The Williamson County EMS System

Scope of Care

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1000 Introduction

1100 Protocol Purpose and Use

1101 Copyright

This document, in its entirety, is copyrighted 2017-2018 by Williamson County EMS and Marble Falls Area EMS. It may not be used by other agencies without the express written permission of these agencies.

1110 Purpose

This Scope of Care defines the parameters and expectations for providers working under the auspices of this document. To the extent possible, the therapies identified in this Scope of Care are evidence-based and the result of validated clinical research and EMS system clinical data. Providers credentialed under this Scope of Care depend on appropriate medical equipment, administrative support, continuing education, public trust and medical direction.

1111 Style Convention

The following emphasis styles and symbols are used throughout this document:

- All caps: Used for multiple conditions, i.e., “this AND that” or “this OR that”
- Bold: Emphasizes the importance of an order or a requirement of a condition prior to treatment
- Underline: References another document or published paper
- Hyperlink: Links to other sections of this document

Medical abbreviations are used where appropriate and are consistent with each department’s Approved Medical Abbreviations policy.

1115 Overarching Care Goals

All patient care/contact should be governed by the following priorities (in no particular order after the first):

- Reverse Life Threats
- Slow the progression of time sensitive illness and injury
- Alleviate fear and minimize pain
- Inform and educate the patient and family
- Be respectful of the needs of all people involved
- Maintain the dignity of the patient, family, and bystanders

1120 Medical Director Authorization / Delegation

Jeffrey L. Jarvis, M.D. provides medical direction for emergency medical responders, both transporting agencies and associated first responders, who work for Marble Falls Area EMS and Williamson County EMS. These protocols represent the delegated standing orders of Dr. Jarvis, in accordance with State of Texas Department of State Health Services (DSHS) EMS Rules and Texas Medical Practice Act.

Providers covered will maintain current DSHS licensure/certification. Providers will also demonstrate skill competency by way of routine review, evaluation, and validation.

Dr. Jarvis, or his appointed designee, has the explicit capability and responsibility to authorize, limit, amend, revoke, suspend, or terminate a provider's authority to practice under these standing orders.

These SOCs apply only to system credentialed providers. Authorization to practice applies to those who are formally credentialed within these two systems, on duty, and operating in the State of Texas. Under these standing orders, providers may not operate beyond their authorized credentialing level, regardless of DSHS or NREMT certification level.

Any credentialed provider, when off duty and not responding with another agency, may operate under this Scope of Care within the borders of the State of Texas. Any advanced procedures may be performed, if allowed within the system, only at the request of the on-scene EMS agency.

As the author of this Scope of Care document, I verify that, to the best of my knowledge, it meets all state and federal requirements.

This document establishes parameters of off-line, delegated medical orders to credentialed pre-hospital medical clinicians under my medical supervision. I hereby authorize provision of medical services described herein, using equipment and supplies noted in the text and appendices of this document.

_____

Jeffrey L. Jarvis, MD, MS, EMT-P, FACEP, FAEMS
Medical Director

Effective April 21, 2017 – April 20, 2018

1130 Sequence, Inclusion, and Omission of Treatments

Specific tools, therapies, or interventions may be omitted as dictated by provider discretion or circumstances. Reasons for deviation from generally accepted standard treatments and assessments will be documented. Protocols may have different interventions authorized for different provider levels. It is understood that the interventions authorized at a lower level are also authorized for higher levels. For example, if administration of aspirin is authorized at the EMT level, it is also authorized at the paramedic level. It will not be duplicated at each level for formatting and readability purposes.

In protocols where interventions should be performed in sequence, that sequence will be specifically noted. Otherwise, the sequence of assessments or interventions will be done at the provider's discretion. For guidelines concerning tools, therapies, or interventions that are not addressed by these standing orders please refer to On Line Medical Control (OLMC).

The pharmaceuticals and equipment listed under each protocol heading are those that are authorized for use by system credentialed responders. Specific agencies are not mandated to carry all of these agents/devices. Please refer to each agency's equipment list as this will dictate those agents that are available for use with that agency. Some agencies may have different equipment lists based on the type of response unit/team being used. For example, some therapies may be carried only by special operations teams and not available to the entire system. To reiterate, inclusion in this document does not imply that all authorized pharmaceuticals/equipment are mandated on all agency vehicles. A provider, however, may use any therapy they are credentialed to use if it is available, e.g. a paramedic on an ambulance may give a drug carried only by a special operations team if they respond to an incident with that team.

1140 Adult and Pediatric Definitions for Clinical Treatment

For the purposes of treatments per these protocols, the following definitions apply:

- Neonate – less than one month
- Infant – one month to less than one year of age
- Child – one year to onset of puberty
- Adult – age greater than onset of puberty

The "Pedi" notation when used in this document refers to Neonate, Infant, and Child unless age or weight specific limits are specified.

Unless otherwise noted, the pediatric dose should not exceed the adult dose for a given medication.
These definitions of adult and pediatric patients apply to clinical treatment only and should not be used for legal purposes of consent and refusal. See 1224 Consent to or Refusal of Evaluation and Treatment of a Minor.

1150 On Line Medical Control (OLMC)

The nature and complexity of medicine in the pre-hospital setting guarantees that not all treatments appropriate for each patient and situation can be exhaustively addressed herein. While some treatments may be inappropriate or not possible for a given patient, others may be appropriate and not included. For any treatments not addressed herein, and believed to be in the patient's immediate best interest, contacting OLMC for direction is both appropriate and encouraged.

Appropriate OLMC is listed below for each of the following levels of care provider:

- For credentialed non-paramedic first responders:
  - The responding agency ambulance
- For credentialed First Responder Paramedics and Paramedics:
  - EMS Medical Director or Acting Designee
  - Patient's Physician
  - An Emergency Department Physician receiving or transferring care
  - A Licensed Physician (M.D. or D.O.) on-scene who:
    1. Provides appropriate identification, if he or she is unknown to the providers AND
    2. Assumes full responsibility for the patient AND
    3. Accompanies the patient to the hospital AND
    4. Signs the patient care documentation with name, address, and phone number

If the Licensed Physician (M.D. or D.O.) on-scene is unwilling to accommodate these requirements, then responsibility for patient care remains with the lead provider on scene. In either case, the physician's name and phone number should be documented.

1151 Medical Chain of Command

Coordination of patient care under these protocols must follow a predictable, pre-defined medical chain of command. Care-related input may be offered by the team members or solicited by the team leader. Final decisions regarding medical care will conform to the hierarchy below.

This hierarchy is provided for the sake of ensuring consistency of expectations across multiple agencies and jurisdictions. The first responder's organizational structure or operational chain of command may require an exception to this hierarchy. Such exception is acceptable, but must be communicated to the Medical Director by way of official Memorandum of Understanding (MOU).

Non-Transporting First Responder Teams

- Will include an assigned medical officer/attendant or senior operational officer
- All team members will be available for patient care, as needed and directed
- May consult with responding MICU-capable transport unit for order clarification, as needed

Transporting Unit Personnel

- Will include an assigned patient care team leader
- Will be available for consultation or on-line medical control (OLMC) from providers on scene

On-scene medical providers will adhere to the hierarchy below, from highest to lowest authority, regarding clinical decisions:

1. EMS Medical Director, on-scene or on-line
2. OLMC through another physician
3. Physician on-scene and willing to assume control as above
4. Medical Director non-physician designee
5. Transport unit care team leader/lead medic
6. Pre-designated medical officer/medical attendant
7. Individual who is system-credentialed at the highest level
8. FRO senior operational officer

In the unlikely event that the above structure is not sufficient to resolve any difference of opinion related to patient care, the highest medical authority on scene will have authority for all treatment/transport decisions. Ultimate resolution may have to take place after the fact.

1160 Credentialing

Credentialing is the process by which an individual with a current and legitimate State of Texas Department of State Health Services (DSHS) EMS Provider certification or license becomes authorized to practice under this Scope of Care. The level of authorized credentialing does not necessarily equate to level of state certification/licensure and is reflected by the color of the identification badge worn by the provider.
All providers are required to have this color-coded photo identification visible to patients, providers, and representatives of other agencies present during scene calls and events.

The following credentialing levels are approved by the Medical Director:

Community First Responder (CFR)

CFRs (Orange Badge) have demonstrated minimum competency in CPR, AED, and first aid. System credentialed CFRs may provide those therapies in the absence of supervision. CFRs are also authorized to administer therapies at the EMT level under the direct supervision and guidance of a provider credentialed at the EMT level or higher. Medications are not included in this authorization except where defined below.

EMT

EMTs (Blue Badge) have demonstrated at least minimal competency at the level of EMT. System credentialed EMTs are approved for therapies defined herein at the level of EMT or below. Any exceptions are explicitly stated.

