminated
- ☐ **Place a vented chest seal over the incision.**
  a. If there is ROSC obtained or if the patient is transported
- ☐ **If the patient experiences a cardiac arrest after ROSC**
  a. Remove chest seal and re-insert gloved finger into chest to relieve tension
  b. Replace chest seal

Smart Bag (≥ PL1)

Clinical Indications:

- Patient in need of ventilatory support and/or in acute respiratory distress.

Contraindications: None

Preparation for use:

1. Inspect the **SMART BAG®MO** resuscitator to ensure that all components are present and properly assembled.
2. Test for leaks by occluding the patient port completely squeezing the bag (Any leaks in the system may prevent the delivery of sufficient volume to the patient).
3. Squeeze and release the **SMART BAG®MO** hard a few times to ensure that air is moving through the valve system to the mask. The **SMART®** Valve in the neck of the bag should move freely indicating increased airway pressure and you should notice an immediate increase in bag tension (stiffness).
4. Gently squeeze and release the **SMART BAG®MO** a few times to ensure that the bag tension is reduced and the **SMART®** Valve in the neck of the bag does not move forward when you gently squeeze. This provides confirmation that the airway pressure will be kept to the minimum required for adequate ventilation to occur while reducing the risk of gastric insufflation.
5. If using supplemental oxygen, attach the reservoir system to the bag refill port and ensure that the oxygen tubing is attached to an oxygen source with a flow rate of at least 15 lpm. Ensure that the collapsible reservoir system is fully extended to allow maximum oxygen storage.

Procedure:

1. Select the appropriate **SMART BAG®MO** resuscitator model for the size of patient to be ventilated.
2. Ensure that the patient's airway is clear of any obstructions and remains open by properly positioning the patient's head.
3. Maintain a proper mask-to-face seal with one hand by lifting the chin upward with the last three fingers of the hand. Keep the index finger and thumb on top of the mask to form a tight seal around the patient's mouth and nose. **The 2 handed technique is preferred for maintaining mask- to-face seal during Pit Crew operations. This is always the preferred method any time a BVM is used with BLS airway adjuncts.**
4. Gently squeeze the **SMART BAG®MO** until the chest rises, then release.
   Ventilate the patient with a steady squeeze and release of the **SMART BAG®MO** allowing sufficient time between ventilations to allow for full emptying of the patient's lungs.
5. If the child **SMART BAG®MO** is being used and the Pressure Relief override is required to be applied, place a finger over the Pressure Relief Button, depress the button and rotate 90^{o} to lock in place. To unlock simply rotate the button until the arrow lines up with the arrow on the patient valve and release.
6. If you are unable to effect a positive mask seal/good airway control, rotate the lock out mechanism to lock out the **SMART®** valve. (Adult or Pedi)
7. If you are ventilating a patient that is breathing, rotate the lock out mechanism to lock out the **SMART®** valve. (Adult or Pedi)
8. Safely dispose of the **SMART BAG®MO** after use.

SMR Procedure (≥ PL1)

Clinical Indications:

- Need for a Long Spine Board (LSB) as determined by the SMR Guideline

Procedure:

1. Gather a backboard, 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 (PMS).
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 other 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 (PMS).
9. Some patients, due to size or age, will not be able to be immobilized through in-line stabilization with standard backboards and C-collars. Never force a patient into a 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 PMS.
10. Document the time of the procedure in the Patient Care Report (PCR/ePCR).

Standard Precautions (≥ PL1)

Clinical Indications:

- 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:

- Not Applicable

Notes/Precautions:

- 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
- The application of Standard Precautions during patient care is determined by the nature of the provider-patient interaction and the extent of anticipated blood, body fluid, or pathogen exposure. For some interactions (e.g., performing venipuncture), only gloves may be needed; 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 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

4. 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.
5. Wear a gown for direct patient contact if the patient has uncontained secretions or excretions.
6. Remove gown and perform hand hygiene before leaving the patient's environment.
7. Do not reuse gowns.

Mouth, nose, eye protection

8. 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.

Standard Precautions (≥ PL1)

9. 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).

Suctioning – Advanced (≥ PL3)

Clinical Indications:

Obstruction of the airway (secondary to secretions, blood, 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

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 (judgment must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes).
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered (suction off), insert the catheter through the airway device.
7. Once the desired depth (measured in #4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
8. Small volume (< 10 ml) of normal saline lavage may used as needed to help dissolve obstructions due to mucus plugging of the suction catheter
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient
10. Document time and result in the patient care report (PCR).

Tourniquet (≥ PL1)

Clinical Indications:

- Life threatening extremity hemorrhage that cannot be controlled by other means
- Serious or life threatening extremity hemorrhage where conditions (patient location, tactical or hazmat environment, etc) prevent the use of standard hemorrhage control techniques
- 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:

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

Procedure: Guiding Principle: place it High and Tight

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.

Transcutaneous Cardiac Pacing (TCP) (≥ PL5)

Clinical Indications:

- Adult patient with unstable bradycardia (HR <60 and signs of hypo-perfusion such as SBP <90 mm Hg, change in mental status, chest pain, CHF)
- Pediatric patients with unstable bradycardia unresponsive to treatable causes (PEDI, SBP < 70 + (age in years x 2) mmHg). Unresponsive to aggressive Oxygenation and Ventilation attempts

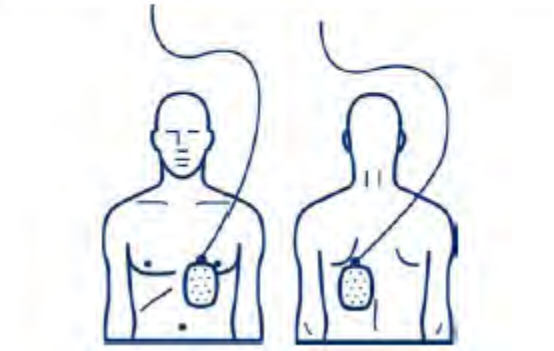
Contraindications:

- 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):
   - One pad to anterior left mid chest next to sternum. (medial/inferior to pectoral muscle)
   - 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 (US)

Indications

- Determining presence of cardiac activity during CPR pulse checks
- Extended Focused Assessment by Sonogram for Trauma (EFAST) to diagnose potentially correctable serious injury
- Diagnosis of suspected pneumothorax
- Determination of fetal cardiac activity in 2nd or 3rd trimester pregnancy (in lieu of doppler heart tones)
- Ultrasound is an assessment tool which may be performed at any time. Additional diagnostic procedures such as aortic measurement, soft tissue examination, or endotracheal tube placement confirmation may be performed if trained.

Contraindications

- None

Risks

- Ultrasound carries no known risks to the patient or provider.

Procedure

- Ensure proper body substance isolation precautions.
- Do not delay immediately necessary lifesaving procedures to perform ultrasound exam. Do not interrupt CPR just to perform an ultrasound exam. Perform the ultrasound exam during regular pulse check intervals.
- Explain procedure to the patient if possible, that you are performing a limited ultrasound exam which involves some gel and will not be painful.
- Turn on ultrasound.
- Select appropriate exam preset:
    - Abdominal: EFAST, cardiac activity, fetal cardiac activity
    - Cardiac: cardiac activity
    - Lung: Pneumothorax
- Perform ultrasound exam.
- Clean the probes, cord, screen, and gel bottle with germicidal wipes.
- Document ultrasound findings and procedure in the electronic patient care report.
- Examples:
    - “EFAST indicated no pericardial effusion, intraperitoneal fluid, or pneumothorax.”
    - “Fetal cardiac activity confirmed by visualization on ultrasound.”
    - “Patient in PEA. During pulse check, no mechanical cardiac activity observed with ultrasound.”

Vacuum Immobilizer

Indications:

- When guidelines indicate a Pt needs to be packaged for transport
- The vacuum mattress can be used as a Spinal restriction device and/or full body splint
- Pelvic fractures
- Situations where a Pt will be packaged supine for an extended period of time

Contraindications:

- None

Notes/Precautions:

- Vacuum mattress drastically reduces pressure points compared to a ridged backboard
- The vacuum mattress is an excellent insulation barrier:
    - Can help with managing hypothermia for patients in cold weather or with trauma
    - 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
- If the vacuum mattress loses vacuum, impermeable tape can be used as a "quick fix" solution to temporarily repair an abrasion/puncture site.
- The vacuum mattress has a built-in pelvic binder that can be used in lieu of the SAM Sling 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)
    a. Yellow, Red, 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.

Wound Care (≥ PL1)

Clinical Indications:

- Protection and care for open wounds prior to and during transport

Procedure:

1. If active bleeding, hold direct pressure.
2. Once bleeding is controlled, irrigate contaminated wounds with saline as appropriate (does not apply to a "packed" wound):
    - Avoid if bleeding is difficult to control
    - 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.

Splinting (≥ PL1)

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, dislocation, sprain, or injury
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

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 (PCR/ePCR).

Use of this procedure is immediately approved for System PL1 (and above) Credentialed Providers who are appropriately equipped and, have successfully completed a competency verification process that is on file with their Organization.

Wound Packing for Penetrating Junctional and Extremity Trauma (≥ PL1)

Clinical Indications:

- Uncontrolled hemorrhage for Penetrating Junctional and Extremity Trauma

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.

Continued Hemorrhage ?

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 dressings throughout transport for bleeding.
10. Wound edges should be clear of blood.
11. Beware of the “trickle” of blood which may lead to slow exsanguination
12. Document the wound and assessment and care in the patient care report (PCR).

Appendices

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-Lakeway
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	St. David's Pflugerville Satellite ED (SED)	St. David's Cedar Park Satellite ED (SED)
St. David's Bee Cave Satellite ED (SED)	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 CR – 13.**

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.

Field Guide for COGs

Medication Formulary

Adult Medications (≥ 37 kg)

For each medication administration:

1. **Verify that the CONCENTRATION listed here is the drug concentration you currently have and are about to administer.**
2. **Estimate weight (weight in kg = weight in pounds/2.2), Determine dose volume for the approximate weight.**
3. **If all Medication Cross Check (CP-02) verifications are correct, and another System provider agrees, administer the appropriate drug volume.**
4. **In the Adult dosing chart, a "!" indicates a maximum or minimum dosage or volume that may not correlate to weight.**

Pediatric Medications (< 37 kg)

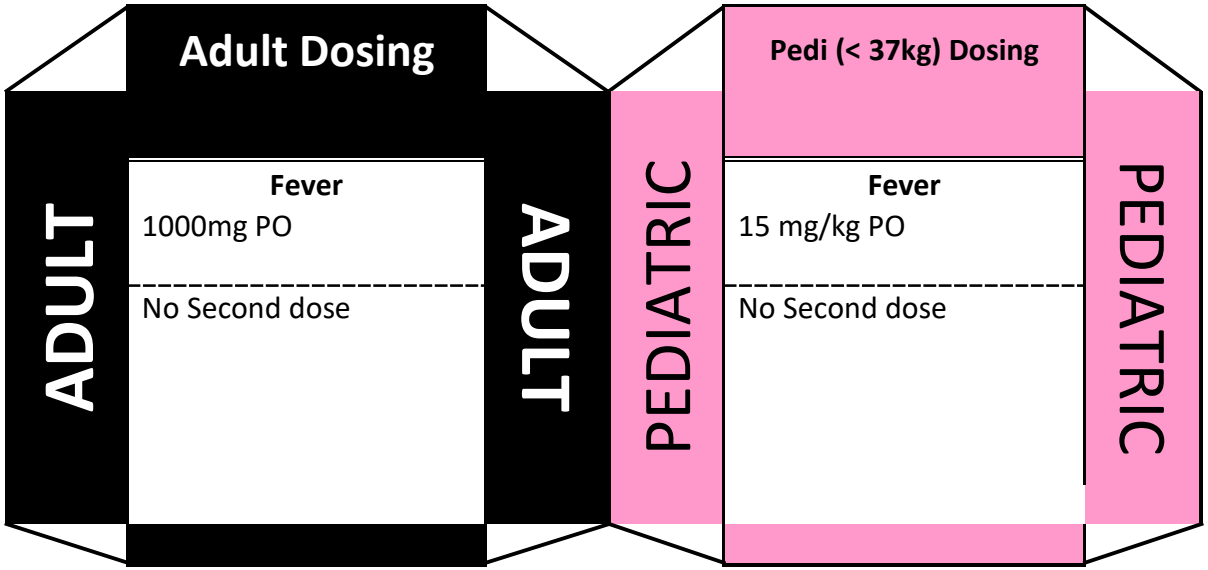
For each medication administration:

1. **Verify dose for appropriate age or weight as per each individual guideline, and verify that the CONCENTRATION listed here is the drug concentration you currently have in service that you are about to administer.**
2. **Use the PEDIATAPE to estimate weight, and the Color Coded Drug List to verify correct volume for weight range.**
3. **If all Medication Cross Check (CP-02) verifications are correct, and another System provider agrees, administer the appropriate drug volume as per the attached formulary.**
4. **Select the next higher length color zone for obese children.**
5. **May include minimal "rounding" of doses and/or volumes for weight ranges and drug safety.**
6. **Volume in ml to Administer by Approx. Weight at Given Concentration.**
7. **Maximum dose is usually the typical adult dose.**

Version 090219 (MD 19-03)

Acetaminophen (APAP) (Tylenol)

Indications Fever with/without seizures or Pain



15mg/Kg (PO Only)

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	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 admin. in mL OR tablets Concentration = 32mg/1mL and Meltaway Tablets = 80mg each										
1 mL No tablets	2 mL No tablets	2 mL No tablets	3 mL No tablets	4 mL No tablets	5 mL or 2 tablets	6 mL or 2 Tablets	8 mL or 3 tablets	10 mL or 4 tablets	12 mL or 5 tablets	15 mL or 6 tablets

Contraindications Allergy, Hypersensitivity

Precautions Pregnancy Category B. And, use in caution with known thrombocytopenia and/or Liver Disease.

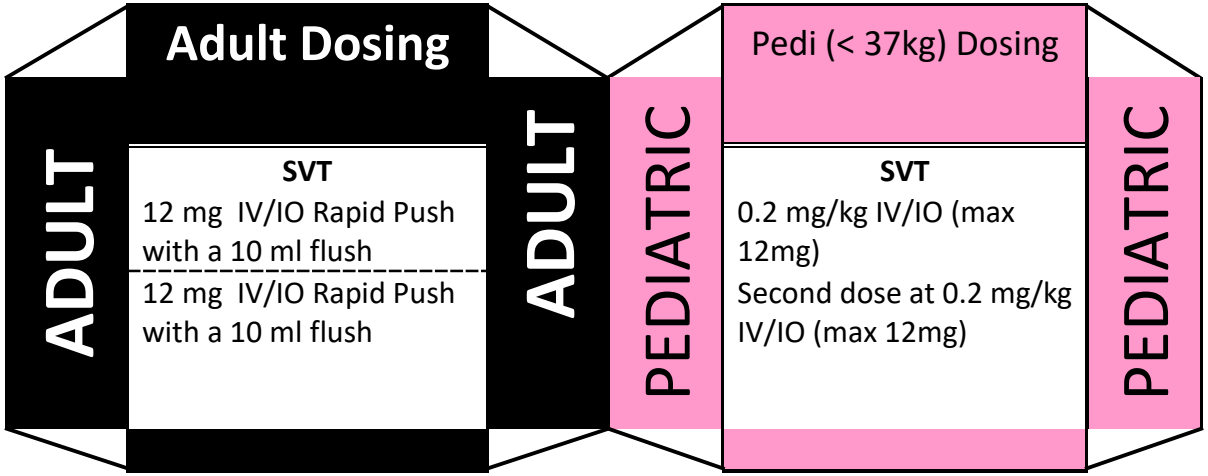
Adverse/Side Effects N/V, abdominal pain

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. Absorption is rapid, peak 1-2h, duration 3-4h, ½life 1-3h. APAP is processed in the Liver.

Adenosine

Indications Supraventricular Tachycardia SVT (including WPW) refractory to vagal maneuvers



Pedi (< 37kg) Dosing **0.2 mg/kg IV/IO (max 12mg)**

Second dose at 0.2 mg/kg IV/IO (max 12mg)

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	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/1mL										
0.2 mL	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.6 mL**	**0.7 mL**	**0.9 mL**	**1.1 mL**	**1.4 mL**	**1.8 mL**	**2 mL Max Single Dose**

Contraindications

2nd or 3rd degree heart block (without a functioning pacemaker)
Known Sick sinus syndrome
Known History of Long QT Syndrome
Pregnancy Category C
Irregular Wide-complex tachycardia presumed to be WPW

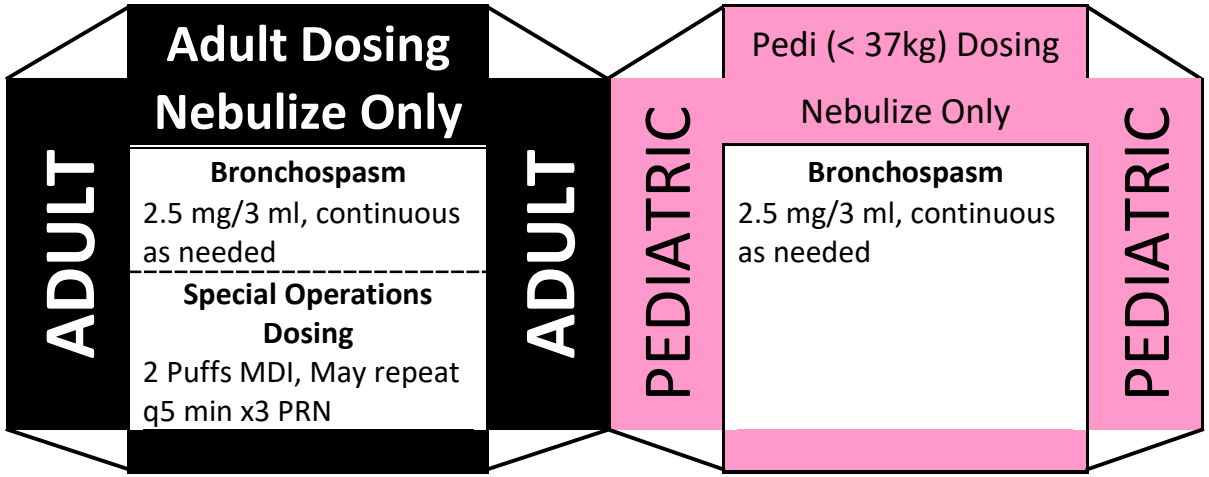
Precautions

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.
	Generally safe to use in pregnancy, and is the drug of choice for acute termination of maternal supraventricular tachycardia.
Adverse/Side Effects	Flushing, Dizziness, Chest Pain, Lightheadedness, Dyspnea, Numbness, Headache, Nausea/Vomiting , Diaphoresis, Palpitations , Metallic Taste
Interactions	Additive Effects—Digoxin, calcium channel blockers
	Antagonistic Effects—Methylxanthines (caffeine, theophylline)
	Potentiating Effects—Dipyridamole (Persantine), Carbamazepine (Tegretol)
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.