Advanced EMT (AEMT)

Advanced Level EMTs (Green Badge) have demonstrated at least minimal competency at the level of AEMT as defined in the National EMS Education Standards and tested by the National Registry. System credentialed AEMTs are approved for therapies defined herein at the level of AEMT or EMT. Any exceptions are explicitly stated.

First Responder Paramedic (FRP)

First Responder Paramedics (Gold Badge) are system credentialed, non-transporting medical providers who have demonstrated at least minimal competency at the level of Paramedic (Licensed or Certified). System credentialed First Responder Paramedics are approved for therapies defined herein at the level of First Responder Paramedic, AEMT, or EMT. Any exceptions are explicitly stated.

Paramedic

Paramedics (Maroon Badge) have demonstrated at least minimal competency at the level of Paramedic (Licensed or Certified). System credentialed paramedics are approved for all therapies and interventions defined herein.

Tactical Paramedic

Tactical Paramedics (Black Badge) are system credentialed paramedics who are acting in the tactical environment and have been trained in additional specific interventions useful in this environment. Due to the sensitive nature of the missions, tactical medics are not required to wear a badge (black or otherwise) while deployed in this capacity.

1200 Medicolegal and Ethical Considerations

1210 Cancellation of Responding Units

Once fire department or EMS responders are dispatched, cancellation of units will be in accordance with each agency's operational policies. Generally, responding units may cancel if:

- Cancelled by on-scene law enforcement OR
- Cancelled by the dispatching agency OR
- All individuals at the dispatch location are denying illness, injury, or pain OR
- Cancelled by an on-scene system credentialed provider because there are no patients identified at the scene

1220 Consent and Refusal

In providing medical care, we recognize that the universal goal is to act in the best interest of the patient. This goal is based on the principle of autonomy, which allows patients to decide what is best for them. A patient's best interest may be served by providing leading-edge medical treatment or it may be served simply by honoring a patient's refusal of care. Although complicated issues can arise when providers and patients disagree, the best policy is to provide adequate information to the patient, allow time for ample discussion (including questions), and document the medical record meticulously.

With certain exceptions, as referenced in 1222 Implied Consent, all adult patients and select minor patients have the right to consent to medical evaluation and/or treatment or to refuse medical evaluation and/or treatment, if they have legal capacity and the ability to make informed decisions. Three specific forms of consent apply to EMS.

1221 Informed Consent

Informed consent is more than a legality. It is a moral responsibility on the part of the provider, based on the recognition of individual autonomy, dignity, and the capacity for self-determination. With informed consent, the patient is aware of and understands the risk(s) of any care provided, procedures performed, medications administered, and the consequences of refusing treatment and/or transport. The patient should also be aware of the options available if he or she chooses not to accept evaluation, treatment, and/or transport.

1222 Implied Consent

In potentially life-threatening emergency situations, consent for treatment is not required if the patient lacks the ability to make an informed decision. The law presumes that individuals with a real or potential life-threatening injury or illness would consent to emergency treatment. In life-threatening emergency situations, consent for emergency care is not required if the individual:

- Cannot understand the nature of his/her medical condition and cannot communicate an informed decision to accept or refuse treatment
- Is a minor who is suffering from what appears to be life-threatening injury or illness and whose parent, managing or possessory conservator, or guardian is not present

1223 Substituted Consent

This is the situation in which another person consents for the patient, as is the case with minors, incapacitated patients, incarcerated patients, and those determined by courts to be legally incompetent.

The fundamental issue in informed, substituted consent for minors is a question of how decisions should be made for those who are not fully competent to decide for themselves. 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. However, there is also a moral and ethical duty to respect the rights of every individual, regardless of age. Providers must walk a fine line between respect for minors' autonomy, respect for parental rights, and the law.

1224 Consent to or Refusal of Evaluation and Treatment of a Minor

The following persons may consent to or refuse evaluation, treatment, or transport of a minor:

- Parent
- Grandparent
- Adult (≥ 18) brother or sister
- Adult (≥ 18) aunt or uncle
- Representative of an educational institution in which the child is enrolled and who has with them written authorization to consent/refuse from a person having the right to consent/refuse.
- Adult who has actual care, control, or possession of the child and has written authorization with them to consent/refuse from a person having the right to consent/refuse (i.e., daycare camps, soccer moms, carpools, etc.)
- Adult who has actual care, control, or possession of a child under the jurisdiction of a juvenile court
- A peace officer who has lawfully taken custody of a minor, if the peace officer has reasonable grounds to believe the minor needs immediate medical treatment
- A managing or possessory conservator or guardian

A provider may be denied access to minor children by a parent or guardian if there is no obvious immediate life threat to the patient. However, in general, parents or guardians cannot refuse life-saving therapy for a child based on religious or other grounds. A provider is legally obliged to notify Child Protective Services for any reasonable suspicion of child neglect or abuse.

In certain circumstances, a patient under 18 years of age who has the legal competency and mental capacity to consent to or refuse evaluation or treatment may do so. In such cases, the law states that a person under 18 years of age may consent to or refuse evaluation or treatment, if the person meets any one of the following criteria:

- Is on active duty with the Armed Services of the United States of America
- Is 16 years of age or older and resides separate and apart from his/her parents, managing conservator (an individual appointed by the court, usually during divorce proceedings, to have custody of a minor, to make decisions for the minor and to make a home for the minor) or guardian, with or without the consent of the parents, managing conservator or guardian regardless of the duration of the residence, and is managing their own financial affairs, regardless of the source of the income
- Is consenting to the diagnosis and treatment of an infectious, contagious, or communicable disease that is required by law or rule to be reported by the licensed physician or dentist to a local health officer or the Texas Department of State Health Services
- Is consenting to examination and treatment for drug or chemical addiction, drug or chemical dependency, or any other condition directly related to drug or chemical use

- Is unmarried and pregnant and consenting to evaluation and/or treatment related to the pregnancy. A pregnant minor must have adult consent for non-pregnancy related conditions unless she fits within one of the aforementioned exceptions.

When treating minors, it is important that there be an interactive process between them and the provider. The interaction should involve developmentally appropriate disclosure about the illness/injury, the solicitation of the minor's willingness and preferences regarding treatment, and decision options. Although the intent of this interaction is to involve the child in decisions, the way in which the participation is framed is important. As with any patient, minors should be treated with respect.

In the case where a minor does not have an apparent life-threatening injury/illness, does not meet any of the above criteria, and there is no one who has the authority to make decisions on their behalf, the patient should be transported to an ED for further care until an authorized decision maker can be reached.

1225 Determination of Decision Making Capacity

Legally speaking, only a judge can determine mental competence. Capacity, however, is a clinical determination of a patient's ability to make their own decisions regarding their health. This is the standard that EMS professionals use to determine whether or not a patient can consent to or refuse treatment and/or transport to the hospital. The patient must be able to collect information, reason, and make decisions based on that information relative to individual objectives, values, and priorities. While the legal definition of mental capacity is clear, the concept can become blurred in the clinical setting. A person can be temporarily mentally incapacitated for various medical reasons and, because of this, not able to process information to form reasonable understanding or make reasonable decisions.

Because of the nature of emergency medicine, some of those who can be considered incapacitated, however permanent or temporary the state, may encounter medical professionals. It is incumbent on the medical professional to recognize the needs of these patients with regard to provision of necessary care and transfer to definitive care should a reasonable risk of patient mortality or morbidity exist as evidenced by assessment findings and differential diagnosis.

1230 CPR Deferral and Termination of Resuscitation (TOR)

1231 Out of Hospital DNR

Out of Hospital DNR (OOH DNR) order will be considered legitimate and honored and CPR deferred for patients with:

- An original, photocopy, or faxed completed OOH DNR order from any state
- The verbal order of a patient's personal physician on-scene

For any patient with a legitimate OOH DNR immediately discontinue or do not initiate

- CPR
- Defibrillation
- Advanced airway (use or placement) or artificial ventilation

Patients with Advanced Directives

- If a paramedic on-scene has reason to believe that a patient would not wish/want resuscitation (i.e. desire natural death), immediately contact OLMC for discussion regarding an order to not initiate resuscitation.

DNR orders will NOT be honored if any of the following exceptions are involved:

- Reason to question the authenticity of the form/device
- Suspicion of suicide, homicide, or other unnatural death
- Known or suspected patient pregnancy

1232 Evidence of Incompatibility with Life

Community First Responder (CFR)

Initiation or continuation of CPR is not indicated in the pulseless, apneic patient in the presence of:

- Livor Mortis
- Decomposition
- Rigor Mortis
- Obvious mortal wounds (e.g., trauma with non-survivable organ destruction)
- Submersion/inaccessible entrapment > 15 minutes from the arrival of the first public safety entity at the patient until the patient is in a position for resuscitative efforts to be initiated
- Presence of valid OOH DNR Order

Following determination of obvious death, consider requesting Justice of the Peace if not attended by law enforcement.