Albuterol

Indications Bronchospasm (may or may not hear wheezing)



Contraindications None in the emergency setting

Precautions / Side Effects Palpitations, Tachycardia, Anxiety, Nervousness, Dizziness, HA, Tremor, N/V, Less frequent HTN, Dysrhythmias, Chest Pain

Interactions: Antagonistic Effects—Beta blockers

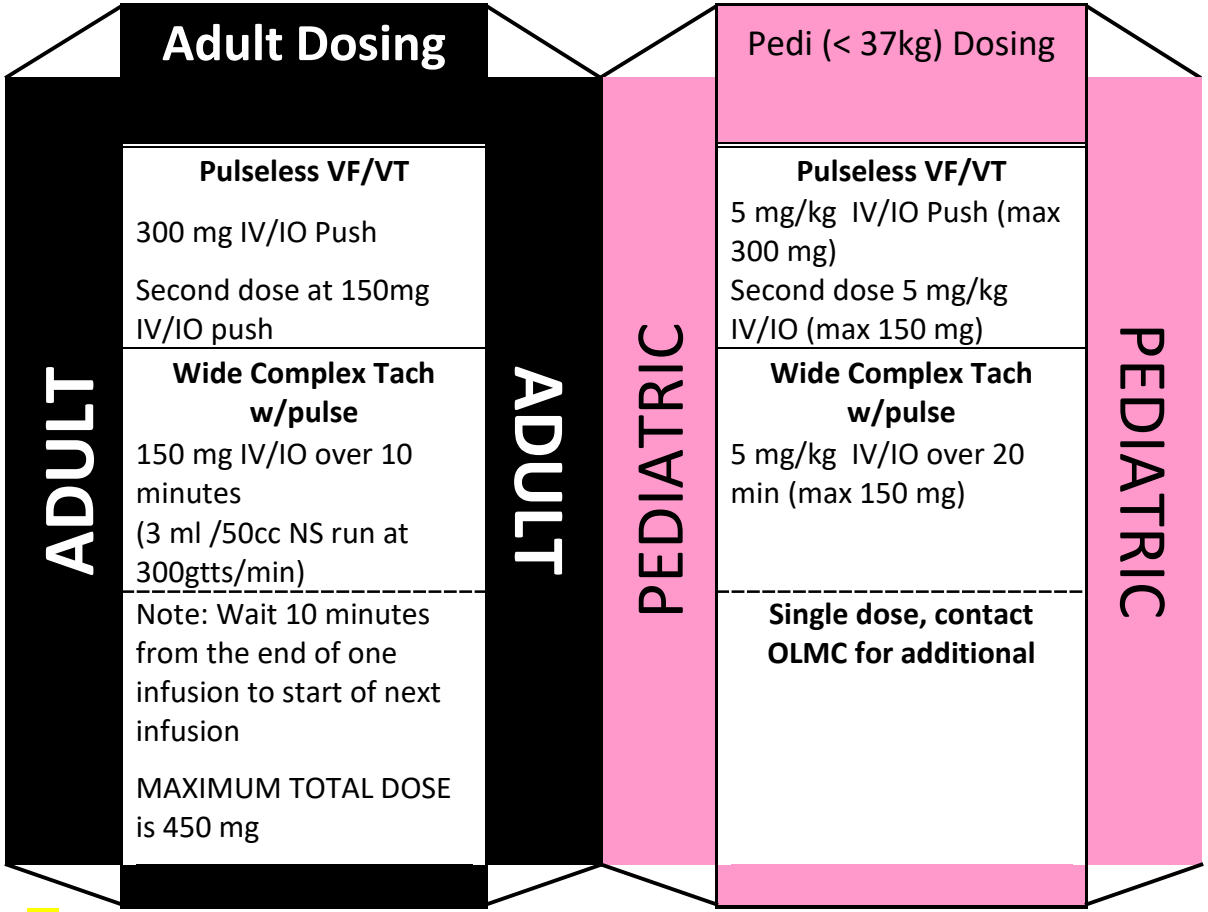
Additive Effects—MAOI's, TCA's, other sympathomimetic drugs

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

Amiodarone

Indications Ventricular Arrhythmias or Wide Complex Tachycardia with or without a pulse



** Volume in ml to Administer is highlighted in color and, as applies by Approx. Weight at Given Concentration**

Pedi (< 37kg) Dosing

Pulseless VF/VT — **5 mg/kg IV/IO Push (max 300 mg)**

Second dose 5 mg/kg IV/IO (max 150 mg)

Wide Complex Tach with a pulse — **5 mg/kg IV/IO over 20 min (max 150 mg)**

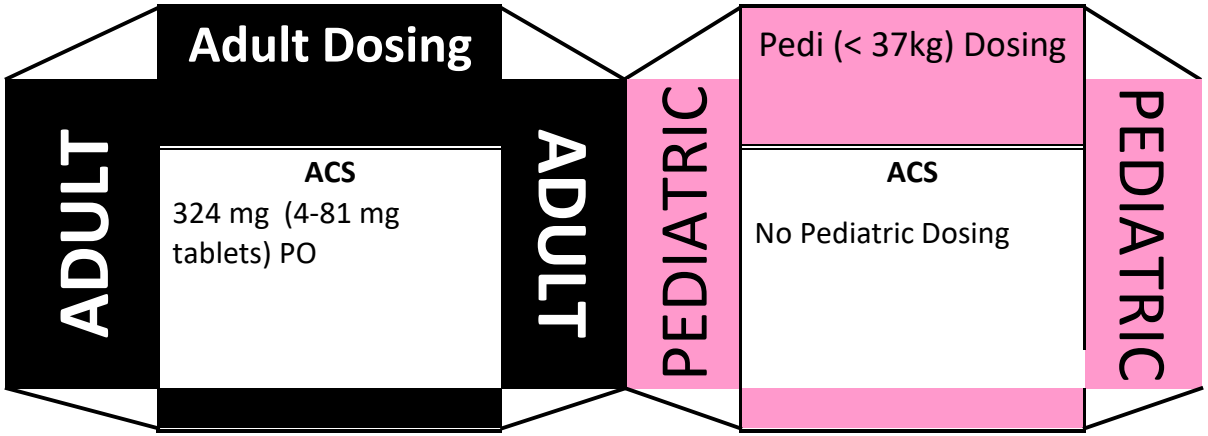
3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25

Amiodarone: IV/IO Infusion over 20 min for VT with Pulse **Place mL dose of medication in 50 mL N/S in an IV burette/60 gtts set. Infuse @ 150 gtts/min Concentration = 50mg/1mL**										
Amiodarone: IV/IO PUSH for VT/VF in Cardiac Arrest May repeat x1 Concentration = 50mg/1mL										
0.3 mL	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**	**1 mL**	**1.3 mL**	**1.6 mL**	**2.1 mL**	**2.6 mL**	**3 mL Max Single Dose**

Contraindications	Bradycardia, second/third degree block; None in Cardiac Arrest
Adverse 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. Drug has a rapid onset, serum concentrations drop to 10% w/in 30-45 minutes.

Aspirin

Indications Suspected ACS, STEMI



Contraindications Allergy, ulcer, GI bleeding

Precautions Other 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)

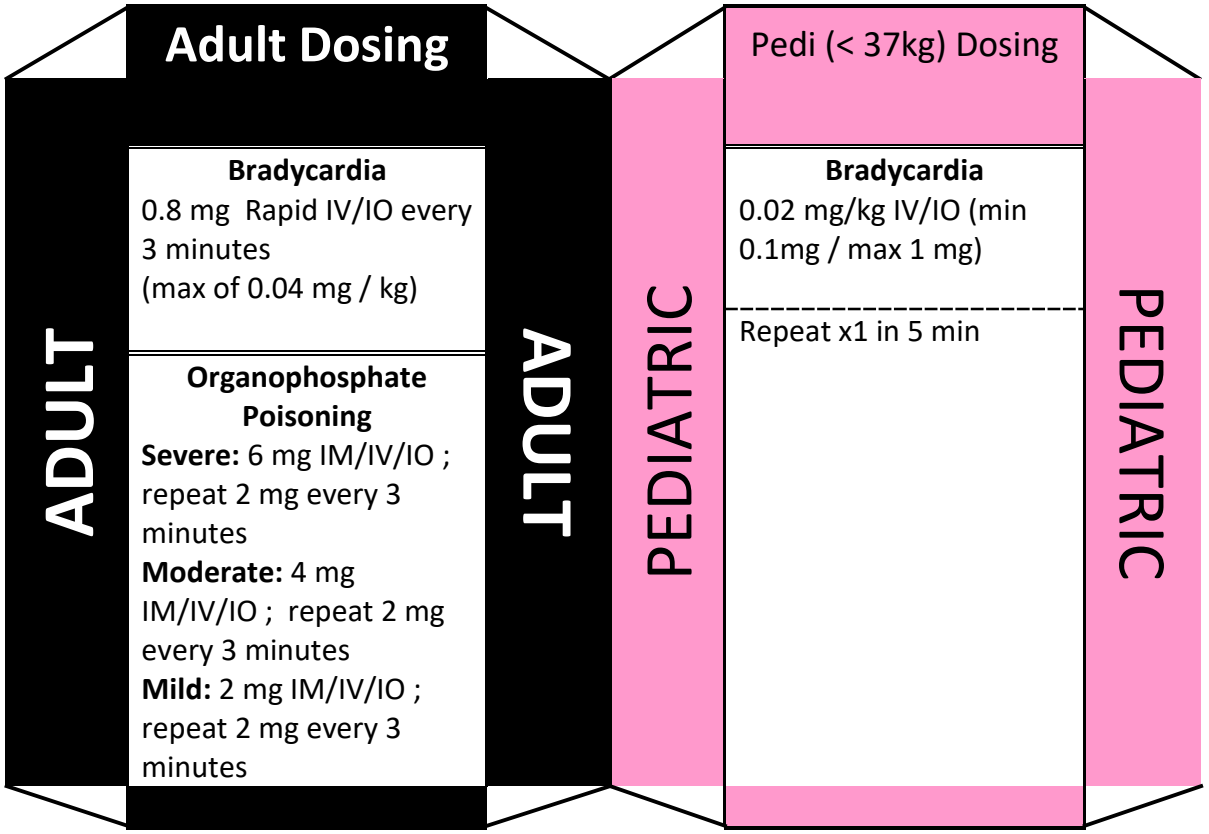
Adverse/Side effects N/V, diarrhea, heartburn, GI bleeding

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.

Atropine Sulfate

Indications Symptomatic Bradycardia (if TCP is not immediately available); Organophosphate poisoning



Pedi (< 37kg) Dosing (Bradycardia) 0.02 mg/kg IV/IO (min dose 0.1mg / max dose 1 mg) Repeat x1 in 5 min

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Atropine Sulfate: IV/IO for Bradycardia May repeat x1 in 5 min. Concentration = 0.4mg/1mL										
0.2 mL	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.7 mL**	**0.8 mL**	**1 mL**	**1.3 mL Max Single Dose**	**1.3 mL Max Single Dose**

Contraindications	A-Fib, A-Flutter, may be useful in Blocks caused by Digoxin
Precautions	Slow administration of atropine can cause paradoxical bradycardia
Adverse/Side effects	Pupil dilation, tachycardia, V-Tach, V-Fib, HA, dry mouth
Class	Parasympatholytic
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. Rapid onset, peak in 2-4m IV, half-life 2-3h.

Calcium Chloride

Indications Calcium channel blocker toxicity/overdose, Acute hyperkalemia, Acute hypocalcemia, Acute Hypermagnesemia, Hydrofluoric Acid Burn

ADULT

Adult Dosing

Pulseless VF/VT

1 g (1000 mg) IVP

Asystole / PEA Cardiac Arrest With Presumed Hyperkalemia or Calcium Channel Blocker OD

1 g (1000 mg) IVP

Calcium Channel Blocker OD

1 g (1000 mg) IV over 10 min

Magnesium OD

1 g (1000 mg) IV over 10 min **(OLMC ONLY)

ADULT

PEDIATRIC

Pedi (< 37kg) Dosing

Calcium Channel Blocker OD

Infusion **(OLMC ONLY)

PEDIATRIC

Pedi Dosing Calcium Channel Blocker OD 20mg/kg Infusion OLMC Only

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25

Infusion Requiring OLMC

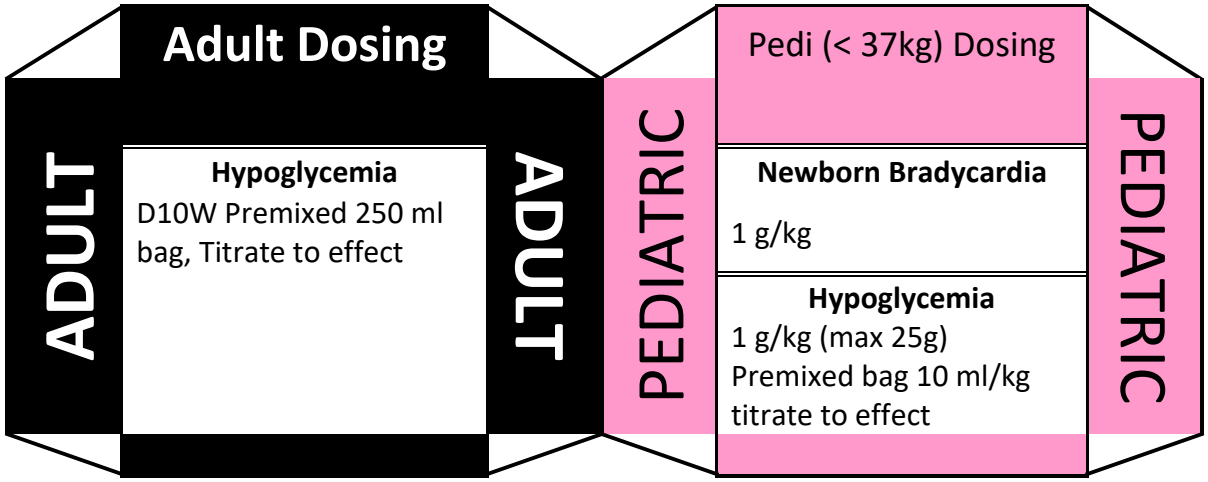
Calcium Chloride: IV/IO Infusion over 10 minutes for Calcium Channel Blocker OD. Place ml dose of medication in 50 ml N/S in an IV burette/60 gtts set. Infuse @ 300 gtts/min. Concentration = 10mg/1ml

0.6 mL	0.8 mL	1 mL	1.3 mL	1.7 mL	2.1 mL	2.6 mL	3.3 mL	4.2 mL	5.3 mL	6.6 mL

Contraindications	None in the emergency setting
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. Onset and peak are immediate

Dextrose (D10W)

Indications Symptomatic Hypoglycemia, Cardiac Arrest (Newly Born with heart rate < 60) or altered mentation **with** Glucose level < 50



Pediatric Dosing **10 mL/kg (1g/kg max dose 25g) Premixed bag and titrate to effect**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
IV Infusion of 10% Dextrose in 250mL for Hypoglycemia										
Max dose 250mL. Must use volume control device (IV Burette) for infusion. Titrate to patient's response/condition. Concentration =										
30 mL	**40 mL**	**50 mL**	**65 mL**	**85 mL**	**105 mL**	**130 mL**	**165 mL**	**210 mL**	**250 mL Max Single Dose**	**250 mL Max Single Dose**

Contraindications None with symptomatic hypoglycemia. Use with caution in patients with suspected increased ICP.

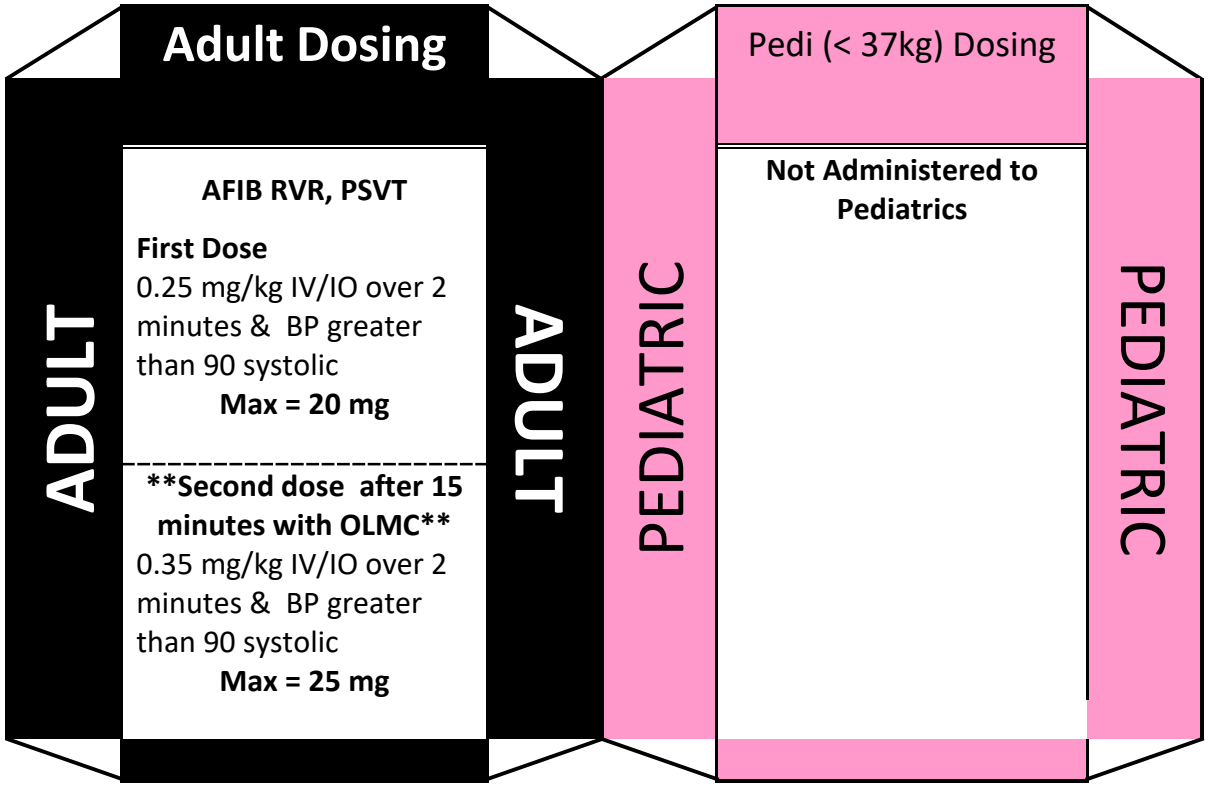
Precautions / Side Effects Patients may complain of warmth, pain, or burning at the injection site. Extravasation causes necrosis. Infusing through larger vessels decreases the risk of necrosis

Class	Carbohydrate
Mechanism of Action	Principal form of glucose used by the body. Dextrose (aka. glucose) is one of the basic building blocks of all sugars. Glucose is a monomer and is therefore 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 (Kreb's Cycle) yielding even more energy (GTP, FADH2 and NADH) and CO2. The GTP, FADH2 and NADH are then converted into a large amount of ATP through the use of a specialized cell membrane and the ability of Oxygen to receive extra protons and carbon to form water and CO2. Insulin turns excess glucose into glycogen when blood sugars are high. Glucose is a large molecule that forms a ring, this structure is incapable of being absorbed into a cell without a mediator (insulin) and therefore increases damage to epithelium as it floats through the blood stream. It also causes an osmotic pressure as concentrations vary across membranes.

Diltiazem

Indications

Atrial Fibrillation with RVR, Paroxysmal Supraventricular Tachycardia



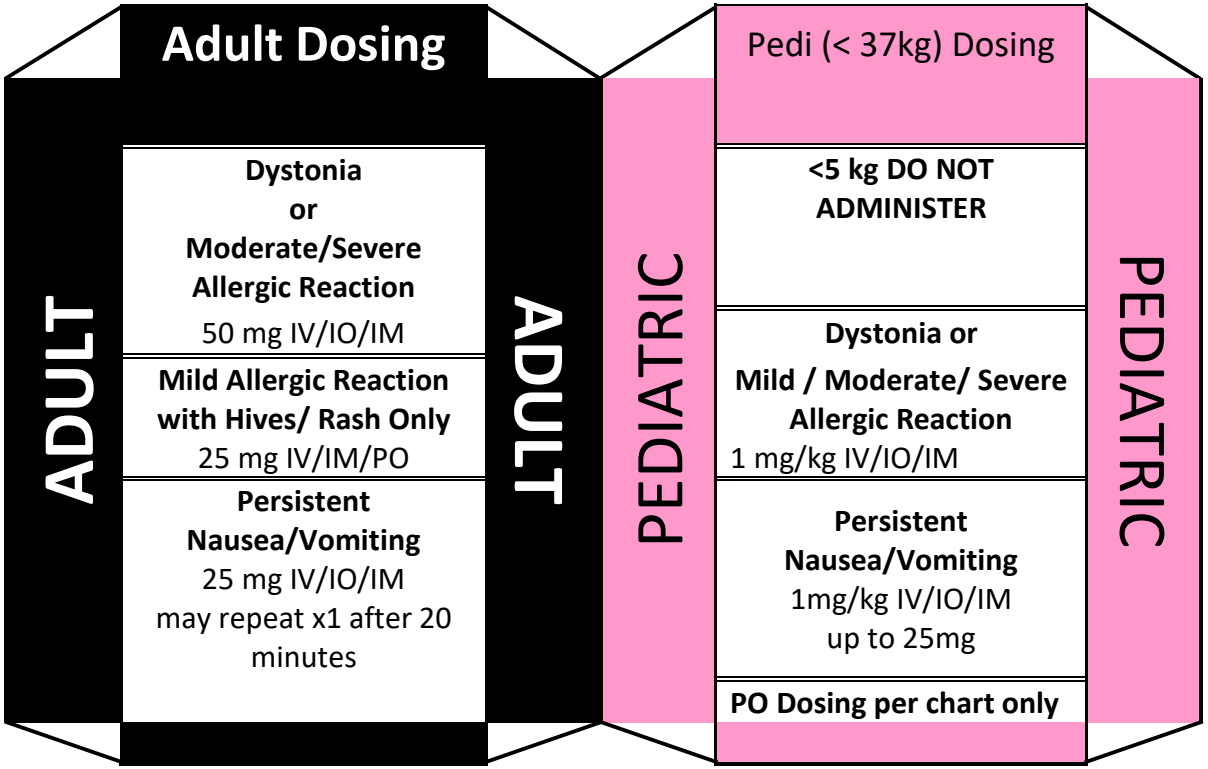
Contraindications

- If patient has history of or 12 Lead ECG reveals Wolfe Parkinson White (WPW), DO NOT administer Diltiazem.
- Patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker,
- Patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker,
- Patients with hypotension (less than 90 mm Hg systolic),
- Patients who have demonstrated hypersensitivity to the drug, and
- Patients with acute myocardial infarction and pulmonary congestion.
- Relative Contraindication : Known Sinus Tachycardia

Precautions	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 Pregnancy Category C
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.

Diphenhydramine

Indications Allergic Reaction, Anaphylaxis, Adult dystonic reaction, or persistent nausea/vomiting after ondansetron



Pedi (< 37kg) Dosing <5 kg DO NOT ADMINISTER

Dystonia or Mild / Moderate/ Severe Allergic Reaction 1 mg/kg IV/IO/IM & PO all Dosing per charts only

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Diphenhydramine (Benadryl): IV/IM for Allergic or Dystonic Reaction Concentration = 50mg/1mL										
None	**None**	**0.1 mL**	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.7 mL**
Diphenhydramine (Benadryl): PO Solution for Allergic or Dystonic Reaction Patient must be able to control their airway. Concentration = 2.5mg/1mL (packaged as 12.5mg/5mL cup)										
None	**None**	**2 mL**	**2.5 mL**	**3 mL**	**4 mL**	**5 mL**	**6 mL**	**7.5 mL**	**10 mL or 25mg Cap. Capsule**	**10 mL or 25mg Cap.**

Contraindications Known allergy

Precautions 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
- Pregnancy Category B

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 15m IV, peak 1-4h, ½ life 2-10h.

Epinephrine

Indication: Cardiac Arrest, Bradycardia, Allergic Reaction/Anaphylaxis, Respiratory Distress **with** presumed bronchospasm

ADULT

Adult Dosing

Cardiac Arrest

1 mg (1:10,000) IV/IO push q 8 min

Bradycardia

2-4 mcg/min IV Infusion titrated to MAP > 65

Anaphylaxis

Assist with prescribed Epi Pen (0.3 mg) IM

Anaphylaxis

0.3 mg IM (1:1,000) q 5-10 min

Max total of 1.2 mg

Respiratory Distress

0.3 mg IM (1:1,000)

ADULT

PEDIATRIC

Pedi (< 37kg) Dosing

Cardiac Arrest

0.01 mg/kg (1:10,000 = 0.1 mL/kg) IV/IO (max 1 mg) push q 4 min

Overdose (Beta Blocker) or Anaphylaxis

Epinephrine (1:1,000) 0.1 mcg/kg/min IV infusion per Chart titrat to effect.

Bradycardia

0.01 mg/kg IV/IO (0.1 mL/kg of 1:10,000) max 1mg

OR

Epinephrine infusion 0.1-1 mcg/kg/min

Anaphylaxis

For BLS: Epinephrine (1:1000) 8 kg up to 30 kg 0.15 mg IM ≥ 30kg 0.3 mg IM

For ALS: Epinephrine 0.01mg/kg IM (max single dose 0.3 mg),

**Do Not administer if <8kg

PEDIATRIC

Respiratory Distress
Epi Nebulized (2 mg of 1mg/ml) mix with 1 ml NS

Push Dose Pressor
20 mcg (0.02mg) (1:100,000)

Respiratory Distress
0.01mg/kg IM (max dose 0.3mg)

For Strider/Barking or < 2 yrs. with Bronchiolitis 5ml (0.5mg) of 1:10,000 Nebulized

See Dosing Chart for Epinephrine Infusion and Dosing Volume

Adult Epinephrine Drip (requires OLMC)

Dose is 2-10 mcg/min

Step 1
Determine Concentration and prepare medication

EPI Conc. (1mg/mL)

Mix 2 mL (2mg) of Epinephrine 1:1,000 in 250 mL NS (must use 60 drop set)
New concentration = 8mcg/1mL

Step 2
Determine Rate

Dose in mcg/min	2 mcg	4 mcg	6 mcg	8 mcg	10 mcg			
Drops /min	15 gtts.	30 gtts.	45 gtts.	60 gtts.	75 gtts.			

Epinephrine Dosing (Pediatric)

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Refractory Wheezing (max single dose 0.3mL) x 1 Concentration = 1mg/mL										
Allergic Reaction/Anaphylaxis (max single dose 0.3mL) x 4 q 5min (max total 1.2 mL) Concentration = 1mg/mL										
None	None	None	None	0.1 mL	0.1 mL	0.1 mL	0.2 mL	0.2 mL	0.3 mL Max Single Dose	0.3 mL Max Single Dose
Cardiac Arrest or Bradycardia Repeat every 3-5 min Concentration = 0.1mg/mL										
0.5 mL	0.5 mL	0.5 mL	0.5 mL	1 mL	1 mL	1.5 mL	2 mL	2 mL	3 mL Max Single Dose	3 mL Max Single Dose

Pediatric Hypotension and Trauma (require OLMC)

Pediatric Cardiac Arrest, Overdose, Bradycardia (NO OLMC required)

Pediatric Epinephrine Infusion for IV use

Range of infusion 0.1-1.0 mcg/kg/min

Step 1

Determine Concentration

Concentration of Epi: **(1mg/mL)**

must use 60 drop set

Pt Weight in kg	3 kg	4 kg	5 kg	6-7 kg	8-9 kg	10-11 kg
mL of Epi into 250mL bag	0.2 mL	0.3 mL	0.4mL	0.5mL	0.7 mL	0.8 mL

Pt Weight in kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
mL of Epi into 250mL bag	1 mL	1.3 mL	1.7 mL	2 mL	2.6 mL

Calculation based on (Pt weight in kg x 0.08) = mL Epi into 250 mL NS

Step 2

Determine Rate

Dose in mcg/kg/min	0.1	0.2	0.3	0.5	0.7	0.8	0.9	1
Drops/minute	19	38	56	94	131	150	169	188

Contraindications None in the Emergency setting

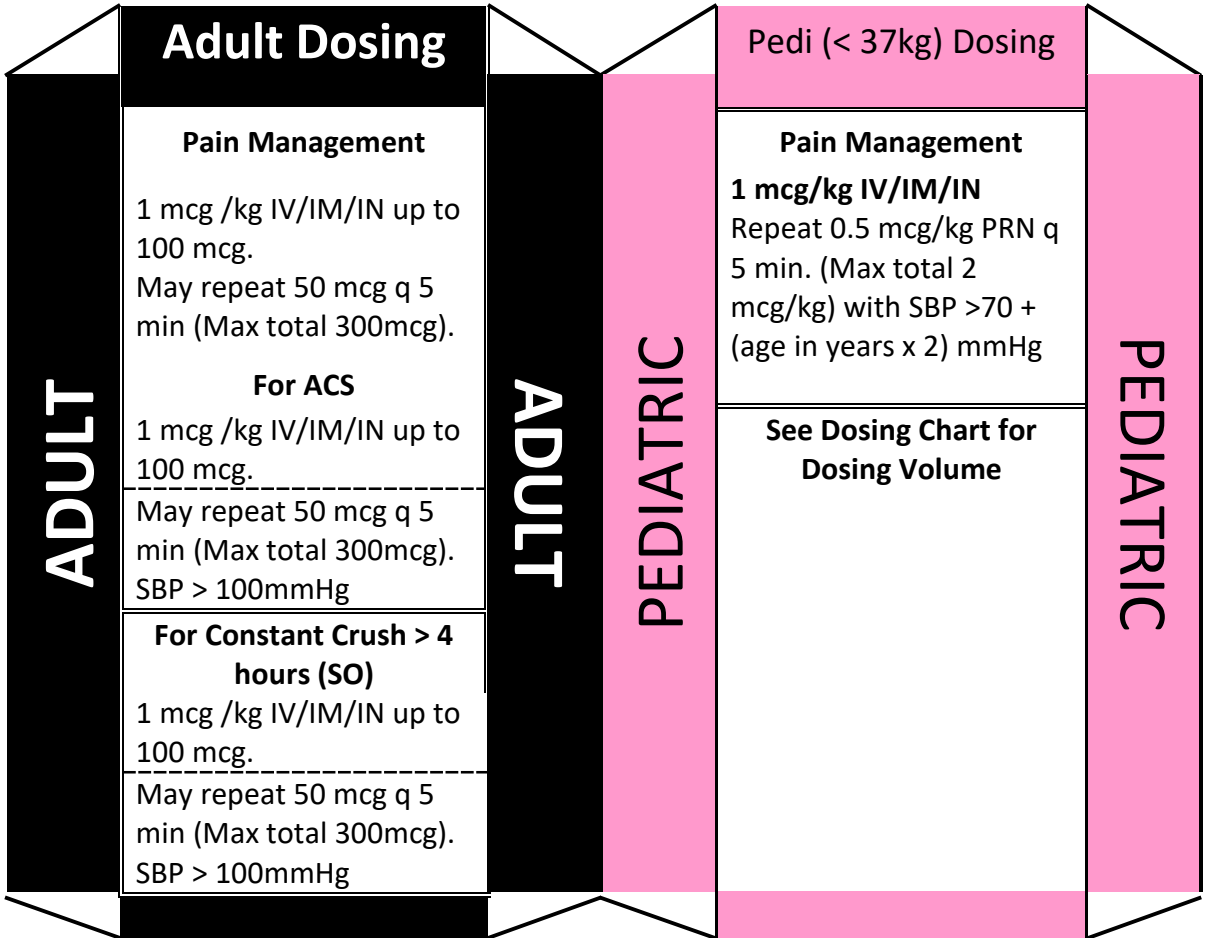
Adverse/Side effects Palpitations, anxiety, tremulousness, headache, dizziness, nausea, vomiting, increased myocardial oxygen demand

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.

Fentanyl

Indications Pain Management, ACS, Constant Crush Injury >4 hours



Pedi (< 37kg) Dosing For Pain Management **1 mcg/kg IV/IM/IN** Repeat 0.5 mcg/kg PRN q 5 min. (Max total 2 mcg/kg) with SBP >70 + (age in years x 2) mmHg Do Not administer 2nd dose if < 6kg

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Fentanyl Citrate: IV/IM/IN for Pain **Concentration = 50mcg/1mL (Max is 2 doses only per patient weight)**										
0.1 mL 1st Dose	**0.1 mL 1st Dose**	**0.1 mL 1st Dose**	**0.1 mL 1st Dose**	**0.2 mL 1st Dose**	**0.2 mL 1st Dose**	**0.3 mL 1st Dose**	**0.3 mL 1st Dose**	**0.4 mL 1st Dose**	**0.5 mL 1st Dose**	**0.7 mL 1st Dose**
None	**None**	**None**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.2 mL 2nd Dose**	**0.2 mL 2nd Dose**	**0.3 mL 2nd Dose**	**0.3 mL 2nd Dose**

Contraindications Hypotension, Respiratory Depression

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.

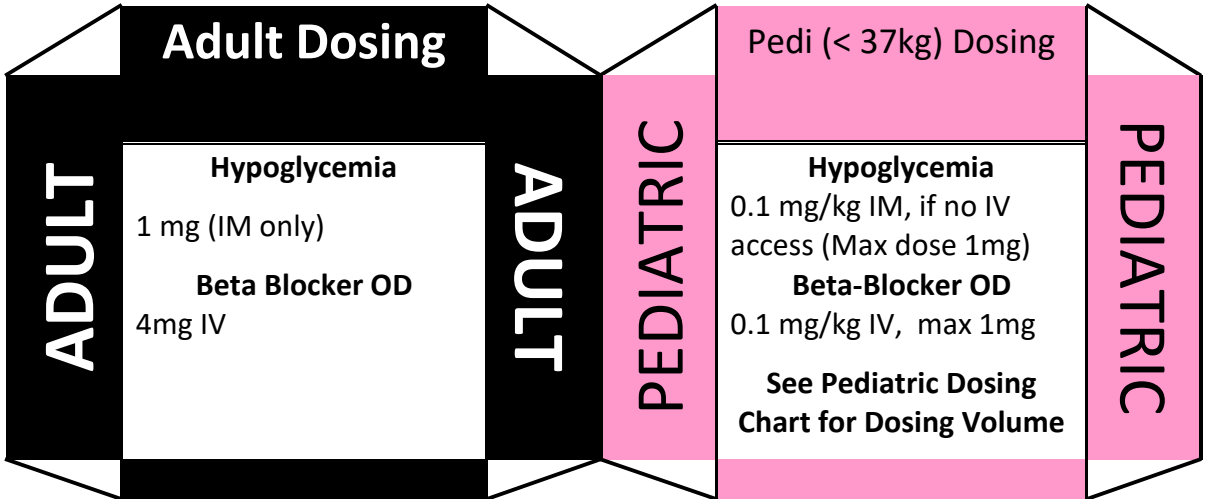
Class Opioid, Schedule II controlled substance

Mechanism of Action Competitive agonist that binds to opioid receptors which are found principally in the central and peripheral nervous system.