1233 Withholding Resuscitative Efforts

First Responder Paramedic (FRP)

In traumatic arrest (assuming the arrest was caused by trauma and not the cause of trauma, i.e., medical condition leading to minor trauma), resuscitative efforts may be withheld or not initiated if upon arrival of the FRP the patient is found to be apneic, pulseless, and without organized electrical activity.

1234 Termination of Resuscitation (ToR)

First Responder Paramedic (FRP)

Authorization for termination of resuscitative efforts should be sought if it is likely that there is not going to be a change in patient condition despite all appropriate efforts as described elsewhere in this document. (Refer to 3100 Cardiac Arrest and 9250 Termination of Resuscitation) Such authorization should be obtained via recorded telephone connection, where available. Below are guidelines for requesting termination:

Medical Arrest

- Patient is not pregnant
- All underlying causes have been considered and addressed
- No evidence of neurologic activity (eye opening, motor activity, meaningful respiratory activity)
- All appropriate treatments have been provided

In general, all adult medical arrests will be aggressively resuscitated for at least 40 minutes, except for those with an $EtCO_2 \leq 10$ mmHg after 20 minutes of resuscitation.

Traumatic Arrest

- Lack of pulse or organized ventilatory activity on first responder arrival AND
- Lack of organized ventilatory activity after basic airway maneuvers AND
- Lack of identifiable AND correctable causes found and addressed
- ToR request may occur prior to 20 minutes of resuscitation

In general, CPR by itself is not helpful in traumatic arrest. It is, however, useful to briefly allow for rapid correction of underlying causes of arrest. There is no evidence that prolonged attempts at resuscitation as is done for medical patients is helpful in trauma. Therefore, CPR should be performed only until all possible corrective procedures have been attempted as authorized in this document. If there has been no ROSC after these have been completed, ToR should be requested regardless of the amount of time which CPR has been on-going.

It is acceptable to contact Medical Control in the event of unusual circumstances or if conflict arises.

1240 Protected Health Information (PHI)

Questions or concerns related to PHI or the Heath Information Portability and Accountability Act (HIPAA) should be directed to the operational chain of command or the agency Custodian of Records.

1250 Law Enforcement Requested Blood Draw

EMS personnel will NOT draw blood from a living patient solely for the purposes of determining alcohol or other intoxicating substance concentration, even at the direct request of a law enforcement officer.

1300 Transport Considerations

1310 Hospital Selection

The following outlines the methods used to determine hospital selection in order of priority.

1311 Patient or Caregiver/Physician Choice

The patient and medic will collectively choose the closest, most appropriate destination facility with the understanding that an informed patient decision is the goal. When interacting with laypersons, if the decision is not in the patient's best interest based on facility capabilities and patient condition, the attending provider should offer alternatives for the next closest facility capable of managing the patient's condition.
Physician request for transport to a specific facility is assumed to be in the patient's best interest and will be honored. As with rules of consent and refusal, the destination facility will be selected by the patient, caregiver, and/or physician when such information can be conveyed.

1312 Closest Hospital Appropriate for Condition

If the patient or caregiver is unable to select a hospital, the ambulance will transport to the closest hospital capable of managing the patient's condition. Refer to 9100 Hospital Capabilities and 9230 Pediatric Transport Guidelines.

1313 Diversion

Any time the patient's medical condition is significantly unstable, the attending provider may choose to divert to a closer hospital ED staffed by a physician. Reason for diversion will be clearly documented in the chart.

1320 Helicopter Transport

Air medical transport is rarely indicated, but may be considered for any patient. The following should guide the use of helicopter transport.

- Directly to a burn center for a patient with >20% BSA, 2nd or 3rd degree burns, but no concomitant trauma OR
- Patient condition is likely to require critical interventions only available at a specific destination AND air transport will significantly reduce the transport time to a facility capable of providing those interventions (e.g., surgeon, cath lab, etc.) OR
- Specific departmental policies

The reason for choosing air medical transport will be clearly documented in the chart.

1330 Destination Hospital Notification

In an effort to work with our hospital colleagues, we are adopting the reporting criteria developed by the CATRAC.

Radio Report

1. Agency and Unit
2. Age/Sex
3. Chief Complaint OR Classification (STEMI, Stroke, Trauma, OB)
    a. Pertinent physical exam findings
4. Current Vital Signs
5. Critical interventions performed
6. ETA
7. Alert specific information
    a. STEMI: ECG findings
    b. Stroke: time last known normal, blood glucose
    c. Trauma: mechanism of injury, SMR status, use of anticoagulants
    d. OB: gestational age/LMP, prenatal physician, status of the baby if delivered

Bedside Report (normally limited to the following at receiving facility):

1. Patient name and age
2. Chief complaint/suspected condition
3. Brief history of present illness
4. Pertinent physical exam findings
5. Most recent vital signs (avoid use of WNL)
6. Disease specific information:
    a. STEMI: provide field ECG
    b. Stroke: blood glucose, last known normal, deficits, use of anticoagulants, family contact information
    c. Trauma: mechanism of injury, use of anticoagulants
    d. OB: gravida/para, gestational age in weeks, last menstrual period, timing of contractions, presence of rupture of membranes, and status of the baby if delivered
7. Treatments/medications given and any response

Radio reports should occur for any patient being transported to an ED, including scene calls AND non-emergency transfers. Notifications are not required for patients being transferred to in-patient rooms.

1400 Patient Assessment

At a minimum, when contact is established with those for whom an agency is dispatched, an appropriate initial assessment will be performed and documented. It will be based on dynamic variables including, but not limited to, initial assessment findings, acuity, chief complaint, consent, evident threat to patient's life or limb, and scene safety. The extent of secondary, detailed, or focused assessments should conform to medical best practices, insofar as equipment is available and providers are trained to conduct such assessments. Omission of indicated assessments or therapies will be appropriately documented in strict accordance with agency policies.

1405 Definition of a Patient

For the purposes of this document, a patient is defined as:

- A person for whom EMS has been requested AND
- Who has any medical or psychological complaint, obvious injury/distress, or has a significant mechanism of injury OR
- A person who requested EMS

1410 Initial Assessment

For actual or potential patients with whom providers make contact, and for whom a visual assessment can be conducted, the following represents minimal required assessment:

- Physical position (prone, supine, recumbent, sitting, standing/ambulatory)
- Mental status (GCS or AVPU)
- Airway status (protected, compromised)
- Breathing condition (effort, regularity, approximate rate)
- Circulatory condition (minimum: perfusion status of skin or nail beds; preferred: temperature, moisture of skin, and presence or absence of radial or central pulses)
- Presence or absence of potentially morbid or mortal disabilities

1420 Baseline Vital Signs

Minimal baseline vital signs will include, but are not limited to:

- Breathing rate
- Palpated pulse rate
- Blood pressure
- GCS

If a provider questions the reliability of values, validation by another provider or method is advised.

1430 Detailed Assessment, Diagnostics, and Vital Signs

A variety of tools are available to aid in patient assessment. These tools are used to increase the likelihood of discovering disease/injury and will help form and order your differential diagnosis. The following should be included in detailed assessments with the understanding that paramedic discretion and critical thinking is encouraged. It is impossible to account for all the variations in patient presentation. With that understood, omission of some of these diagnostic tools is understandable and acceptable. Using more than the minimum is also acceptable.

Detailed assessment should include the following:

- Temperature:
  - Altered mental status
  - Exposure to elements
  - Suspected febrile seizure
  - Suspected sepsis
  - Suspected stimulant toxicity
- Blood Glucose Level:
  - Altered mental status
  - Behavioral abnormalities
  - Known or suspected metabolic or genetic diseases/abnormalities
  - Seizures
  - Suspected stroke/CVA
- Pulse Oximetry:
  - Altered mental status, syncope, near syncope
  - Any patient with an advanced airway or with airway adjuncts in place
  - Cardiac dysrhythmias
  - Chemical or pharmaceutical toxicity
  - Febrile patients
  - Respiratory distress
  - Suspected ACS or known STEMI
  - Suspected sepsis
  - Suspected Stroke/CVA
  - Ventilatory abnormality or complaint, including airway burns
- End Tidal CO_2:
  - Altered mental status, syncope, near syncope
  - Any patient with an advanced airway or with airway adjuncts in place
  - Most patients in whom oxygen is indicated
  - Suspected ACS or known STEMI
  - Suspected sepsis
  - Ventilatory abnormality or complaint, including airway burns
- ECG Monitoring:
  - ACS
  - Advanced airway placement
  - Altered mental status, syncope, near syncope
  - Exposure to elements
  - Suspected febrile seizure
  - Suspected sepsis
  - Suspected stimulant toxicity

- ECG 12-Lead (printed):
  - Abnormal or irregular pulse or palpitations
  - ACS
  - Altered mental status, syncope, near syncope
  - Chemical or pharmaceutical toxicity
  - Dyspnea
  - Return of Spontaneous Circulation (ROSC)
  - Suspected stroke (CVA)
  - Unexplained upper GI complaint

1440 Reassessment

For comparison to baseline findings, reassessment of vital sign values should be conducted:

- Approximately every 5 - 10 minutes for unstable patients
- Approximately every 15 - 20 minutes for stable or asymptomatic patients
- Within 5 minutes of administration of pharmaceuticals, if possible
- For any patient with baseline values outside of normal reference range

1450 NPO Status

Any patient felt to be a possible candidate for procedures requiring sedation (e.g., abdominal pain, trauma, or dislocated extremities) shall be kept NPO throughout EMS care.