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Fentanyl Citrate: IV/IM/IN for Pain **Concentration = 50mcg/1mL (Max is 2 doses only per patient weight)**										
0.1 mL 1st Dose	**0.1 mL 1st Dose**	**0.2 mL 1st Dose**	**0.1 mL 1st Dose**	**0.2 mL 1st Dose**	**0.2 mL 1st Dose**	**0.3 mL 1st Dose**	**0.3 mL 1st Dose**	**0.4 mL 1st Dose**	**0.5 mL 1st Dose**	**0.7 mL 1st Dose**
None	**None**	**None**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.1 mL 2nd Dose**	**0.2 mL 2nd Dose**	**0.2 mL 2nd Dose**	**0.3 mL 2nd Dose**	**0.3 mL 2nd Dose**

Glucagon

Indications Hypoglycemia, Beta-Blocker overdose in Pediatric



Pedi (< 37kg) Dosing

Hypoglycemia	**0.1 mg/kg IM**, if no IV access (Max dose 1mg)
Beta-Blocker OD	**0.1 mg/kg IV, max 1mg**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Glucagon: IM/IV/IO for Hypoglycemia or Overdose Concentration = 1mg/1mL										
0.3 mL	**0.4 mL**	**0.5 mL**	**0.7 mL**	**0.9 mL**	**1 mL Max SingleDose**	**1 mL Max SingleDose**	**1 mL Max SingleDose**	**1 mL Max Single Dose**	**1 mL Max Single Dose**	**1 mL Max Single Dose**

Contraindications None in the Emergency setting

Precautions Glucagon for Hypoglycemia is only effective if there are sufficient stores of glycogen in the liver.
Pregnancy Category B

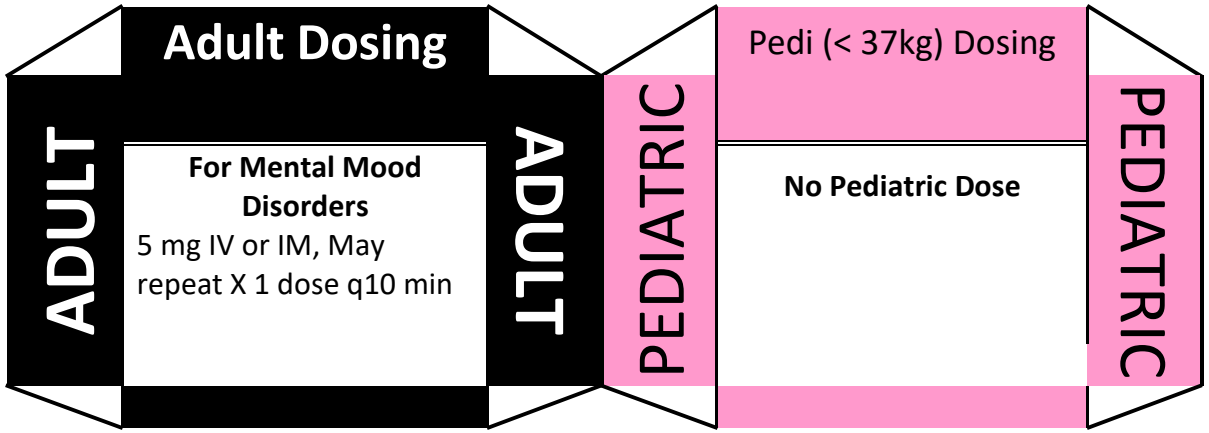
Adverse/Side effects Hypotension, dizziness, headache, nausea, vomiting.

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.

Haloperidol

Indications Used to treat certain mental/mood disorders (e.g., schizophrenia, schizoaffective disorders), Tourette's disorder, Abdominal Pain, Nausea/Vomiting



Contraindications Severe toxic central nervous system depression, Parkinson's Disease

Precautions Elderly Patients with Dementia-Related Psychosis

Pregnancy Category C

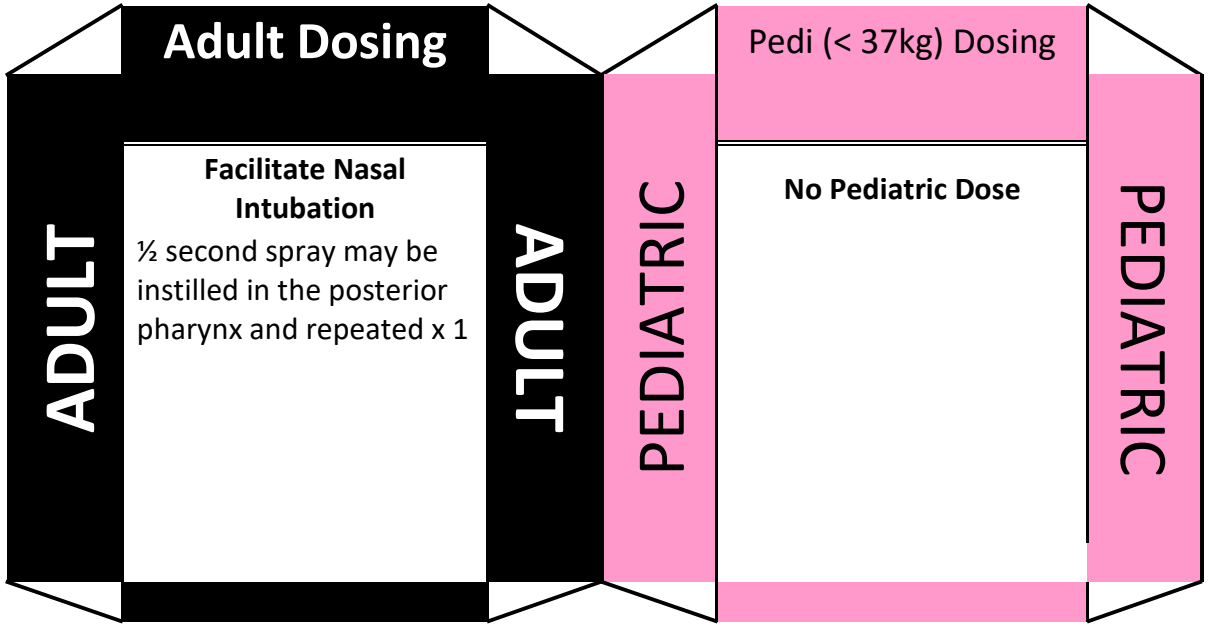
Adverse/Side effects Tachycardia, hypotension, and hypertension. QT prolongation and/or ventricular arrhythmias. Dystonia

Class Antipsychotic

Mechanism of Action The precise mechanism of action has not been clearly established. This drug is known to be substantially excreted by the kidney

Hurricane/Cetacaine Spray

Indications To facilitate nasal intubation attempts in patients with a gag reflex



Contraindications Known sensitivity to benzocaine anesthetics

Precautions / Side Effects Methemoglobinemia is a rare, but serious condition in which the amount of oxygen carried through the blood stream is greatly reduced. In the most severe cases, methemoglobinemia can result in death. Patients who develop methemoglobinemia may experience signs and symptoms such as pale, gray or blue colored skin, lips, and nail beds; headache; lightheadedness; shortness of breath; fatigue; and rapid heart rate. In some cases, symptoms of methemoglobinemia may not always be evident or attributed to the condition. The signs and symptoms usually appear within minutes to hours of using benzocaine. Conditions such as anemia, heart disease, and lung disease (e.g., emphysema) may exacerbate the toxicity of methemoglobinemia.

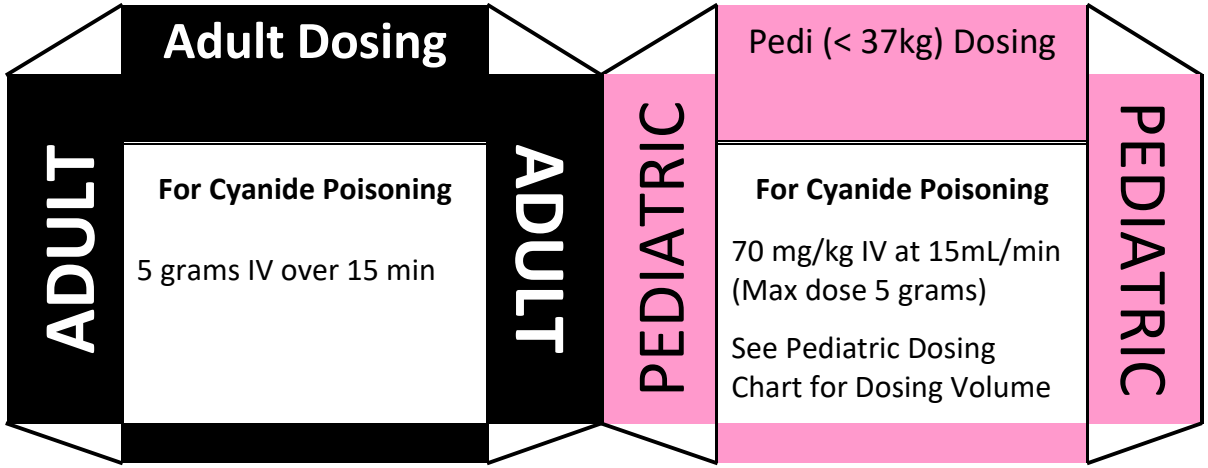
Adverse effects Benzocaine is a well-known cause of methemoglobinemia

Class Topical anesthetic

Mechanism of Action Blocks conduction of impulses at the sensory nerve endings. Benzocaine is an ester, a compound made from the organic acid PABA (para-aminobenzoic acid) and ethanol. Esters of PABA work as a chemical barrier, stopping the sodium from being able to enter the nerve ending.

Hydroxocobalamin (Cyanokit)

Indications For the treatment of known or suspected cyanide poisoning/smoke inhalation



Pedi (< 37kg) Dosing **70 mg/kg IV at 15mL/min (Max dose 5 grams) use 10 gtts set = rate of 133 gtts/min**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Hydroxocobalamin: IV Infusion for Cyanide Exposure @ 15mL/min use 10 gtts set = rate of 133 gtts/min **Mix 5 gram vial of hydroxocobalamin for injection with 200 mL of Isotonic Crystalloid = Concentration: 25mg/1mL** **Infuse only the listed mL dose as indicated below.**										
8.4 mL	**11 mL**	**14 mL**	**18 mL**	**23 mL**	**29 mL**	**36 mL**	**46 mL**	**59 mL**	**74 mL**	**92 mL**

Contraindications Known anaphylactic reactions to Hydroxocobalamin or cyanocobalamin

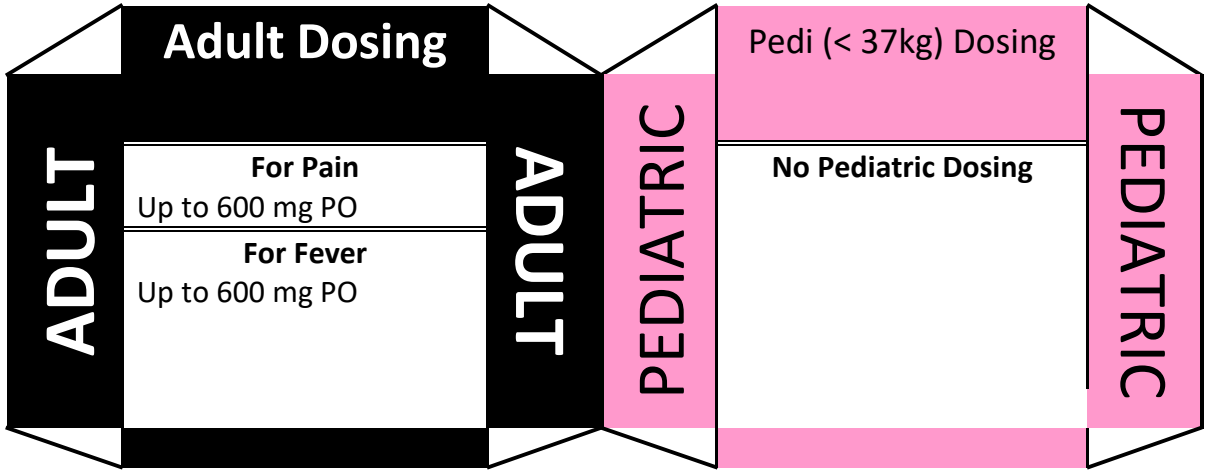
Adverse effects Anaphylaxis, chest tightness, edema, urticaria, pruritus, dyspnea, rash, and hypertension. Also effects skin (turns red), urine and secretions.

Class Cobalamin derivative; Vitamin

Mechanism of Action Hydroxocobalamin binds with Cyanide to form nontoxic cyanocobalamin, which is then excreted in the urine

Ibuprofen

Indications Relieves pain and swelling (inflammation). Fever



Contraindications Known hypersensitivity. Should not be given to patients who have experienced asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs

Precautions / Side Effects Pregnancy (especially third trimester), aspirin-sensitive asthma, coagulation disorders or patients receiving anticoagulants should be carefully monitored.

Class Non-Steroidal Anti-Inflammatory Drug (NSAID)

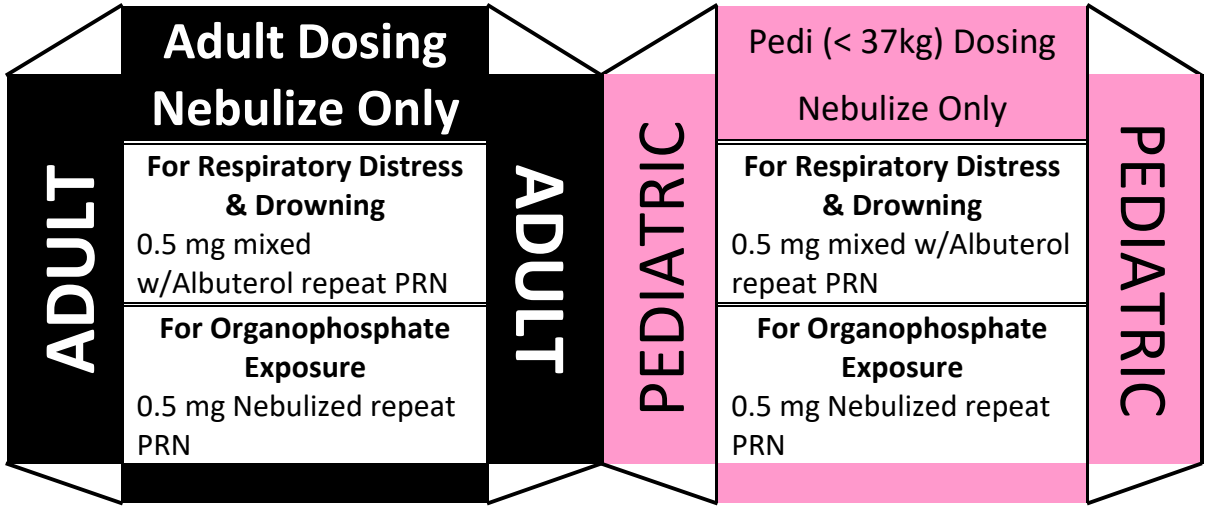
Mechanism of Action Ibuprofen possesses analgesic and antipyretic activities. Its mode of action, like that of other NSAIDs, is not completely understood, but may be related to prostaglandin synthetized inhibition, by blocking the enzyme in your body that makes prostaglandins. Decreasing prostaglandins helps to reduce pain, swelling, and fever.

Adult Dosing Pain & Fever **Up to 600 mg PO tablets**

Pedi (< 37kg) Dosing **No Pediatric Dosing**

Ipratropium Bromide (Atrovent)

Indications Respiratory Distress (Bronchial asthma, reversible bronchospasm associated with chronic bronchitis and emphysema), Drowning.



Contraindications Known hypersensitivity

Precautions Use caution when administering this drug to elderly patients and those with cardiovascular disease or hypertension

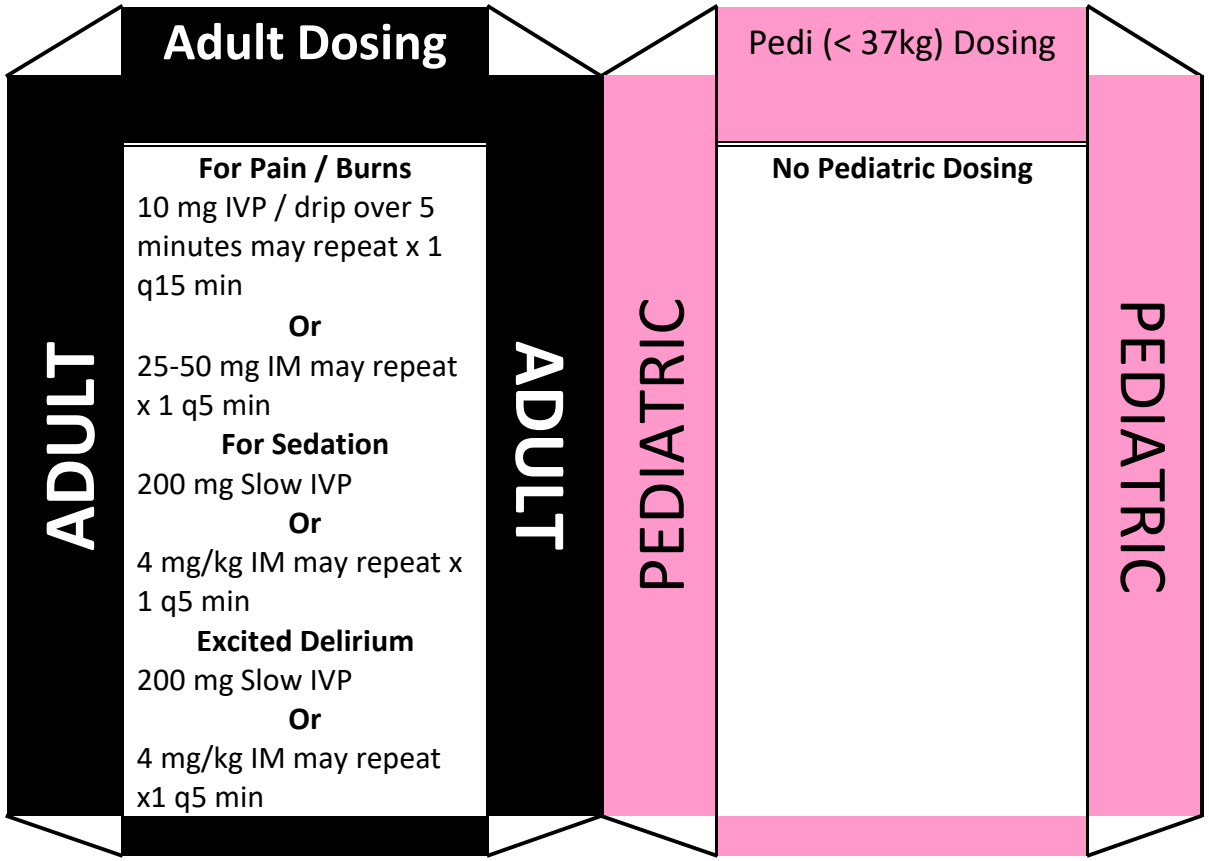
Adverse/Side effects Palpitations, anxiety, dizziness, headache, nervousness, tremor, hypertension, arrhythmias, chest pain, nausea, vomiting

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

Ketamine

Indications Pain, Severe Agitation, Severe Bronchospasm, Sedation



Pedi (< 37kg) Dosing **No Pediatric Dosing**

**** Volume in ml to Administer is highlighted in color and, as applies by Approx. Weight at Given Concentration****

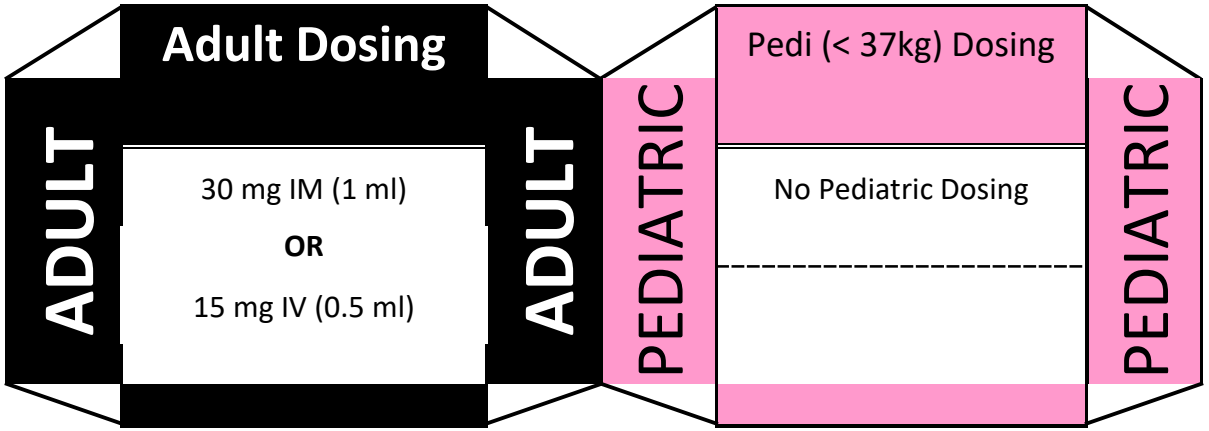
Severe Agitation **4 mg/kg (IM only) may repeat x1 q5 min**

DRUG CONCENTRATION 100mg/1mL	DRUG NAME	40kg (88lbs)	50kg (110lbs)	60kg (132lbs)	70kg (154lbs)	80kg (176lbs)	90kg (198lbs)	100kg (220lbs)	110kg (242lbs)	120kg (264lbs)	130 kg (286lbs)
Severe Agitation	Ketamine IM only	1.6mL	2.0mL	2.4mL	2.8mL	3.2mL	3.6mL	4.0mL	4.4mL	4.8mL	! 5 mL

Administration Route	**IM and IV**
Contraindications	Uncontrolled Hypertension, Hypersensitivity
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. Schedule III controlled substance
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).

Ketorolac (Toradol)

Indications Pain Management



Contraindications Patients with previously documented peptic ulcers and/or GI bleeding. Can cause serious gastrointestinal (GI) adverse events including bleeding, ulceration and perforation, of the stomach, small intestine, or large intestine, which can be fatal. These serious adverse events can occur at any time, with or without warning symptoms. **NOT** for use in Chest Pain/ACS. Renal Disease.

Precautions In late pregnancy, as with other NSAIDs, TORADOL (ketorolac tromethamine) should be avoided because it may cause premature closure of the ductus arteriosus. And reduced dosing if ≥ 65 years. Can cause renal injury.

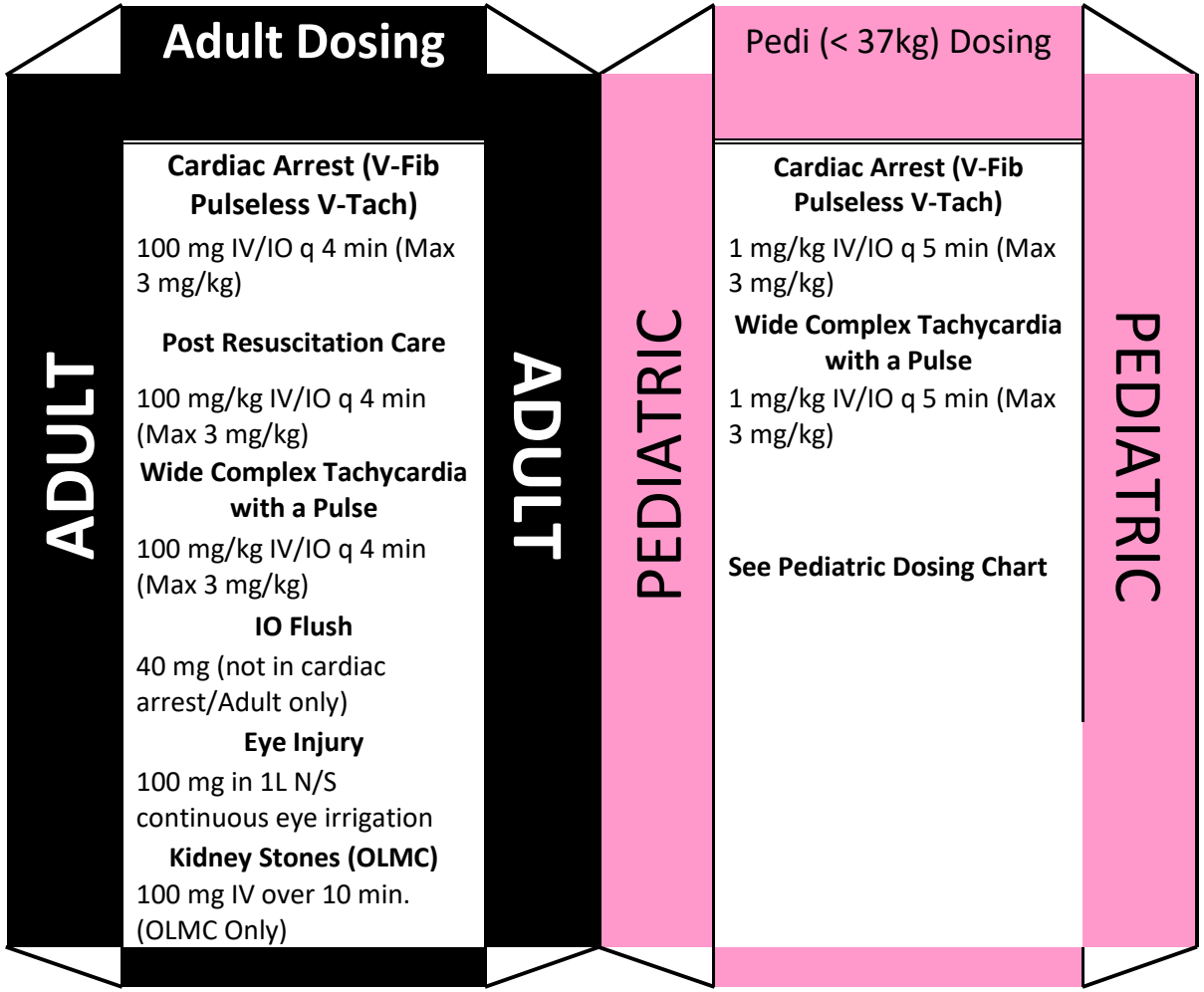
Adverse/Side effects Gastrointestinal Effects - Risk of Ulceration, Bleeding, and Perforation), and skin exfoliative dermatitis. Patients with asthma may have aspirin-sensitive asthma and should not be administered to patients with this form of aspirin sensitivity and should be used with caution in patients with preexisting asthma.

Class Nonsteroidal anti-inflammatory drug (NSAID)/nonopioid analgesic

Mechanism of Action Ketorolac tromethamine is a nonsteroidal anti-inflammatory drug (NSAID) that exhibits analgesic activity in animal models. The mechanism of action of ketorolac, like that of other NSAIDs, is not completely understood but may be related to prostaglandin synthetase inhibition. The biological activity of ketorolac tromethamine is associated with the S-form. Ketorolac tromethamine possesses no sedative or anxiolytic properties.

Lidocaine

Indications Cardiac Arrest (V-Fib/Pulseless V-Tach), Post Resuscitation Care, Wide Complex Tachycardia with a Pulse, Pain Management for IO Flush, Eye Injury, Pain Management for Kidney Stone



Pedi (< 37kg) Dosing Cardiac Arrest (V-Fib Pulseless V-Tach) **&** Wide Complex Tachycardia with a Pulse **1 mg/kg IV/IO q 5 min (Max 3 mg/kg)**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25

Lidocaine: IV/IO for VT with Pulse and VT/VF Cardiac Arrest
Repeat q 5 min (Max is 3 doses only per patient weight) Concentration = 20 mg/1mL

0.1 mL	0.2 mL	0.2 mL	0.3 mL	0.4 mL	0.5 mL	0.6 mL	0.8 mL	1.1 mL	1.4 mL	1.7 mL

Pediatric Lidocaine Infusion

Range of Infusion 20-50 mcg/kg/min

Step 1
Determine Concentration
Step 2
Determine Rate

Lidocaine Concentration: 20mg/1mL
Mix 2mL (40 mg) Lidocaine in 50 mL IC (must use 60 drop set)

Dose in mcg/kg/min	3 kg	4kg	5 kg	6-7 kg	8-9 kg	10-11 kg	12-14 kg	15-18 kg
20 mcg	5gtts	6gtts	8gtts	10gtts	13gtts	16gtts	20gtts	25gtts
30 mcg	7gtts	9gtts	11gtts	15gtts	19gtts	24gtts	29gtts	37gtts
40 mcg	9gtts	12gtts	15gtts	20gtts	26gtts	32gtts	39gtts	50gtts
50 mcg	11gtts	15gtts	19gtts	24gtts	32gtts	39gtts	49gtts	62gtts

	19-23 kg	24-29 kg	30-36 kg
20 mcg	32gtts	40gtts	50gtts
30 mcg	47gtts	60gtts	74gtts
40 mcg	63gtts	80gtts	99gtts
50 mcg	79gtts	99gtts	124gtts

Contraindications Second and third degree heart blocks, CHF

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

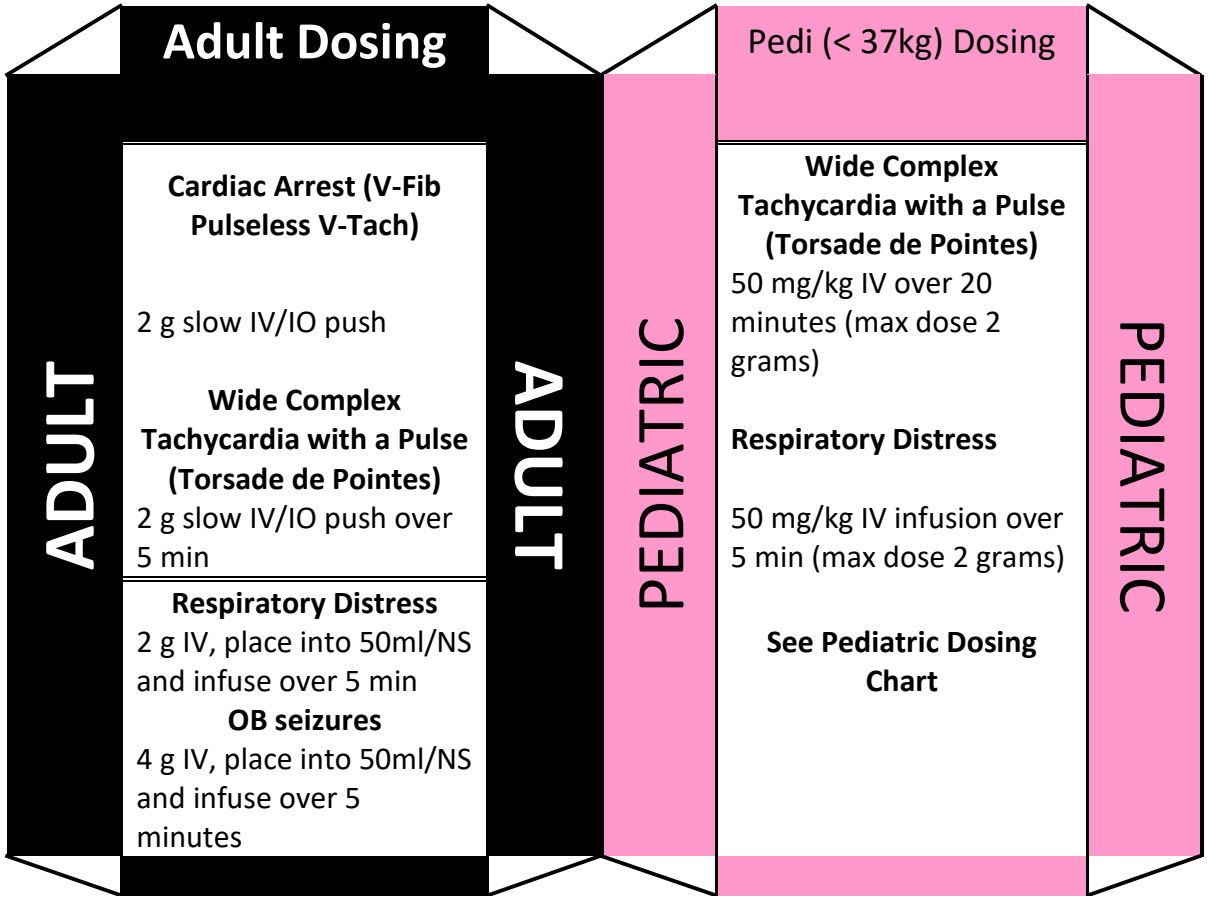
Class Antiarrhythmic (Class 1b), Sodium channel blocker

Mechanism of Action Lidocaine depresses depolarization and automaticity in the ventricles, and increases the ventricular fibrillation threshold by increasing phase IV repolarization

Magnesium Sulfate 50%

Indications

Cardiac Arrest (V-Fib/Pulseless V-Tach), Wide Complex Tachycardia with a Pulse (Torsade de Pointes), Respiratory Distress or Failure (asthma, COPD), OB seizures (eclampsia).



Pedi (< 37kg) Dosing

Cardiac Arrest (V-Fib/Pulseless V-Tach) **50 mg/kg slow IV/IO may repeat same dose q- 5 minutes until a maximum total dose of 2 grams**

Wide Complex Tachycardia with a Pulse (Torsade de Pointes) **&** Respiratory Distress

50 mg/kg IV place dose into 50ml/IC and infuse over 5 min 60gtts set = 150 gtts

(max dose 2 grams)

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Magnesium Sulfate 50%: IV Infusion over 5 minutes , Respiratory Distress or VT with pulse **Place mL dose of medication in 50 mL N/S in an IV burette/60 gtts set. Infuse @ 150 gtts/min Concentration = 500 mg/1mL**										
Magnesium Sulfate 50%: Slow IV/IO PUSH for VT/VF Cardiac Arrest **May repeat same dose q- 5 minutes until a maximum total dose of 4 mL Concentration = 500 mg/1mL**										
0.3 mL	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**	**1 mL**	**1.3 mL**	**1.6 mL**	**2.1 mL**	**2.7 mL**	**3.3 mL**

Contraindications Hypotension, third degree AV block, routine dialysis patients, known hypocalcemia.

Precautions 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

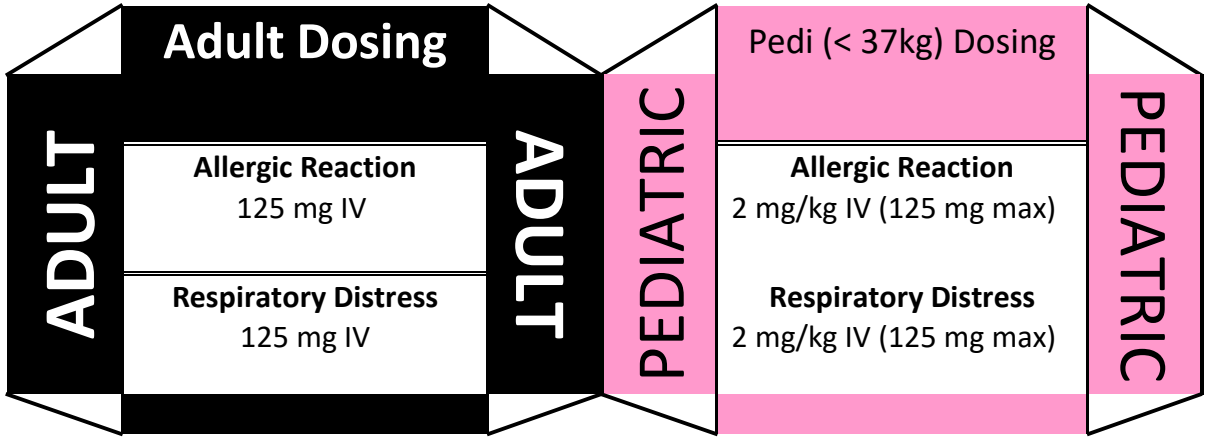
Adverse/Side effects Hypotension, cardiac arrest, respiratory/CNS depression, flushing, sweating, bradycardia, decreased deep tendon reflexes, drowsiness, respiratory depression, arrhythmia, hypothermia, itching, and rash.

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.

Methylprednisolone

Indications Allergic Reaction/Anaphylaxis, Respiratory Distress presumed bronchospasm



Pedi (< 37kg) Dosing Allergic Reaction & Respiratory Distress **2 mg/kg IV (125 mg max)**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Methylprednisolone (Solu-Medrol): IV for Allergic Reaction or Respiratory Distress Concentration = 62.5 mg/1mL										
0.1 mL	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.7 mL**	**0.9 mL**	**1 mL**

Contraindications None in the emergency setting

Precautions One single dose can be given in the prehospital setting.