2000 Airway and Breathing Emergencies

2100 Airway Support

Community First Responder (CFR)

Manual airway maneuvers

Adjuncts to oxygenation
- Nasal cannula
- Non-rebreather mask

EMT

Adjuncts to ventilation
- Bag valve mask ventilation

Titrated oxygen with the lowest flow rate possible to maintain SpO_2 > 93%
- Most patients without dyspnea or hypoxia do not need any oxygen
- Titrate ventilation rate to CO_2 level
- In the absence of capnography, ventilate at the following rates:
  - < 5 days: every 1 - 1.5 seconds (40 - 60/min)
  - 5 days - 8 years: every 3 - 5 seconds (12 - 20/min)
  - ≥ 8 years: every 6 seconds (10/min)

Suctioning, oral/nasal pharyngeal

Oropharyngeal airway (OPA) and Nasopharyngeal airway (NPA) insertion

Advanced EMT (AEMT)

Suctioning, endotracheal

Supraglottic airway insertion (as a rescue airway AFTER 2 failed intubation attempts or as instructed by an on-scene system credentialed paramedic in adults OR as a primary device for pediatrics)
- Cervical collar should be applied after placement
- Use of $EtCO_2$ to confirm placement is mandatory as soon as it is available

Gastric Tube Insertion (in conjunction with supraglottic airway)

First Responder Paramedic (FRP)

Continuous Positive Airway Pressure (CPAP) (for acute respiratory distress unrelated to pneumothorax)
- Adult: 15 - 25 lpm (5 - 10 cmH_2O), if tolerated
- Pedi: Same as adult

Gastric Tube Insertion (with endotracheal tube)

Needle Thoracostomy (for reasonable suspicion of tension pneumothorax)
- Use a large bore needle in the anterior axillary space, repeat PRN

Cricothyrotomy (for airway not established by any other means)

- Adult: Surgical tube placement with introducer
- Pedi: Dual needle, large bore

Paramedic

Endotracheal tube placement (preferred airway device)

- Adult: Video laryngoscopy only
  - Max: 2 attempts per patient (not per medic) prior to insertion of rescue device
  - Cervical collar should be applied after placement
- Pedi: Intubation is only acceptable for meconium aspiration (Refer to 3160 Newborn Resuscitation)

Tactical Paramedic

Finger thoracostomy (for reasonable suspicion of tension pneumothorax in environment where needle thoracostomy is ineffective or impractical)

2200 Respiratory Distress

2210 Asthma/COPD

	$EtCO_2$	SpO_2	Tidal	Lung Sounds
Mild	< 35 mmHg	> 96%	Adequate	Wheezing
Moderate	35 - 45 mmHg	90 - 96%	Diminished	Wheezing
Severe	> 45 mmHg	< 90%	Diminished	Wheezing or Diminished

Community First Responder (CFR)

Allow position of comfort
Oxygen via applicable adjunct

EMT

Albuterol, nebulized
- Adult: 7.5 mg, repeat PRN
- Pedi: Same as adult

Ipratropium Bromide, nebulized (any severity)
- Adult: 0.5 mg, repeat PRN (may be combined with Albuterol)
- Pedi: Same as adult, max dose 1 mg

Advanced EMT (AEMT)

Normal Saline IV/IO bolus (moderate or severe)
- Adult: 10 - 20 mL/kg
- Pedi: Same as adult

First Responder Paramedic (FRP)

CPAP
- Consider 4410 Light Procedural Analgesia and Sedation PRN

ECG Monitoring is required

Methylprednisolone IV/IO (moderate)
- Adult: 125 mg over 1 min
- Pedi: 2 mg/kg over 1 min, max dose 60 mg

Magnesium Sulfate IV/IO Infusion (moderate)
- Adult: 2 gm in 100 mL NS over 10 min
- Pedi: 50 mg/kg in 100 mL NS over 10 min, max dose 2 gm

Epinephrine 1 mg/mL (1:1,000) IM (severe)
- Adult: 0.3 mg
- Pedi (< 30 kg): 0.15 mg
- Repeat q 5 min, if needed, while mixing infusion

Epinephrine Infusion 20 mcg/mL IV/IO (severe AND refractory to other treatments)
- Adult: 5 mcg/min titrated to adequate respiratory status
  - Note: 2 mg Epinephrine 1 mg/mL (1:1000) in 100 mL NS yields 20 mcg/mL. Begin infusion at 15 gtts/min using a micro set
- Pedi (≥ 10 kg): Same as adult
- Pedi (< 10 kg): Not indicated. See IV/IO bolus below.

Epinephrine 0.1 mg/mL (1:10,000) bolus IV/IO
- Adult: Not indicated. See infusion above.
- Pedi (≥ 10 kg): Not indicated. See infusion above.
- Pedi (< 10 kg): 0.01 mg/kg q 3 - 5 minutes PRN titrated to adequate respiratory status, max total dose 0.5 mg

2220 Croup/Epiglottitis

Any interventions to be performed only as tolerated by patient

Community First Responder (CFR)

Oxygen via applicable adjunct

First Responder Paramedic (FRP)

Epinephrine 1 mg/1 mL (1:1,000), nebulized
- Adult: 2 mg added to 2 mL NS (4 mL total)
- Pedi: 5 mg added to 5 mL NS (10 mL total)

Dexamethasone IV/IO/IM/PO
- Adult: 10 mg
- Pedi: 0.6 mg/kg, max dose 10 mg

2300 Delayed Sequence Induction (DSI)

DSI is the preferred method of securing an adult patient's airway. Each step is required to be in place or complete prior to moving to the next step. **Use of the DSI checklist is mandatory.** (Refer to 9220 DSI Checklists for system specific checklist.)

Community First Responder (CFR)

Preparation

- Confirm placement of SpO_2, $EtCO_2$, ECG, BP monitors
- Oxygen by NC at 6 lpm with simultaneous BVM or NRB at maximal oxygen flow

Paramedic

1. Confirm readiness of suction, blade, tube, syringe, and verification tools
2. Assure BVM has HME, PEEP, and $EtCO_2$ attached
3. Assure continual SpO_2 and $EtCO_2$ readings throughout call
4. Address hypotension – Epinephrine 10 mcg/mL (1:100,000/Push-Dose) with goal of SBP $\geq$ 100 mmHg (Refer to 4200 Circulatory Support)

Sedation and Pre-Oxygenation

5. Ketamine IV/IO (for sedation and analgesia prior to paralysis)
    a. Adult: 2 mg/kg
    b. Pedi: Not indicated
6. Properly position patient in ear to sternal notch position with head of bed (HOB) elevated $\geq$ 15°
7. Increase oxygen by NC to maximal flow
8. Form two handed, thumbs-down seal on BVM, allow spontaneous respirations with maximal oxygen flow
9. Increase PEEP as needed to achieve maximal SpO_2
10. Upon reaching $SpO_2 \geq 94\%$, begin 3 minute countdown to allow for complete denitrogenation
11. Immediately abort intubation attempt if $SpO_2 < 94\%$, assure return of $SpO_2 \geq 94\%$, and begin 3 minute countdown again

Paralysis

12. Rocuronium IV/IO
    a. Adult: 1 mg/kg
    b. Pedi: Not indicated
13. Begin 90 second countdown to allow complete paralysis
14. Perform intubation

Verification of intubation

- Visualization by two providers via video laryngoscopy
- $EtCO_2$ waveform
- Present lung and absent epigastric sounds

2400 Rapid Sequence Induction (RSI)

RSI process is to be used only for patients during the placement of a supraglottic airway (SGA). **It is not to be used for endotracheal intubation**. (Refer to 2300 Delayed Sequence Intubation)

Each step is required to be in-place or complete prior to moving to the next step.

Community First Responder (CFR)

Preparation

- Confirm placement of SpO_2, $EtCO_2$, ECG, BP monitors
- Oxygen by NC at 6 lpm with simultaneous BVM or NRB at maximal oxygen flow

First Responder Paramedic (FRP)

1. Confirm readiness of suction, SGA, and verification tools
2. Maximize pre-insertion SpO_2 with pre-oxygenation

Sedation and paralysis

3. Ketamine IV/IO (for sedation and analgesia prior to paralysis)
    a. Adult: 2 mg/kg
    b. Pedi: Same as adult
4. Increase NC oxygen to 15 lpm after onset of Ketamine
5. Rocuronium IV/IO
    a. Adult: 1 mg/kg
    b. Pedi: Same as adult

Verification of appropriate tube placement by confirming

6. $EtCO_2$ waveform
7. Present lung and absent epigastric sounds

2500 Post-Intubation Sedation and Analgesia

First Responder Paramedic (FRP)

This may be used for patients intubated without RSI/DSI who then need sedation & analgesia (e.g., cardiac arrest with ROSC) and MUST be used for all patients receiving RSI/DSI.

For patients with tachypnea after ketamine, attempt to match their post-paralysis ventilatory rate with their pre-paralysis respiratory rate.

Ketamine IV/IO – used as a single agent

- Adult: 2 mg/kg, repeat at least q 30 min or more frequently PRN
- Pedi: Same as adult
- Document a RASS score (Refer to 9260 RASS)
    - Goal of -4 to -5
- For transports > 20 min consider an infusion:
    - Adult: 1 mg/min, titrated up to effect (200 mg/100 mL NS at 30 gtts/min w/60 gtt/mL set)
    - Pedi: 0.5 mg/min, titrated up to effect (100 mg/100 mL NS at 30 gtts/min w/60 gtt/mL set)

3000 Cardiac Emergencies

3100 Cardiac Arrest

Prior to or during resuscitation efforts, consider appropriate headings under 1230 CPR Deferral and Termination of Resuscitation:

- 1231 OOH DNR
- 1232 Evidence of Incompatibility with Life
- 1233 Withholding Resuscitative Efforts
- 1234 Termination of Resuscitation

3110 Initial CPR: All Rhythms

Survival from out-of-hospital cardiac arrests is highly dependent on achieving the following goals:

1. Rapid response
2. Early high quality, minimally interrupted chest compressions
3. Early defibrillation

These goals can only be consistently met with a systematic, choreographed approach to cardiac resuscitation which minimizes variation. In order to achieve this approach, the following actions are mandatory for all cardiac arrests:

1. Use of cardiac arrest checklist with either an external stopwatch or monitor clock is mandatory for all cardiac arrests, when available.
2. Assume the appropriate pit crew formation as described in 9400 Pit Crew Configurations.
3. Apply CPR feedback devices as quickly as possible and use feedback to maximize compression quality
4. Individual compressors MUST alternate after every 100 compressions.
5. Do not begin to apply the Lucas device until at least 10 minutes of high quality manual compressions have been performed using the recorded CPR feedback device.
6. When used, the Lucas MUST be deployed in a phased-in fashion as described in 9450 Integration of Additional Devices.
7. No single pause in compressions should last more than 7 seconds.
8. Compressions must not be interrupted for intubation for any reason. The compressions are more important than intubation.
9. Pre-charge the monitor(s) at least 15 seconds prior to the next scheduled rhythm analysis.
10. Do not remove CPR feedback device until immediately before the Lucas suction cup application.
11. Make very visible markings on the chest wall to indicate proper positioning of the Lucas cup. Constantly monitor for movement and readjust as necessary. Remember to utilize the neck strap.
12. Rhythm analysis MUST occur every 2 compression cycles (2 minutes) and shall not last more than 7 seconds.
13. All non-traumatic adult cardiac arrests will be resuscitated for at least 40 minutes unless the $EtCO_2 \leq 10$ mmHg at 20 minutes of resuscitation OR a DNR is produced.
14. Transport of patients in cardiac arrest shall be avoided. If necessary, every effort shall be made to assure use of the Lucas device with restrained rescuers.

3111 AED Pad Size Guidelines

- Adult Pads: Weight > 55 lbs (~25 kg)
- Pedi Pads: Weight < 55 lbs (~25 kg)
  - If questionable, use anterior-posterior placed adult pads

3112 Automated Compression Device

Automated compression device (Lucas) should be applied upon arrival as described in 9450 Integration of Additional Devices when available.

3113 Initial Basic Interventions/Procedures

Community First Responder (CFR)

Confirm unresponsiveness, apnea, and pulselessness
Follow "Pit Crew" procedure using appropriate configuration (Refer to 9400 Pit Crew Configurations)
Initiate compressions at a rate of 100 - 120/min
Apply CPR feedback device to the chest as soon as available
Providers performing compressions will be rotated every 100 compressions to minimize fatigue
Minimize delay between cycles
Apply defibrillator pads immediately without interruption to compressions
Follow device prompts

EMT

Ventilate with OPA and BVM

If an ADULT patient (≥ 18 yo) has a presumed PRIMARY CARDIAC cause of arrest, substitute NRB passive oxygenation during the first 6 minutes of resuscitation. If the patient is already being ventilated on arrival, do not restart the 6 minutes of passive oxygenation.

3114 Sedation during Cardiac Arrest

For those rare cases of cardiac arrest in which a patient shows signs of awareness during CPR

First Responder Paramedic

Ketamine IV/IO

- Adult: 2 mg/kg q 30 min PRN
- Pedi: Same as adults

Document a RASS score pre- and post-ketamine administration. (Refer to 9260 RASS)

- Goal of -5

3115 Initial Advanced Interventions/Procedures

Advanced EMT (AEMT)

Vascular access (IO) and saline lock placement
Supraglottic airway insertion (ONLY as a rescue airway AFTER failed intubation attempts OR if intubation is not available within 15 minutes)
Cervical collar should be applied after placement

First Responder Paramedic (FRP)

Confirm vascular access is established
Establish second access route when practical
Epinephrine 0.1 mg/mL (1:10,000) IV/IO q 5 min

- Adult: 1 mg
- Pedi: 0.01 mg/kg (0.1 mL/kg)

Treat underlying causes as appropriate

PARAMEDIC

Endotracheal tube placement (preferred airway device)

- Adult: Video laryngoscopy only
  - Maximum of 2 attempts after which an SGA should be inserted
- Pedi: SGA placement only
  - Intubation is only acceptable for suctioning *resistant* meconium aspiration, i.e., newborns with meconium staining that do not respond to vigorous stimulations, drying, and oral suctioning

3116 Cardiac Arrest in Pregnancy

For patients in cardiac arrest with fundal heights above the umbilicus:

- Apply lateral manual uterine displacement towards the left side and back toward the patient's head
- Do not utilize passive oxygenation
- Initiate early transportation after determining the absence of a shockable rhythm
- Provide ED notification as early as possible with warning to prepare for potential perimortem c-section
- Transport to nearest ED

3117 Cardiac Arrest in Trauma

For patients in cardiac arrest from a traumatic etiology:

- Refer to 1233: Withholding Resuscitative Efforts
- Refer to 1234: Termination of Resuscitation
- Refer to 6050: Traumatic Cardiac Arrest

3120 Asystole/Pulseless Electrical Activity

First Responder Paramedic (FRP)

3121 PEA – Narrow QRS Complex

Normal Saline IV

- Adult: 2 L
- Pedi: 20 mL/kg

If $EtCO_2$ > 10 mmHg AND there is no resolution after 20 minutes of care:

- Pericardiocentesis
- Bilateral needle thoracostomy

NOTE: Pedi – do not use pericardiocentesis and/or bilateral needle thoracostomy without a high index of suspicion of tamponade and/or pneumothorax.