Adverse/Side effects Hypertension, hyperglycemia, vertigo, headache, nausea, hiccups, and peptic ulcer

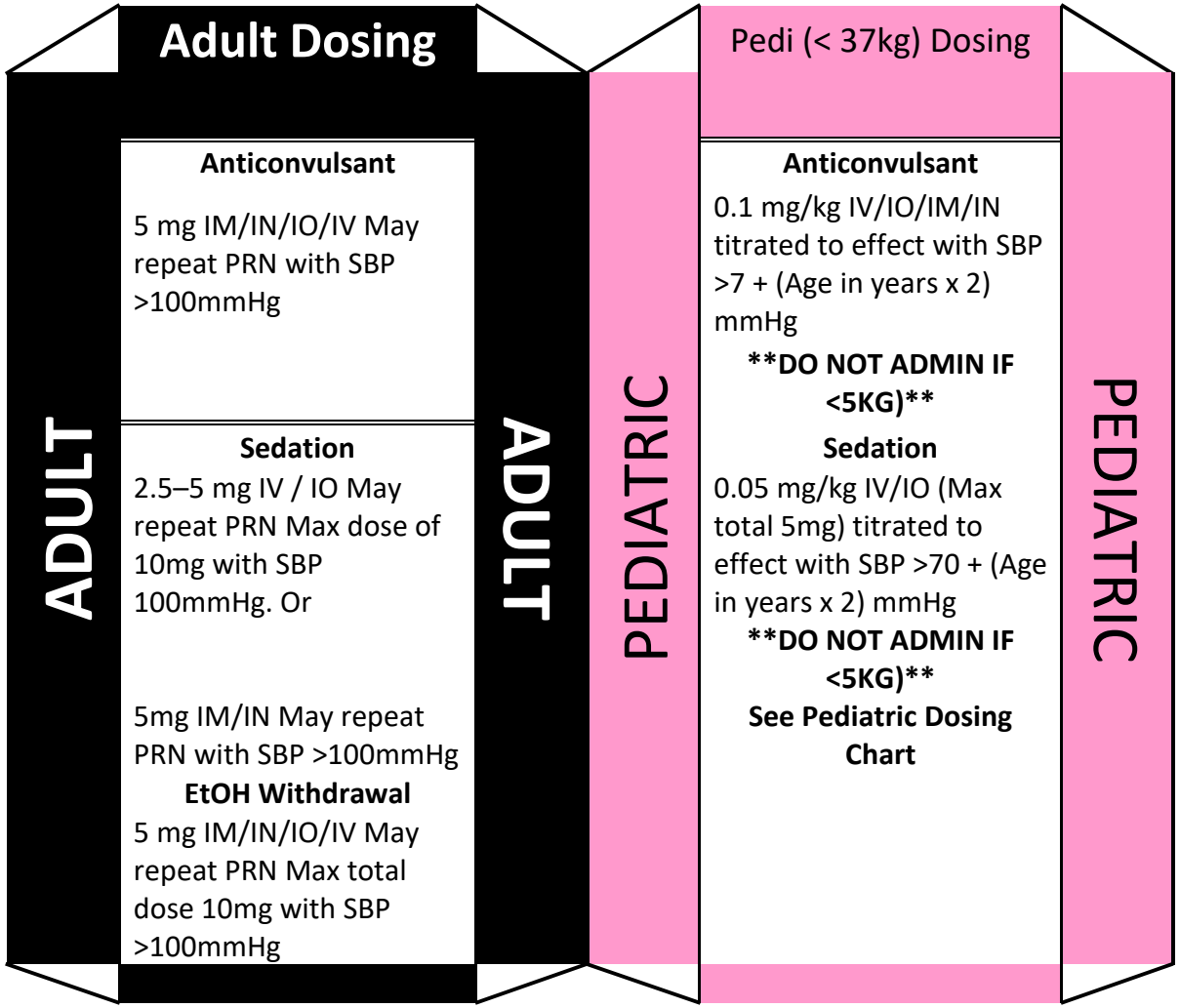
Class Glucocorticoids steroid

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.

Midazolam

Indications

Sedation prior to cardioversion
Maintenance of sedation in mechanically ventilated patients
Behavioral
Seizure control
ETOH Withdrawal



Pedi (< 37kg) Dosing

Anti Convulsant **per chart**

0.1 mg/kg IV/IO/IM/IN titrated to effect with SBP >7 + (Age in years x 2) mmHg
****DO NOT ADMIN IF <5KG)****

Sedation **per chart** **0.05 mg/kg IV/IO (Max total 5mg) titrated to effect with SBP >7 + (Age in years x 2) mmHg**

****DO NOT ADMIN IF <5KG)****

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Midazolam: IV/IO/IM/IN for Seizure (max total 1 mL) titrated to effect with SBP >70 + (age in years x 2) mmHg Concentration = 5 mg/1mL										
None	**None**	**0.1 mL**	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.7 mL**
Midazolam: IV/IO for Sedation (max total 1 mL) titrated to effect with SBP >70 + (age in years x 2) mmHg Concentration = 5 mg/1mL										
None	**None**	**0.1 mL**	**0.1 mL**	**0.1 mL**	**0.1 mL**	**0.1 mL**	**0.2 mL**	**0.2 mL**	**0.3 mL**	**0.3 mL**

Contraindications Allergy, Shock, Coma, Closed Angle Glaucoma, Pregnancy Category D

Precautions Premedication with an opiate may potentiate midazolam and lead to apnea. Reducing the dose to 50% is suggested in elderly and patients under the influence of other CNS depressants.

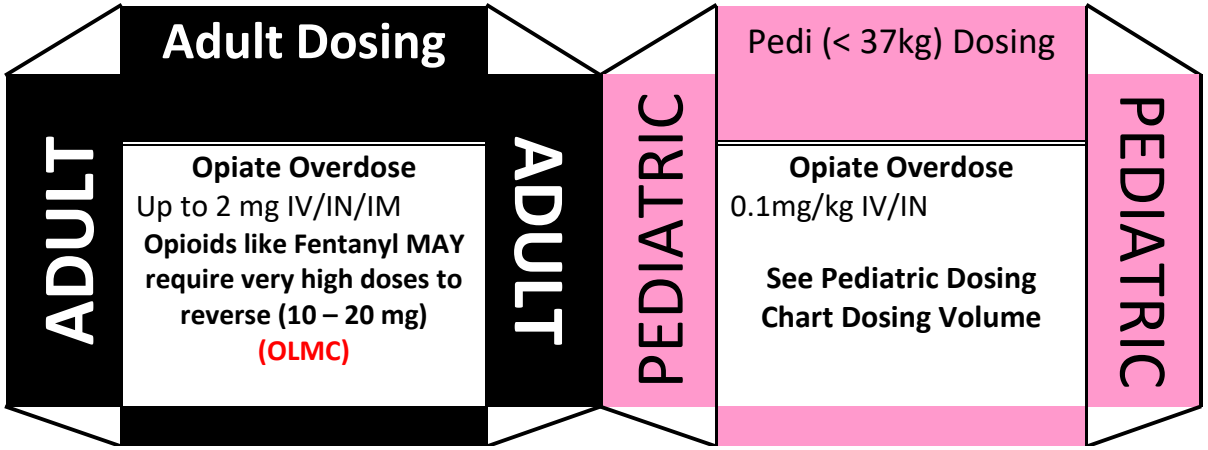
Adverse/Side effects
Minor: N/V, Headache, Drowsiness, Lethargy, Cough, Hiccups
Major: Respiratory Depression, Apnea, Hypotension, Cardiac Arrest, Paradoxical CNS stimulation (i.e. Valium Rage)

Class Short-acting benzodiazepine central nervous system (CNS) depressant.
Schedule IV Controlled Substance

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.

Naloxone

Indications Reversal of respiratory depression caused by opiates or synthetic narcotics



Pediatric (<37kg) Dosing **0.1mg/kg IV/IN**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Naloxone (Narcan): IV/IN for Narcotic OD Concentration = 1mg/1mL										
0.3 mL	0.4 mL	0.5 mL	0.7 mL	0.9 mL	1 mL	1.3 mL	1.6 mL	2 mL Max. Single Dose	2 mL Max Single Dose	2 mL Max Single Dose

Contraindications Known allergy, known hypersensitivity, neonates with narcotic use by mother

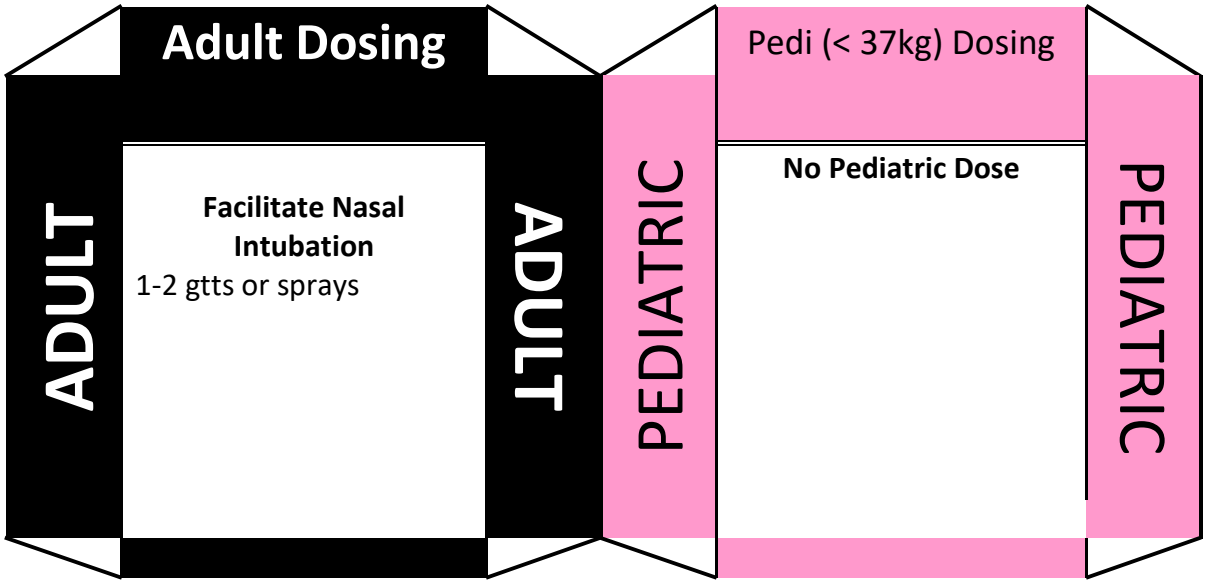
Adverse effects Tachycardia, hypotension with rapid administration, HTN, dysrhythmias, N/V and diaphoresis. In neonates, opioid withdrawal may be life-threatening if not recognized.

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.

Neo-Synephrine (phenylephrine)

Indications Facilitation of Nasal Intubation. Epistaxis.



Contraindications Known allergy, Pediatric hypersensitivity to sympathomimetic (e.g. pseudoephedrine)

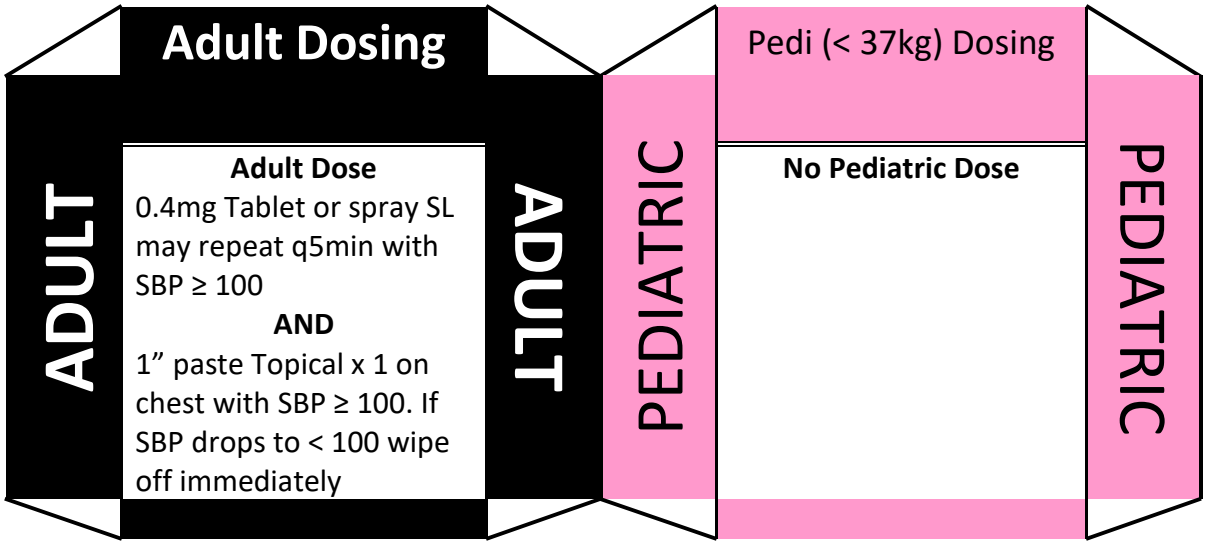
Adverse effects Temporary burning, stinging, dryness in the nose, runny nose and sneezing may occur.

Class Nasal decongestant, sympathomimetic amine

Mechanism of Action After intranasal administration, phenylephrine stimulates alpha-adrenergic receptors on the nasal mucosa (direct effect) causing vasoconstriction of local vessels. The vasoconstrictive action decreases mucosal edema, thereby leading to a decongestant effect.

Nitroglycerin

Indications Chest Pain, CHF/Pulmonary Edema, Hypertension Acute & Symptomatic



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.

Precautions Head Ache, Tachycardia

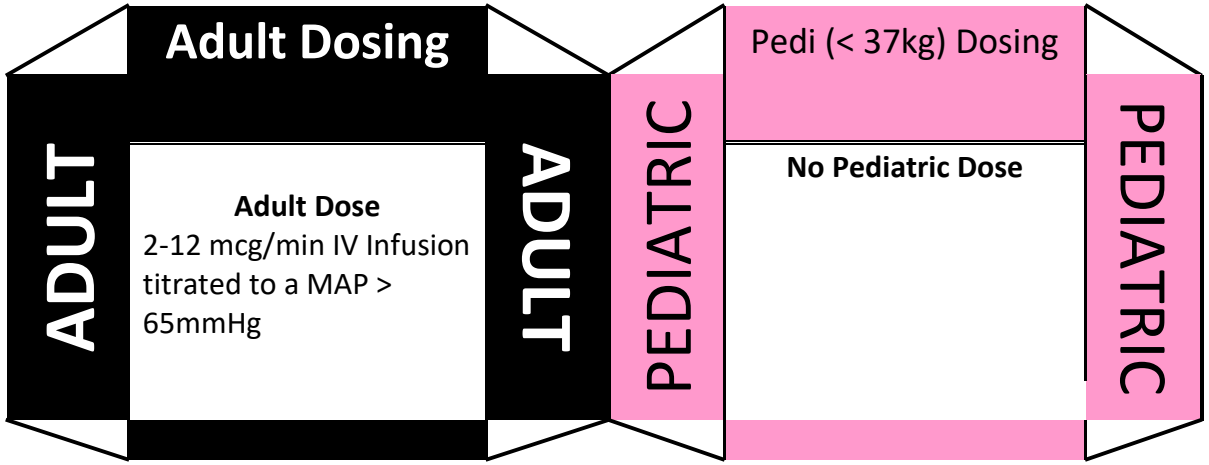
Adverse/Side effects Hypotension, Syncope

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 1-3m SL, 30m transdermal. Peak 5-10m SL. Duration is 20-30m SL, 3-6h transdermal.

Norepinephrine (Levophed)

Indications Hypotension, sepsis, shock persisting after adequate fluid volume replacement



Adult Dosing
Concentration 1mg/1mL **2-12 mcg/min IV Infusion titrated to a MAP ≥ 65mmHg**

Adult Norepinephrine (Levophed) Infusion

Range of Infusion 2 - 12 mcg/min
Titrate to MAP ≥ 65

Step 1
Determine concentration

Mix 4mL (4 mg) Levophed into 250 mL N/S (must use 60 drop set)
Concentration = 16mcg/1mL

Step 2
Determine Rate

Dose	2mcg/min	4mcg/min	6mcg/min	8mcg/min	10mcg/min	12mcg/min
gtts/min	8	15	22	30	38	45

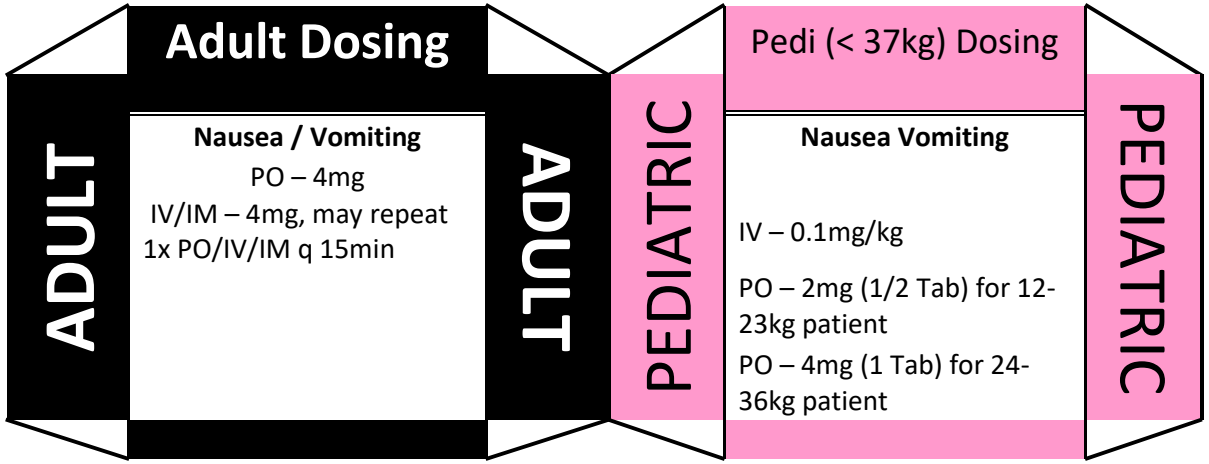
Contraindications Known allergy

LEVOPHED should not be given to patients who are hypotensive from blood volume deficits except as an emergency measure to maintain coronary and cerebral artery perfusion until blood volume replacement therapy can be completed.

Adverse effects	Body As A Whole: Ischemic injury due to potent vasoconstrictor action and tissue hypoxia. Cardiovascular System: Bradycardia, probably as a reflex result of a rise in blood pressure, arrhythmias, tachycardia Nervous System: Anxiety, transient headache. Respiratory System: 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 Alpha adrenergic: Vasoconstriction; increases peripheral vascular resistance, increases BP, decreases renal and mesenteric perfusion.
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.

Ondansetron

Indications Moderate to severe Nausea, Vomiting



Pediatric (<37kg) dosing

0.1mg/kg IV Do Not administer if < 6kg
Admin. 1/2 Tab PO (2mg) for 12-23kg patient Do Not administer if < 12kg
Admin. 1 Tab PO (4mg) for 24-36kg patient

When ½ dosing PO ODT Zofran: Break the ODT in ½ and administer the larger of the 2 halves. It is understood that this will be an approximate ½ dose and is within an acceptable dosing range for the pediatric patient.