3122 PEA – Wide QRS Complex

Calcium Chloride IV/IO
- Adult: 1 gm slow push
- Pedi: 20 mg/kg slow push

FLUSH BEFORE ADMINISTRATION OF SODIUM BICARBONATE

Sodium Bicarbonate IV/IO
- Adult: 1 mEq/kg slow push
- Pedi (> 2): 1 mEq/kg slow push
- Pedi (≤ 2): 1 mEq/kg of 4.2% slow push

3130 Ventricular Fibrillation/Pulseless Ventricular Tachycardia (VF/pVT)

First Responder Paramedic (FRP)

Defibrillation
- Use the vendor's maximum defibrillation settings for the device being used

Dual Sequential Defibrillation (DSD)
- Adult: Use maximum energy settings on both machines for all defibrillations as soon as a second defibrillator is available on scene
  - Ensure a 1 second delay between the shocks
- Pedi: Not indicated

Amiodarone IV/IO bolus
- Adult: 300 mg (may repeat once at 150 mg in 3 - 5 min)
- Pedi: 5 mg/kg (may repeat once at initial dose in 3 - 5 min)

Magnesium Sulfate 50% IV/IO for Torsades de pointes or suspected hypomagnesemia
- Adult: 2 gm in 100 mL NS over 10 min, repeat once as needed
- Pedi: 50 mg/kg in 100 mL NS over 10 min, repeat once as needed

OLMC Esmolol IV/IO (for VF/pVT refractory to at least 2 DSD shocks and 2 doses of Amiodarone)
- Adult: 500 mcg/kg (0.5 mg/kg) bolus slow push over 1 min THEN infusion titrated to the resolution of the shockable rhythm
  - For the infusion mix 1 vial in a 100 mL NS bag and infuse WO on a 60 gtt set
  - Discontinue infusion for asystole, bradycardia, or ROSC with hypotension
- Pedi: Not indicated

Treat underlying causes as appropriate

3140 Underlying Causes of Cardiac Arrest

Community First Responder (CFR)

Hypothermia, any temperature
Dry and warm patient but otherwise treat as per appropriate protocol

Advanced EMT (AEMT)

3141 Hypovolemia

Normal Saline Infusion IV/IO

- Adult: 20 mL/kg, repeat PRN until ROSC or TOR
- Pedi: Same as adult

3142 Opiate Overdose

Naloxone IV/IO/IN

- Adult: up to 2 mg, repeat PRN
- Pedi: up to 0.1 mg /kg, repeat PRN

3143 Hypoglycemia

Dextrose 50% IV/IO for BGL < 60 mg/dL

- Adult: 25 gm
- Pedi: Use D10%

Dextrose 10% until BGL > 60 mg/dL OR symptoms resolve

- Adult: Infuse wide open if dextrose 50% is not available
- Pedi: 5 mL/kg, infuse wide open

First Responder Paramedic (FRP)

3144 Traumatic Arrest with Thoracic Trauma (Suspected Tension Pneumothorax/Cardiac Tamponade)

Bilateral Needle Thoracostomy, repeat PRN
Pericardiocentesis if thoracic trauma is present

3145 Beta Blocker Overdose

Follow rhythm specific protocol, e.g., asystole, PEA, VF/pVT

3146 Calcium Channel Blocker Toxicity

Calcium Chloride IV/IO

- Adult: 1 gm slow push
- Pedi: 20 mg/kg slow push

First Responder Paramedic (FRP)

3147 Hyperkalemia with Acidosis

Calcium Chloride IV/IO

- Adult: 1 gm slow push
- Pedi: 20 mg/kg slow push

FLUSH BEFORE ADMINISTRATION OF SODIUM BICARBONATE

Sodium Bicarbonate IV/IO

- Adult: 1 mEq/kg slow push
- Pedi (> 2): 1 mEq/kg slow push
- Pedi (≤ 2): 1 mEq/kg of 4.2% slow push

Albuterol, nebulized

- Adult: 10 mg
- Pedi: Same as adult

3148 Tricyclic Antidepressant Toxicity

Sodium Bicarbonate IV/IO

- Adult: 1 mEq/kg slow push
- Pedi (> 2): 1 mEq/kg slow push
- Pedi (≤ 2): 1 mEq/kg of 4.2% slow push

3150 Return of Spontaneous Circulation

Advanced EMT (AEMT)

Bilateral IV access, in addition to IO, as soon as time allows

Chilled Normal Saline Infusion (non-hypothermia, non-traumatic arrest)

- Adult: 1 - 2 L
- Pedi (> 10 years old): 10 - 20 mL/kg

Note: If anticipated transport time > 20 minutes AND there is limited chilled saline available, defer initiation until within 20 minutes of arrival at ED to avoid premature warming after initiation of hypothermia.

Therapeutic hypothermia is only to be initiated AFTER achievement of ROSC and not during the arrest. If the patient re-arrests after initiation of chilled saline, continue it.

Therapeutic hypothermia is contraindicated in the following patients: hypothermia, trauma, known bleeding disorders, liver failure, or responsive patients.

First Responder Paramedic (FRP)

Monitor non-trauma ROSC for 5 minutes prior to moving to ambulance

12-lead ECG

Norepinephrine Infusion IV/IO

- Adult: 5 mcg/min, titrate to maintain SBP > 100 mmHg
  - Note: 2 mg in 100 mL NS yields 20 mcg/mL, begin at 15 gtts/min with a micro set
- Pedi: Not routinely indicated

Midazolam IV/IO (for iatrogenic hypothermia-induced shivering)

- Adult: Up to 5mg, repeat q 10 min PRN
- Pedi: 0.1 - 0.2 mg/kg, max single dose of 2 mg, repeat q 10 min PRN

3151 ROSC Ventilation Rates

EMT

Following ROSC in the patient with inadequate minute volume, ventilate at the following rates:

- < 5 days: every 1 - 1.5 seconds (40 - 60/min)
- 5 days to 8 years: every 3 - 5 seconds (12 - 20/min)
- ≥ 8 years: every 6 seconds (10/min)

3160 Newborn Resuscitation

Community First Responder (CFR)

Heart rate < 100 bpm, Persistent Central Cyanosis, Lethargy

- Suction mouth and nose. Power suction devices must not exceed 100 mmHg
- Dry and warm the neonate
- Tactile stimulation
- Manual airway maneuvers
- High flow oxygen

Heart Rate < 60 bpm

- Chest compressions at a compression to ventilation ratio of 3:1 with a chest compression rate of 120/min

Apnea

- Suction mouth and nose
- Employ tactile stimulation
- Employ manual airway maneuvers

Glucose assessment via heel stick

- Oral glucose is not indicated in the newborn
- Normal BGL in newborn is > 40 mg/dL

EMT

Heart rate < 100 bpm, Persistent Central Cyanosis, Lethargy

Assisted ventilations with supplemental oxygen at 40 - 60/min

Apnea

BVM ventilation at 40 - 60/min with oxygen

Advanced EMT (AEMT)

Normal Saline bolus IV/IO

10-20 mL/kg via syringe over 5 - 10 min

Dextrose 10% IV/IO (for BGL < 40 mg/dL)

5 mL/kg

First Responder Paramedic (FRP)

Epinephrine 0.1 mg/mL (1:10,000) IV/IO

0.01 - 0.03 mg/kg q 3 - 5 min

PARAMEDIC

Meconium aspiration rarely needs tracheal suctioning. Tracheal intubation for the purposes of suctioning is indicated only for thick meconium staining in persistently non-vigorous, symptomatic patients AFTER other measures have failed (not needed for thin staining or in patients who respond to other measures).

3200 Dysrhythmias

For purposes of dysrhythmia treatment, “Symptomatic” is defined as presence of symptoms attributable to cardiac dysrhythmia. Symptoms vary among patients, but may be described as fatigue, orthostatic changes, pain, nausea, dizziness, or unsteadiness.

“Stable” and “Unstable” refer to the presumed likelihood that a rhythm will deteriorate. Characteristics of “unstable” dysrhythmias might include loss of consciousness, acuity of symptom onset, speed of symptom worsening, atypical decreased interaction or mentation, or profound hypotension. The goals of treatment are to reverse symptoms by normalizing heart rate and blood pressure.

Asymptomatic dysrhythmias may not require urgent intervention, but should be dynamically and constantly monitored for deterioration or clinical change.

Community First Responder (CFR)

May assist with acquisition of 12-lead ECG as requested

3210 Bradycardia

Most bradycardia patients are not sufficiently symptomatic to require intervention.

3211 Stable Bradycardia

Stable bradycardia may be accompanied by symptoms without hemodynamic compromise or be asymptomatic. If bradycardia is an unusual finding based on patient complaint and history, assess for underlying cause. Potential causes may include electrolyte disturbances, toxicity, MI, or increased vagal tone.

3212 Unstable Bradycardia

- Unstable bradycardia is defined as decreased alertness and profound hypotension
- It is acceptable for paramedics to use atropine as the first line agent for bradycardia
- Atropine is not indicated for bradycardia associated with STEMI
- Consider beta blocker toxicity
- Consider hyperkalemia in dialysis or known renal failure patients with widened QRS complex

Community First Responder (CFR)

Oxygenation for infants with HR < 100 bpm
Start CPR for infants and children with persistent HR < 60 bpm after aggressive positive pressure ventilation

EMT

Ventilation (for Pedi HR < 60 bpm)

First Responder Paramedic (FRP)

Atropine IV/IO

- Adult: 0.5 mg, repeat q 3 min PRN
  - Note: Maximum total dose 3 mg
- Pedi: 0.02 mg/kg, repeat q 3 min PRN
  - Note: Minimum dose 0.1 mg
    Maximum single dose 0.5 mg
    Maximum total dose 1 mg

Transcutaneous Pacing (TCP)

Employed early at initial rate ≥ 80 bpm and initial energy setting of 80 mA
Consider 4410 Light Procedural Analgesia and Sedation PRN

Epinephrine Infusion (for persistent bradycardia and hypotension)

- Adult: Not indicated
- Pedi: (≥ 10 kg): 5 mcg/min, titrated to age appropriate SBP
  - Note: 2 mg Epinephrine 1 mg/mL (1:1000) in 100 mL NS yields 20 mcg/mL. Begin at 15 gtts/min using a micro set
- Pedi: (< 10 kg): Not indicated. See bolus dosing below.

Epinephrine 0.1 mg/mL (1:10,000) bolus IV/IO

- Adult: Not indicated
- Pedi (≥ 10 kg): Not indicated. See infusion above.
- Pedi (< 10 kg): 0.01 mg/kg q 3 - 5 minutes, max total dose 0.5 mg, titrated to age appropriate SBP

3220 Narrow Complex Tachycardia

3221 Atrial Fibrillation/Flutter with RVR (Stable, Symptomatic Patient)

First Responder Paramedic (FRP)

Diltiazem IV/IO for sustained HR ≥ 120 bpm

- Adult: 10 mg over 2 minutes, repeat once after 15 minutes at 20 mg PRN
- Pedi: OLMC

Contraindications

- Wide QRS tachycardia
- ECG suggests WPW
- IV beta blocker within the past hour
- SBP < 100 mmHg

Calcium Chloride 10% IV/IO for diltiazem-induced hypotension

- Adult: 1 gm in 100 mL NS over 10 min
- Pedi: OLMC

OLMC Amiodarone infusion IV/IO for sustained HR ≥ 120 bpm, if diltiazem is contraindicated

- Adult: 150 mg in 100 mL NS over 10 min
- Pedi: OLMC

3222 Multifocal Atrial Tachycardia (Stable, Symptomatic)

Multifocal Atrial Tachycardia is almost always caused by respiratory conditions such as COPD. Treatments are aimed at the underlying condition and require no specific treatment for the MAT.

3223 Supraventricular Tachycardia (Stable, Symptomatic)

First Responder Paramedic (FRP)

Vagal maneuvers (carotid massage is not authorized)
Adenosine IV/IO (Adult HR ≥ 150 bpm; Child HR ≥ 180 bpm; Infant HR ≥ 220 bpm)

- Adult: 12 mg, repeat once PRN
- Pedi: 0.2 mg/kg, repeat once PRN
- Follow with immediate flush of 10 - 20 mL NS – avoid excess pressure with bolus

Adenosine dose should be decreased by 50% if patient is on Tegretol (carbamazepine) or Persantine (dipyridamole) and increased by 50% if patient is on a methylxanthine drug such as theophylline or aminophylline.

3230 Wide Complex Tachycardia

3231 Ventricular Tachycardia (Stable, Symptomatic, Sustained HR > 120)

First Responder Paramedic (FRP)

Amiodarone infusion IV/IO

- Adult: 150 mg in 100 mL NS over 10 min
- Pedi: 5 mg/kg in 100 mL NS over 20 - 30 min

3232 Torsades de Pointes (Stable, Symptomatic)

First Responder Paramedic (FRP)

Magnesium Sulfate IV/IO Infusion

- Adult: 2 gm in 100 mL NS over 10 min
- Pedi: 50 mg/kg in 100 mL NS over 10 min

3240 Unstable Tachycardia

First Responder Paramedic (FRP)

Consider 4410 Light Procedural Analgesia and Sedation PRN prior to cardioversion, if time allows

Synchronized Cardioversion (for all rhythms except Torsades de Pointes)

- Adult: Phillips MRx: 100 J, repeat at 150 J PRN
  Zoll X-Series: 120 J, then 150 J, then 200 J PRN
- Pedi: 1 J/kg, repeat at 2 J/kg PRN

Defibrillation for Torsades de Pointes

- Adult: Maximum energy settings
- Pedi: 2 J/kg, repeat at 4 J/kg PRN

3300 General Cardiac Conditions

All forms of nitroglycerin are contraindicated in patients who have:

- taken erectile dysfunction medications within the previous 48 hours
- evidence of right ventricular infarction (RVI)
- SBP < 100 mmHg

Obtain early 12-lead ECG prior to nitroglycerin therapy
Obtain serial 12-lead ECGs about every 10 minutes when possible

Community First Responder (CFR)

May assist with acquisition of 12-lead ECG as requested

3310 Acute Coronary Syndrome (ACS)

Community First Responder (CFR)

Aspirin PO

- Adult: 324 mg, 162mg is acceptable with history of upper GI bleeding
- Pedi: OLMC

First Responder Paramedic (FRP)

Early Emergency Physician notification of "STEMI Alert"
STEMI is a diagnostic 12-lead ECG with an appropriate clinical presentation
ECG criteria for STEMI are:

- > 1 mm ST elevation in 2 or more anatomically contiguous leads
- V1 and V2 alone are not used to determine a STEMI
- Absence of imposters:
  - LVH, Ventricular Paced Rhythm, BER, Pericarditis, or LBBB
  - Inferior STEMI may be called in presence of an LBBB
- V4R is REQUIRED for patients with elevation in leads II, III, aVF

Nitroglycerin SL, after 12-lead ECG is obtained

- Adult: 0.4 mg, repeat q 5 min with SBP > 100 mmHg
- Pedi: OLMC

Nitroglycerin Paste 2% Transdermal

- Adult: 1 inch (15 mg) with SBP > 100 mmHg (may be given in conjunction with SL)
- Pedi: OLMC

Normal Saline bolus IV/IO for Right Ventricular Infarction

- Adult: 10 - 20 mL/kg
- Pedi: OLMC

3320 Acute Decompensated Heart Failure

First Responder Paramedic (FRP)

CPAP

Consider 4410 Light Procedural Analgesia and Sedation PRN

Nitroglycerin SL

- Adult: 0.4 mg, repeat q 5 min with SBP > 100 mmHg
- Pedi: OLMC

Nitroglycerin Paste 2% Transdermal (may be given in conjunction with SL)

- Adult: 1 inch (15 mg) with SBP > 100 mmHg
- Pedi: OLMC

3330 Hyperkalemia with Pulses (Symptomatic)

Assess for hyperkalemia in patients with excited delirium, renal failure (most often dialysis patients who have missed dialysis), prolonged crush (> 4 hours), or burn injury (> 1 hour).

ECG manifestations suggestive of hyperkalemia may include widened QRS, peaked T waves, bradycardia, AV block, and sine-wave.

First Responder Paramedic (FRP)

12-lead ECG

Calcium Chloride IV/IO for unstable patients with abnormal ECG

- Adult: 1 gm in 100 mL NS over 10 min
- Pedi: OLMC

Albuterol, nebulized

- Adult: 10 mg
- Pedi: OLMC

3340 ICD Malfunction

First Responder Paramedic (FRP)

12-lead ECG

Magnet Placement (for observed malfunctioning ICD)

- Place magnet directly over implanted internal cardio-defibrillator
- Pacemakers in demand mode may revert to fixed mode pacing
- Tape in place until patient is transferred to definitive care

4000 General and Palliative Care

4100 Psychiatric/Psychological Conditions

4110 Anxiety Management

Patients with acute emotional distress or who are mildly agitated/irritated, but who are not combative, may sometimes require intervention. This protocol should be used when physical restraint is not needed. As a general rule, many patients with anxiety respond to non-pharmacologic interventions, such as coaching, empathy, or time. Additionally, anxiety may be a symptom of an underlying medical or traumatic condition. Due effort must be made to identify these causes. There are several common conditions which may cause an agitated state that may not need medical intervention under this protocol (examples include post-ictal states and hypoglycemia).

Community First Responder (CFR)

Remove from environmental or situational causes
Minimize external stimuli (loud noises, lights, etc.)
Employ calm verbal attempts to diffuse the patient
Maintain a professional demeanor
Treat for underlying causes of anxiety

First Responder Paramedic (FRP)

Midazolam IV/IO/IM/IN for anxiety (for patients with a RASS 1), if less invasive measures are unsuccessful

- Adult: Up to 5 mg, repeat q 10 min PRN until a RASS 0 is reached
- Pedi: 0.1 - 0.2 mg/kg, repeat q 10 min PRN until a RASS 0 is reached

Refer to 9260 RASS for further details.

The target is less anxiety, not decreased mental status.

4120 Resistant Patient Management

This protocol is for the confused/altered patient who is impeding essential patient care or diagnostics, but is not making direct verbal or physical threats to EMS or others.

First Responder Paramedic (FRP)

These patients are resisting instructions due to a lack of understanding/comprehension due to underlying disease states (e.g., psychosis, dementia, substance abuse). They may be acutely psychotic, e.g., hallucinating, responding to external stimuli, etc. Their actions inhibit provider ability to comprehensively assess and provide care. These patients may be altered because of dementia or substances; however, they do not exhibit an apparent intent to harm. This protocol should not be used if this description is, in any way, not applicable. Importantly, it must have been determined that they do not have reasonable decision making capacity.