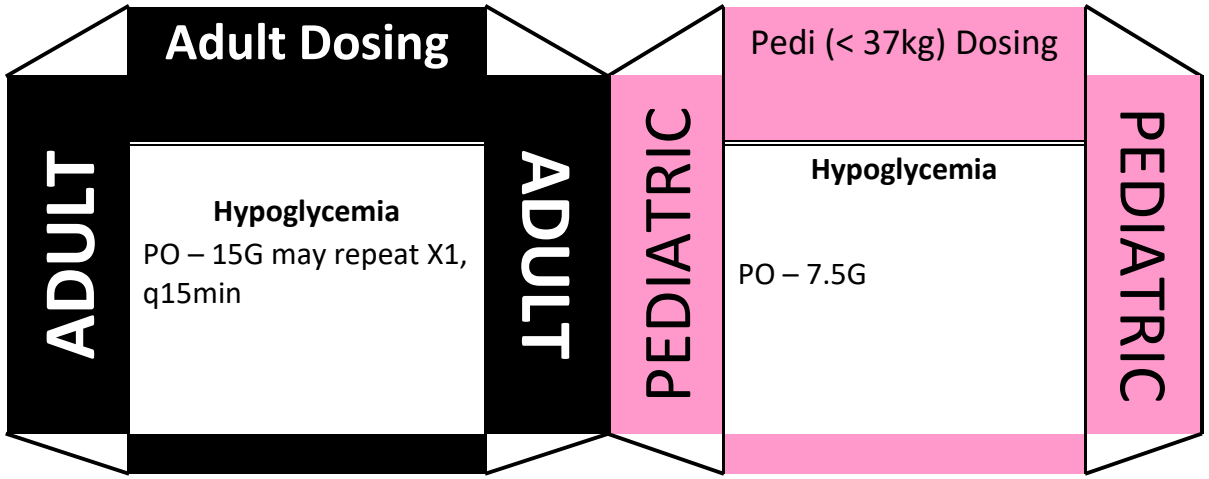
3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Ondansetron (Zofran): IV single (undiluted) dose for Nausea/Vomiting Given over > 30 sec. Concentration = 2 mg/1mL										
None	None	None	0.3 mL	0.4 mL	0.5 mL	0.7 mL	0.8 mL	1 mL	1.5 mL	1.5 mL
Ondansetron (Zofran): PO, ODT single dose for Nausea/Vomiting Patient must be able to control their airway. Concentration = 1 tablet = 4mg										
None	None	None	None	None	None	½ Tablet	½ Tablet	½ Tablet	1 Tablet	1 Tablet

Contraindications Known allergy, Do not use Zofran concurrently with Procainamide, Haldol, or Amiodarone due to QT prolongation. Hypersensitivity to the drug, Prolonged QT syndrome, concurrent use of Apomorphine (Apokyn, an anti-parkinsonian drug)

Adverse 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.

Oral Glucose

Indications Hypoglycemia (<50mg/dl) with patients who can protect their airway



Contraindications Known allergy, patients who are unable to protect their airway

Adverse effects Nausea

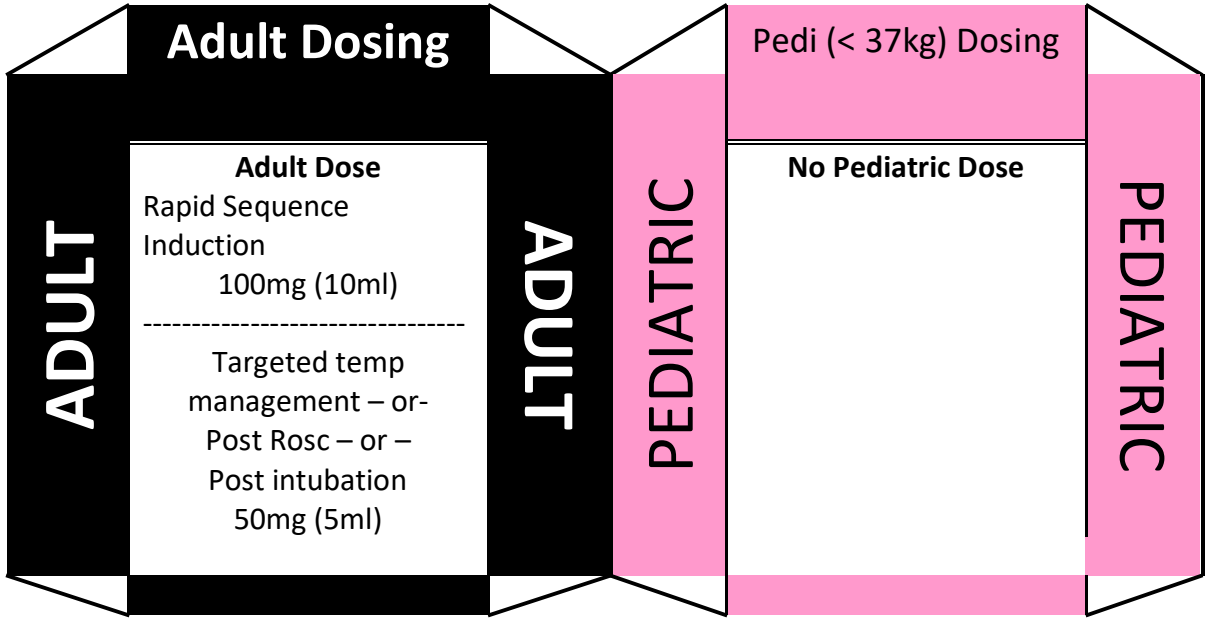
Class Monosaccharide, Carbohydrate

Mechanism of Action After absorption from GI tract, glucose is distributed in the tissues and provides a prompt increase in circulating blood sugar

Rocuronium Bromide

Indications

Airway Management and Ventilation: To facilitate Rapid Sequence Induction; Targeted Temperature Management post ROSC and post intubation



Adult Dosing Concentration
10mg/1mL

Contraindications

Patients with anticipated difficult airway who can be managed by basic maneuvers / BVM / CPAP with adequate oxygenation and ventilation

Precautions / Side Effects

Prior administration of succinylcholine may enhance the neuromuscular blocking effect of rocuronium and its duration of action.

Adverse 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. **IV onset of action is less than 2 minutes, peaks in 1-3 minutes and can last for 20-60 minutes.**

Sodium Bicarbonate

Indications Metabolic Acidosis (severe hypoxia, late cardiac arrest), Hyperkalemia, Tricyclic or Phenobarbital Overdose, Crush Syndrome

ADULT

Adult Dosing

Cardiac Arrest

1.0 mEq/kg IV/IO bolus

TCA Overdose

50mEq(1amp) IV follow with:

Maintenance drip

(100 mEq in 1000 mL of NS and run at 100mL/hr) = (100gtts/min)

Chlorine Gas Exposure

2ml of NaHCO3 in 2ml of sterile H2O in nebulizer may repeat q20min. Max 2 doses.

Crush Injury

50mEq(1amp) in 1000ml of NS wide open IV

ADULT

PEDIATRIC

Pedi (< 37kg) Dosing

Acidosis / TCA Overdose

1.0 mEq/kg IV/IO bolus

See Pediatric Dosing Chart for Lidocaine Infusion

PEDIATRIC

CONCENTRATION CURRENTLY AVAILABLE	DRUG NAME	40kg (88lbs)	50kg (110lbs)	60kg (132lbs)	70kg (154lbs)	80kg (176lbs)	90kg (198lbs)	100kg (220lbs)	110kg (242lbs)	120kg (264lbs)	130 kg (286lbs)
1mEq/1mL	Sodium Bicarbonate	40mL	50mL	60mL	70mL	80mL	90mL	100mL	110mL	120mL	130mL

Pediatric (<37kg) Dosing **1.0 mEq/kg IV/IO bolus**

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Sodium Bicarbonate: IV/IO for Acidosis or Tricyclic OD Concentration = 1mEq/1mL										
3 mL	**4 mL**	**5 mL**	**6.5 mL**	**8.5 mL**	**10.5 mL**	**13 mL**	**16.5 mL**	**21 mL**	**26.5 mL**	**33 mL**

Contraindications Avoid in the Pediatric DKA patient except in cardiac arrest.

Adverse 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. In summary, increases plasma bicarbonate, which can buffer metabolic acids and move TCAs and phenobarbital off receptor sites and back into circulation.

Tranexamic Acid (TXA)

Indications Moderate to severe hemorrhage and/or for injury < 3 hours old, SBP < 90 mmHg, Pedi SBP < 70 + (age in yrs. x 2)

Adult Dosing

ADULT

Adult Dose
2 g slow IV push (over 3 min)

Epistaxis (OLMC)
Administer 10mL (1gram) Nebulized for Epistaxis (OLMC)

ADULT

PEDIATRIC

Pedi (< 37kg) Dosing

< 37kg Dosing per Chart

PEDIATRIC

Pedi (< 37kg) Per chart **15mg/kg** IV over 10 minutes. Place Medication dose into 50ml/IC using 60gtts set = 300 gtts/min drip rate

3 kgs	4kgs	5 kgs	6-7 kgs	8-9 kgs	10-11 kgs	12-14 kgs	15-18 kgs	19-23 kgs	24-29 kgs	30-36 kgs
6.6 lbs	8.8 lbs	11 lbs	13-15 lbs	17-20 lbs	22-24 lbs	26-30 lbs	33-40 lbs	42-50 lbs	53-64 lbs	66-80 lbs
in18.25-20.25	in20.25-21.5	in21.5-23.25	in23.25-26.25	in26.25-29.25	in29.25-33	in33-37.5	in37.5-42.5	in42.5-47.75	in47.75-51.25	in51.25-56.25
Tranexamic Acid (TXA) IV Moderate to severe hemorrhage **Concentration = 100mg/1mL**										
0.5mL	0.5 mL	1.0 mL	1.0 mL	1.5 mL	1.5 mL	2 mL	2.5 mL	3 mL	4 mL	5 mL

Contraindications In patients with hypersensitivity to tranexamic acid or any of the ingredients. In patients with active intravascular clotting.

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 more rapidly than 1 mL per minute.

Use with caution in patients with hx of thrombotic events or potentially active MI or pulmonary embolism

Adverse/Side effects Dizziness, nausea, vomiting, chest pain

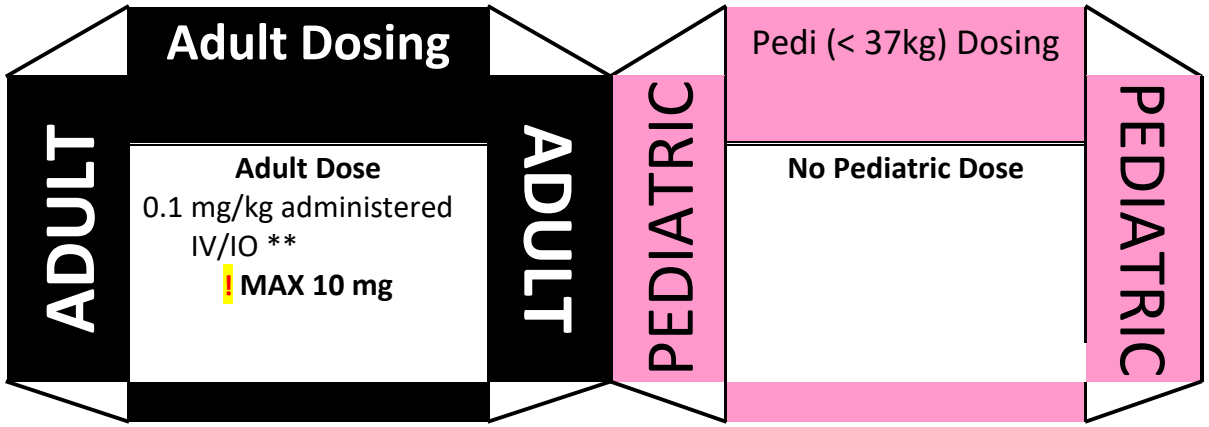
Class Antifibrinolytic Agent

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.

Vecuronium Bromide

Indications Facilitation of Targeted Temperature Management in ROSC, Airway Management for post intubation **after** sedation



Adult Dosing **IV - 0.1 mg/kg MAX 10mg**

Concentration 1mg/1mL

CONCENTRATION CURRENTLY AVAILABLE	DRUG NAME	40kg (88lbs)	50kg (110lbs)	60kg (132lbs)	70kg (154lbs)	80kg (176lbs)	90kg (198lbs)	100kg (220lbs)	110kg (242lbs)	120kg (264lbs)	130 kg (286lbs)
1mg/1mL	Vecuronium	4mL	5mL	6mL	7mL	8mL	9mL	! 10mL	! 10mL	! 10mL	! 10mL

Contraindications No confirmed advanced airway, Known Allergy

Precautions / Side Effects Prior administration of succinylcholine may enhance the neuromuscular blocking effect of vecuronium and its duration of action.

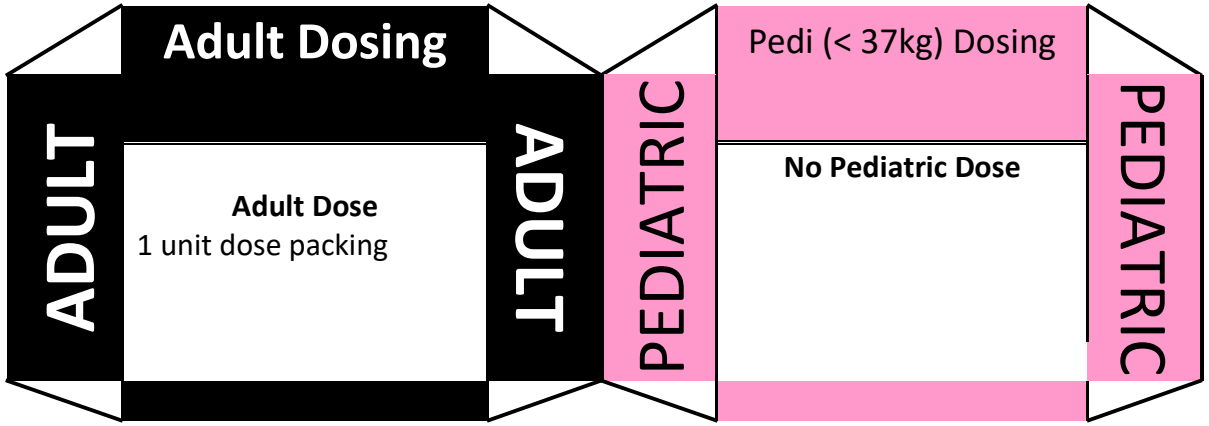
Adverse effects Skeletal muscle weakness, profound and prolonged skeletal muscle paralysis resulting in respiration insufficiency or apnea. Prolonged paralysis.

Class Non-depolarizing neuromuscular blocking agent of intermediate duration

Mechanism of Action Vecuronium is a nondepolarizing neuromuscular blocking agent possessing all of the characteristic pharmacological actions of this class of drugs (curariform). It acts by competing for cholinergic receptors at the motor end-plate. The antagonism to acetylcholine is inhibited and neuromuscular block is reversed by acetylcholinesterase inhibitors such as neostigmine, edrophonium, and pyridostigmine. Onset 3 minutes, Duration 45 minutes

Xylocaine Gel

Indications Nasal preparation prior to Nasal Tracheal Intubation attempt



Contraindications Lidocaine HCl is contraindicated in patients with a known history of hypersensitivity to local anesthetics of the amide type.

Adverse/Side effects Rare in topical applications

Class Anesthetic

Mechanism of Action Lidocaine stabilizes the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction of impulses, thereby effecting local anesthetic action.

Local anesthetics of the amide type are thought to act within the sodium channels of the nerve membrane. After application local anesthesia is achieved within 5 minutes. Duration of anesthesia is approximately 20 - 30 minutes.

Office of the Medical Director System Reference Documents

Version 090219 (MD 19-03)

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

- Pre-arrival instructions as defined by MPD/OMD
- Determination of response codes by MPD/OMD
- Post-dispatch instructions
- Determination of obvious death by MPD/OMD

PL1 Credentialed First Responder
Minimum DSHS Certification: Emergency Care Attendant

Approved Interventions for Credential Level PL1

- Patient Assessment
- Spinal Motion Restriction
- CPR/AED application
- Oropharyngeal airway
- Oropharyngeal suctioning
- Nasopharyngeal airway
- Pulse Oximetry
- External Patient Cooling (Ice Pack/Bag)
- Kendrick Traction Device (KTD)
- Bimanual Trachea Manipulation
- Intramuscular Injection Medication Route
- Blood Glucose Assessment
- Ice Pack/Bag (wound/injury/bite/sting)
- Wound Packing (Junctional/Extremity)
- Bandaging/Splinting
- Emergency Childbirth
- Bag-valve Mask Device
- Tourniquet (application/loosen)
- Pelvic Binder (Sam Sling)
- Determination of obvious death
- Impedance Threshold Device (ITD)
- Intranasal Medication Route (IN)

Approved Medications for Credential Level PL1

- Oxygen administration (all routes)
- Oral glucose administration PO
- Epinephrine Auto-injector IM
- Aspirin PO
- Naloxone administration (intranasal IN)
- Epinephrine IM 1mg/mL (0.3 mg draw and inject x1)

Authorized Skills per Credential Level

PL2 EMT
Minimum DSHS Certification: EMT

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL2

- Adult BIAD (in Cardiac Arrest only)
- 12 Lead, 3 lead, 4 lead ECG placement/acquisition (not interpretation)
- Patient Assist Vagus Nerve Stimulator x3
- Call and obtain TOR time for DNR and Obvious DOS
- Continuous Positive Airway Pressure (CPAP) device
- Monitor medication lock (Saline lock or Heplock)
- Small Volume Nebulizer
- End-tidal CO_2 assessment

Additional Approved Medications for Credential Level PL2

- Nitroglycerine SL & Topical (spray/tablets/paste)
- Patient assist with their MDI
- Albuterol Neb. (continuous as needed)
- Ipratropium Bromide Neb.(continuous as needed)
- Nebulized Normal Saline

Upon decision (and after an appropriate Medication Cross Check) by a Credentialed PL3, PL4, PL5, PL6 Provider/Responder to administer PO, SL, Topical, or Nebulized Medications per Guideline; a PL2 Credentialed Provider/Responder is approved to facilitate the physical delivery of these medications. A PL2 Provider/Responder may also assemble "prefilled syringe" medications during cardiac arrest as requested by PL4, PL5, or PL6. A Medication Cross Check must still occur prior to injection by a PL4, PL5, or PL6.

PL3 ILS Technician
Minimum DSHS Certification: AEMT

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Credential Level PL3

- Peripheral intravenous access (IV)
- BIAD (non-cardiac arrest)
- Tracheal suctioning
- Intraosseous access (IO) (cardiac arrest) **or** Critical patient in which initial IV attempt has failed or is not possible

Additional Approved Medications for Credential Level PL3

- Acetaminophen PO
- Naloxone (all routes)
- Ibuprofen PO
- Ondansetron (all routes)
- Lidocaine for eye irrigation only
- Epinephrine 1mg/10mL (cardiac arrest)
- Dextrose solutions IV
- Glucagon IM
- Ketorolac IM **OLMC or if on-scene PL5 directs**
- Diphenhydramine (all routes)
- Non-medicated intravenous solutions

Authorized Skills per Credential Level

PL4: Paramedic Technician
Minimum DSHS Certification: Paramedic

All above listed requirements/skills/interventions/medications/patient assist medications PL4 providers may perform procedures and administer medications at the PL5 level if done under DIRECT oversight by PL5 credentialed provider

Additional Approved Interventions for Credential Level PL4 Independent of Oversight by PL5

- External jugular vein cannulation
- Manual defibrillation
- Gastric tube insertion
- FBAO with direct laryngoscopy
- Alternate vascular access (indwelling catheter)
- Modified Valsalva
- ECG monitoring and interpretation

Additional Approved Medications for Credential Level PL4 Independent of Oversight by PL5

- Epinephrine (additional doses, nebulized)
- Tranexamic acid
- Hydroxocobalamin
- Atropine sulfate (cardiac arrest & Organophosphate)
- Magnesium sulfate
- Calcium chloride (cardiac arrest)
- Sodium bicarbonate (cardiac arrest)
- Pralidoxime
- Amiodarone (cardiac arrest)
- Methylprednisolone
- Lidocaine (cardiac arrest)

PL5 Paramedic Clinician
Minimum DSHS Certification: Paramedic

All above listed requirements/skills/interventions/medications/patient assist medications PL4 providers may perform procedures and administer medications at the PL5 level if done under DIRECT oversight by PL5 credentialed provider

Additional Approved Interventions for Credential Level PL5

- Pleural decompression
- Simple thoracostomy
- Therapeutic hypothermia
- Termination of resuscitation
- Nasotracheal intubation
- Fiberoptic bronchoscopy/intubation
- Needle cricothyrotomy (Pediatric)
- Maintenance of blood transfusion
- Maintenance of medication infusion that does not require titration (**except dextrose solution**)
- Manual cardioversion, pacing and double sequential defibrillation
- Flex guide Endotracheal Tube Introducer (a.k.a. gum-elastic bougie)
- Orotracheal Intubation
- Video laryngoscopy
- Beck Airway Airflow Monitor (BAAM)
- Surgical cricothyrotomy
- Umbilical vein cannulation

Additional Approved Medications for Credential Level PL5

- Cetacaine (Hurricane topical anesthetic spray)
- Adenosine
- Vecuronium Bromide
- Epinephrine infusion & IN
- Xylocaine Gel
- Ketamine
- Neo-synephrine (nasal vasoconstrictor)
- Norepinephrine (Levophed)
- Diltiazem
- Calcium Chloride
- Sodium Bicarbonate (IV, Neb., Infusion)
- Fentanyl citrate
- Midazolam
- Haloperido

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

- Rapid sequence intubation
- Chemically facilitated extrication
- Emergency escharotomy
- Fresh whole blood transfusion
- Central venous pressure monitoring
- Intracranial pressure monitoring
- Maintenance of Patient Controlled Analgesia (PCA) pump
- Maintenance of IV infusions requiring titration
- Field amputation
- Transvenous cardiac pacing (maintenance)
- Arterial blood pressure monitoring
- iSTAT blood testing
- Fracture/dislocation reduction
- Ventilator maintenance

Additional Approved Medications for Credential Level PL6

- Succinylcholine
- Rocuronium
- Albumin
- Labetalol
- Abciximab
- Tirofiban
- Eptifibatide
- Milrinone
- Inamrinone
- Tissue Plasminogen Activator
- Phenobarbitol
- Pentobarbitol
- Levitiracetam
- Oxytocin
- Pyridoxine
- Amoxicillin
- Amoxicillin/clav
- Cephalexin
- Ciprofloxacin/dexamethasone
- Triamcinolone
- Benzonatate
- Cetirizine
- Fexofenadine
- Loratadine
- Pantoprazole
- Lansoprazole
- Ranitidine
- Insulin
- Meloxicam
- Hyoscyamine
- Dicyclomine
- Nicardipine
- Nitroprusside
- Propofol
- Metoprolol
- Hydralazine
- Heparin
- Dobutamine
- Dopamine
- Tenectaplase
- Streptokinase
- Morphine
- Hydromorphone
- Fosphenytoin
- Pyridoxine
- N-Acetyl Cysteine
- Ceftriaxone
- Ertapenem
- Trimethoprim/Sulfamethoxazole
- Clindamycin
- Ciprofloxacin
- Moxifloxacin
- Levofloxacin
- Zolpidem
- Modafinil
- Potassium Chloride
- Prochlorperazine
- Promethazine
- Octreotide
- All OTC medications
- Prednisone
- Nitroglycerine infusion

Authorized Skills per Credential Level

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

- Perimortem cesarean section
- Central venous line placement
- Thoracostomy tube placement
-

Additional Approved Medications for Credential Level PL7

- Any deemed necessary by the provider
-

PL8: Office of the Medical Director

All above listed requirements/skills/interventions/medications/patient assist medications

Additional Approved Interventions for Practitioner

- Any deemed necessary by the physician

Additional Approved Medications for Practitioner

- Any deemed necessary by the physician

Authorized System Qualifications

The Medical Director, per Clinical Standard CS – 26, may authorize System Qualifications to further enhance the delivery of Pre-hospital Emergency Medical Services.

System Educator (SED): This person is tasked with the timely and appropriate delivery of System Medical Education to their Organization. This education may include but is not limited to OMD education modules, skills validations and just in time training on new or enhanced devices, supplies or processes. This person may be called upon to assist in education delivery throughout the System.

- Must be an OMD credentialed provider in good standing
- Current DSHS certification/license
    - This requirement does not apply to EMD Credentialed Providers
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of all required OMD training for the qualification
- Successful completion of the OMD qualifying process
- Meets expectations of the qualification including but not limited to:
    - Completion of required documentation
    - Maintains confidentiality and integrity of all testing processes/documents
    - Maintains records of all training activities, remediation or other documentation
    - Maintains confidentiality of provider records

Performance Management/Improvement (PMI): This person is tasked with the timely and appropriate function of Performance Management and Improvement within their Organization. These tasks may include but are not limited to the collection and reporting of required data elements, investigation and review of events, participating in clinical review processes and delivering provider feedback.

- Must be an OMD credentialed provider in good standing
- Current DSHS certification/license
    - This requirement does not apply to EMD Credentialed Providers
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of the OMD qualifying process
- Successfully complete all OMD required training for Performance Improvement Officers
- Meets expectations of the qualification including but not limited to:
    - Coordination and/or implementation of performance improvement initiatives, programs and activities as defined by the OMD
    - Utilization of System defined PI concepts and practices
    - Completion of required documentation
    - Maintains records of all performance improvement activities, remediation or other required documentation
    - Maintains confidentiality of provider records and the content of all performance improvement reviews

Authorized System Qualifications

System Credentialing Preceptor (SCP): This person is tasked with precepting approved candidates for credentialing by the OMD. System Credentialing Preceptors may precept candidates seeking credentialing at or below the SCP's credential level. The SCP tasks may include but are not limited to the following; mentoring, feedback, assessment of patient care delivered, skill proficiency and over all call management.

- Must be an OMD credentialed provider in good standing
- Current DSHS certification/license
    - This requirement does not apply to EMD Credentialed Providers
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of the OMD qualifying process
- Successful completion of all required testing/skills verification
- Successful completion of all OMD required training for the qualification
- Meets expectations of the qualification including but not limited to:
    - Completion of required documentation
    - Maintains confidentiality of provider records

Community Resource Paramedic Provider (CPP): This person is tasked with the delivery of pre-hospital emergency medicine to under-served and/or under-resourced patient populations within the System. These tasks include but are not limited to delivery of direct patient care via specialized guidelines; patient resource needs assessments and facilitation of community resources to meet patient needs.

- Must be an OMD credentialed paramedic provider in good standing
- Current DSHS certification/license
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of the OMD qualifying process
- Successful completion of Community Paramedic training program
- Successful completion of all OMD required training for Community Paramedics
- Meets expectations of the qualification including but not limited to:
    - Completion of required documentation
    - Maintains records of all Community Paramedic activities, referrals or other required documentation
    - Maintains confidentiality of patient records

Authorized System Qualifications

Special Operations – Tactical Medic (TAC): This person is tasked with providing tactical medical support to Law Enforcement during training exercises, tactical operations or as otherwise requested by law enforcement. These tasks include but not limited to hot zone entry/operations, patient assessments, treatments per system or specialized guideline, rapid extrication of patient(s) and medical monitoring/rehabilitation functions as needed.

- Must be an OMD Credentialed provider at the ≥ PL 4 level in good standing.
- Current DSHS certification/license
- Provide a letter of support/approval from the Chief of the sponsoring organization or their designee.
- Provide a letter of support/approval from the Chief of the law enforcement agency or their designee.
- Successful completion of the OMD screening process (es)
- Successful completion of required qualifying process
- Successful completion of all required testing/skills verification
- Successful completion of all OMD required training for the qualification
- All procedures and medications listed in the Special Operations/HAZMAT section of the Clinical Guidelines and/or Appendices.

Immunization (IMM): This person is tasked with providing vaccine or related medication delivery within agencies and the community-at-large as approved by the Medical Director and OMD System Infection Preventionist. Such a provider will be trained according to National Standards including but not limited to appropriate pre-administration screening for the indications and contra-indications for such immunizations, understanding the delivery routes for each type of vaccine that may be utilized, completing the appropriate documentation requirements of the locality, state, and federal governments, knowledge in the recognition of moderate and severe adverse events and initiates treatments per defined guideline(s), and reports such events through the Vaccine Adverse Event Reporting System (VAERS).

- Successful completion of the OMD screening process
- Successful completion of all required testing/skills verification
- Must meet all Program requirements **(including annual renewals)** as currently defined by the OMD Infection Control Officer.
- Persons qualified to provide immunizations (IMM) will be permitted to:
    - Administer medications/perform procedure for the treatment of allergic reactions as defined by the immunizations procedures/guideline.
    - Administer routine, seasonal, or pandemic related medication and/or delivery routes authorized by OMD.

Authorized System Qualifications

Transport Provider (TSP): This person is tasked with the appropriate, timely and safe transport of System patients to System approved medical facilities. Including but not limited to patient assessment, appropriate treatment per guideline at their Credential level or below, call management as indicated and medical monitoring/rehabilitation functions as needed per event.

- Must be an OMD credentialed provider (≥ PL 2) in good standing
- Current DSHS certification
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of the OMD screening process
- Successful completion of the Transport Provider training program
- Attend all OMD required training for Transport Providers
- Meets expectations of the position including but not limited to:
    - Completion of required documentation
    - Maintains confidentiality of patient records
    - Transports System Patients to OMD approved Medical Facilities
    - Maintains required Operational competencies for Transport Providers

Phlebotomy Services Provider (PSP): This provider is tasked with appropriately and safely performing legally ordered blood draws for Law Enforcement. In custody individuals will be presented to have their blood drawn in accordance with judicial orders for persons suspected of being under the influence of ETOH and/or other substances. The PSP will not perform these tasks as a part of their normal medical response duties. These tasks will only be performed as a separate duty assignment that does not involve the duties of a medical first responder.

- Must be an OMD credentialed provider (≥ PL 2) in good standing
- Current DSHS certification
- Letter of support/approval from the Chief of the sponsoring organization or their designee
- Successful completion of the OMD screening process
- Meets expectations of the position including but not limited to:
    - Completes all OMD required training/skill assessments for PSP
    - Completes all LE required training/skill assessments for PSP
    - Completion of required documentation
    - Maintains confidentiality of records

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.		

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

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.

Credentialing Requirements

	ATCEMS (EMS)	Austin Fire Dept. (AFD)	Travis Co. ESD (ESD) and Corporate FRO (FRO)
	EMD – ATCEMS Communications Only		
IET	IAED Certification: EMD ATCEMS Academy EMD Written Test (EMS)	N/A	N/A
MOC	OMD Designated CE EMD Testing (every 2 years) (IAED)	N/A	N/A
	PL1- ECA or Communications		
IET	DSHS certification: ECA ATCEMS Academy incl. PL1 skill testing (EMS) COG written test (OMD)	**N/A**	DSHS certification: ECA Entry training (ESD/FRO) including online learning modules set forth by the (OMD) PL1 skill testing (ESD/FRO) COG written test (OMD)
MOC	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (EMS) 3.COG Testing (every 2 years) (OMD)	**N/A**	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (ESD/FRO) 3.COG Testing (every 2 years) (OMD)
	PL2- EMT		
IET	DSHS certification: EMT ATCEMS Academy incl. PL2 skill testing (EMS) COG written test (OMD)	DSHS certification: EMT AFD Academy incl. PL2 skill testing (AFD) COG written test (OMD)	DSHS certification: EMT Entry training (ESD/FRO) including online learning modules set forth by the (OMD) PL2 skill testing (ESD/FRO) COG written test (OMD)
MOC	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (EMS) 3.COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (AFD) 3.COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (ESD/FRO) 3.COG Testing (every 2 years) (OMD)
	PL3- Advanced EMT		
IET	DSHS certification: AEMT EMS Academy PL3 skill testing (EMS) Scenario based testing (OMD) COG written test (OMD)	DSHS certification: AEMT Entry training (AFD) including online learning modules set forth by the (OMD) PL3 skill testing (AFD) Scenario based testing (OMD) COG written test (OMD)	DSHS certification: AEMT Entry training (ESD) including online learning modules set forth by the (OMD) PL3 skill testing (ESD) Scenario based testing (OMD) COG written test (OMD)

Credentialing Requirements

MOC	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (EMS) 3.COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (AFD) 3.COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.OMD Designated Scenarios incl. all necessary Medication and Skill Competencies on an annual cycle (once per year) (ESD/FRO) 3.COG Testing (every 2 years) (OMD)
	PL4- Paramedic Technician		
IET	DSHS certification: Paramedic EMS PL2 & PL4 Academies PL4 skills testing (EMS) COG written test (OMD) Understanding Scope of Practice Boundaries (OMD) Medical Director Interview	DSHS certification: Paramedic Entry training (AFD) including online learning modules set forth by the (OMD) & PL4 Academy (EMS/AFD) PL4 skills testing (EMS/AFD) COG written test (OMD) Understanding Scope of Practice Boundaries (OMD) Medical Director Interview	DSHS certification: Paramedic Entry training (ESD) including online learning modules set forth by the (OMD) & PL4 Academy (EMS/ESD) PL4 skills testing (EMS/ESD) COG written test (OMD) Understanding Scope of Practice Boundaries (OMD) Medical Director Interview
MOC	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS) 4. COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/AFD) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/AFD) 4. COG Testing (every 2 years) (OMD)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/ESD) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/ESD) 4.COG Testing (every 2 years) (OMD)
	PL5- Paramedic Clinician		
IET	DSHS certification: Paramedic EMS PL2 & PL4 Academies PL5 skills testing (EMS) EMS/OMD PL5 Academy Medical Director Interview	DSHS certification: Paramedic Entry training as set forth by the (AFD) & PL4 Academy (EMS/AFD) PL5 skills testing (EMS/AFD) EMS/OMD PL5 Academy or substantially equivalent OMD approved academy Medical Director Interview	DSHS certification: Paramedic Entry training as set forth by the (ESD) & PL4 Academy (EMS/ESD) PL5 skills testing (EMS/ESD) EMS/OMD PL5 Academy or substantially equivalent OMD approved academy Medical Director Interview
MOC	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/AFD)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/ESD)

Credentialing Requirements

	3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS) 4. COG Testing (every 2 years) (OMD)	3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/AFD) 4. COG Testing (every 2 years) (OMD)	3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/ESD) 4.COG Testing (every 2 years) (OMD)
	PL6- Extended Scope Paramedic		
IET	DSHS certification: Paramedic EMS/OMD PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview	DSHS certification: Paramedic EMS/OMD PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview	DSHS certification: Paramedic EMS/OMD PL5 & PL-6 Academies Critical Care Paramedic (CCP), Flight Paramedic (FP), or Critical Care EMT-Paramedic (CCEMTP) certification Medical Director Interview
MOC	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS) 4. COG Testing (every 2 years) (OMD) 5. Maintain Qualifying "Critical Care" Certificate. (EMS)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/AFD) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio.(EMS/AFD) 4. COG Testing (every 2 years) (OMD) 5. Maintain Qualifying "Critical Care" Certificate. (EMS/AFD)	1.OMD Designated CE 2.Portfolio Review with OMD Designated Target Events and Levels on an annual cycle (once per year). (EMS/ESD) 3.If unable to reach targeted competences within the portfolio; OMD Designated Scenarios incl. all necessary Medication and Skill Competencies to complete the portfolio. (EMS/ESD) 4. COG Testing (every 2 years) (OMD) 5. Maintain Qualifying "Critical Care" Certificate. (EMS/ESD)

IET: Initial Entry Training. **MOC**: Maintenance of Credentialing.

For "Calendar Year 2020" 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 and; specific skills not performed during the course of patient care or as listed above, will be validated periodically as needed.

Administrative Provider (Courtesy Credential)

Credentialing Requirements

Purpose: To create a means of preserving current DSHS certified administrators as contingency providers in the System while eliminating requirements to maintain OMD 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 OMD privileges at or below their current level of OMD credential as long as they continue to meet all the requirements of that level of credential. This qualification does not apply to providers who require credentialing to remain compliant 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 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 OMD 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

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 (**OMDR-4**).
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 (**OMDR- 5**).
    - 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 (**OMDR-12**).
    - 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 OMDR-23 or PL5 OMDR-1**).
   - 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.

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;

The Office of the Medical Director

Standard:

Define the roles and responsibilities of the Office of the Medical Director and it's 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.

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
- Kendrick Traction Splint Device (KTD) –1 (per Organization)

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
- Kendrick Traction Splint Device (KTD) –1 (per Organization's Primary Response Apparatus)
- 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)

PL 2 Minimum Equipment List
FRO Tier 2 Organizations

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
- Kendrick Traction Splint Device (KTD) –1 (per Organization's Primary Response Apparatus)
- 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
- Kendrick Traction Splint Device (KTD) –1 (per Organization's Primary Response Apparatus)
- 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 4 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

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

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

PL 4 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
- 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
- Kendrick Traction Splint Device (KTD) –1 (per Organization's Primary Response Apparatus)
- 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 5 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

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

PL 5 Minimum Equipment List
FRO Tier 2 Organizations

- 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
- Vecuronium Bromide 1mg/1mL vial - 1
- 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
- Endotracheal Tube sizes 4, 4.5, 5, 5.5, 6, 7, 7.5, 8 – 1 each
- Endotracheal 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

PL 5 Minimum Equipment List
FRO Tier 2 Organizations

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
- 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)

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.

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.

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 (**Provider**)

BAT 1 Bastrop/Travis Counties #800709

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