Haloperidol IV/IM (for patients with RASS 2 - 3), contraindicated with seizure disorders

- Adult: 5 mg, repeat q 10 min PRN to control behavior until a RASS 0 is reached
- Pedi: OLMC
- Note: See 4605 Dystonic Reaction PRN

Midazolam IV/IO/IM/IN (for patients with RASS 2 - 3), if Haldol is contraindicated

- Adult: Up to 5 mg, repeat q 10 min PRN until a RASS 0 is reached
- Pedi: OLMC

Refer to 9260 RASS for further details.

NOTE: Midazolam can accumulate in the elderly and produce prolonged sedation. As a result, we should attempt to avoid its use. Similarly, ketamine is not indicated unless the patient is actively violent and a threat to harming themselves or others. As a result, Haldol will often be the most appropriate agent for geriatric patients.

4130 Violent Patient Management

These patients cannot be reasoned with and

- are out of control, dangerous, and actively attempting to harm themselves or others
- lack decisional capacity, are irrational, and likely unaware of their surroundings/situation
- will not respond positively to any verbal instructions

Young/small children and frail/elderly patients are very rarely truly combative posing a threat to themselves or others. Thus, they will rarely require ketamine.

Physical restraint alone will not adequately mitigate their potential for continued self-harm and poses a danger to health care providers. Chemical restraint should be utilized early to prevent patient or provider harm. Law enforcement participation in the restraint of these patients is strongly encouraged.

If chemical restraint under this section is used, the patient should be fully restrained. Triangular bandages are not to be used for physical restraint. Rather, commercial devices should be used, preferably secured to a backboard and not the stretcher.

Community First Responder (CFR)

Blood glucose assessment
Cooling measures for hyperthermic patients
Oxygen via applicable adjunct
Maintain a professional demeanor
Assess for and treat underlying causes of combativeness
A combative patient will not usually be transported by EMS with handcuffs used as physical restraint. In the rare situations it is necessary to do so, the following requirements will be adhered to:

- the handcuffs will be double locked
- a peace officer will be present during EMS care and transport
- the patient will not lie or recline on handcuffs

A patient restrained by commercial restraint devices will:

- receive continuous comprehensive monitoring of vital signs
- be restrained in supine position with legs and arms extended
- have high-flow oxygen administered via NRB

First Responder Paramedic (FRP)

Ketamine IM (for patients with a RASS 4)

- Adult: 5 mg/kg, repeat q 10 min PRN to control behavior until a RASS 0 is reached
- Pedi: OLMC
- Note: See 4606 Emergence Reaction

Ketamine IV (for maintenance after initial control has been achieved)

- Adult: 1 mg/kg, repeated q 10 min PRN for behavior control until a RASS 0 is reached
- Pedi: OLMC

Refer to 9260 RASS for further details.

4131 Excited/Agitated Delirium Patient

Treatment under multiple SOCs may be necessary.

Assess for hyperkalemia and hyperthermia in patients suffering excited delirium and treat if suspected.

The patient suffering from excited delirium will present with some combination of the following: delirium, anxiety, hallucinations, disorientation, violent and bizarre behavior, hyperthermia, diaphoresis, insensitivity to pain, superhuman strength, incoherent shouting, extreme paranoia, or a state of being fully or partially undressed. Most cases involve stimulant abuse, very commonly cocaine, methamphetamine, PCP, or LSD. Many excited delirium patients have a history of psychiatric illness and health care encounters typically involve law enforcement and a significant struggle.

First Responder Paramedic (FRP)

OLMC Chilled Normal Saline Infusion IV/IO (for suspected hyperthermia associated with excited delirium)

- Adult: 10 - 20 mL/kg
- Pedi: Same as adult

OLMC Midazolam IV/IO (for iatrogenic hypothermia-induced shivering)

- Adult: Up to 5mg, repeat q 10 min PRN
- Pedi: 0.1 - 0.2 mg/kg, repeat q 10 min PRN

OLMC Sodium Bicarbonate infusion IV/IO (for prevention of rhabdomyolysis associated with excited delirium)

- Adult: 1 mEq/kg in 1,000 mL NS wide open
- Pedi (> 2): 1 mEq/kg in 1,000 mL NS wide open
- Pedi (≤ 2): 1 mEq/kg of 4.2% in 100 mL NS wide open

4200 Circulatory Support

Community First Responder (CFR)

Patient positioning

Advanced EMT (AEMT)

Peripheral Vascular Access

Note: CT contrast administration for pulmonary embolism studies will usually require 18 gauge or larger access in the antecubital space.

IO access for immediate need of fluids or medications without existing vascular access

- Adult: 25 - 45 mm needle
- Pedi (3 - 39 kg): 15 mm needle

Normal Saline flush IO for unconscious patients

- Adult: Up to 5 - 10 mL via flushed saline lock/extension tubing
- Pedi: Up to 5 mL via flushed saline lock/extension tubing

Normal Saline bolus IV/IO started if the patient is hypotensive

- Adult: Up to 20 mL/kg, titrate to maintain SBP $\geq$ 90 mmHg for trauma, SBP $\geq$ 100 mmHg if medical
- Pedi: Same as adult, titrate to maintain age appropriate SBP

First Responder Paramedic (FRP)

PICC and Central Venous Access Devices

Central venous access devices may be used only for medication administration and fluid resuscitation in the patient *in extremis*. Saline lock placement, IV line placement, or blood draw via PICC or central venous access device is not authorized for palliative treatments or non-life-threatening conditions.

Lidocaine 2% via IO (local anesthetic for patients with GCS > 8)

- Adult: 40 mg
- Pedi: 0.5 mg/kg
- Prime lock with lidocaine, then administer slowly over 1-2 minutes, 60-90 seconds prior to IO bolus or flush.

Norepinephrine infusion IV/IO (for persistent hypotension in atraumatic patients)

- Adult: 5 mcg/min, titrate to maintain SBP $\geq$ 100 mmHg
  - Note: 2 mg in 100 mL NS yields 20 mcg/mL, begin at 15 gtts/min with a micro set
- Pedi: Not indicated

Epinephrine 10 mcg/mL (1:100,000/"push-dose") IV/IO (for temporary BP support for non-traumatic hypotension during intubation or while establishing norepinephrine infusion)

- Adult: 10 - 20 mcg (1 - 2 mL) q 3 - 5 min PRN
  - Note: Prepare by mixing 1 mL Epinephrine 0.1mg/mL (1:10,000) in 9 mL NS. 1 mL of this mixture yields 10 mcg of Epinephrine
- Pedi: Not indicated

4300 Nausea/Emesis

First Responder Paramedic (FRP)

Ondansetron IV/IO/IM/ODT

- Adult: 4 - 8 mg, repeat once PRN
- Pedi: 0.1 mg/kg, max of 4 mg IV/IO/IM OR 4 mg ODT, repeat once PRN

Metoclopramide IV infusion

- Adult: 20 mg in 100 mL NS wide open
- Pedi: OLMC
- Note: See 4605 Dystonic Reaction

4310 Acute Diarrhea

Tactical Paramedic

Frequent, loose, non-bloody bowel movements in an afebrile patient that are incapacitating or otherwise limiting functional capabilities

Loperamide PO

- Adult: 4 mg, repeat with 2 mg after each loose bowel movement. No more than 16 mg/day.

4320 Vertigo

Vertigo is a sensation of spinning (either the room is spinning or the patient is spinning) that is brought on or made worse with movement of the head. It can be either central, e.g. cerebellar stroke, or peripheral, e.g. from the inner ear. There should not be any weakness with peripheral vertigo. In either case, improvement with treatment does not change the likelihood of one diagnosis over the other. Our goal is symptomatic improvement enroute to the ED for a more specific diagnosis.

First Responder Paramedic (FRP)

Diphenhydramine IV/IM/PO

- Adult: 25 - 50 mg
- Pedi: OLMC 1 mg/kg

4400 Pain Control

Pain is a subjective experience. Efforts to use objective criteria (heart rate, grimace, gestalt) are notoriously unreliable. There is ample evidence in literature that health care providers systematically underestimate and undertreat pain. We do not need to have a diagnosis before treating pain, e.g., abdominal pain. We should always consider the possibility of pain in our patients and address it. This does not mean all patients must be given narcotics; we have multiple options for analgesia. Nor does treating pain mean that pain scores need to be reduced to zero.

Community First Responder (CFR)

Oxygen
Cryotherapy
Psychological measures such as distraction and guided imagery
Gentle motion restriction and packaging (consider deferral until pharmaceutical pain management)

EMT

Acetaminophen PO (for mild to moderate pain)

- Adult: 500 - 1,000 mg
- Pedi: 15 mg/kg (~0.5 mL/kg), up to 1 gm

First Responder Paramedic (FRP)

Fentanyl IV/IO/IM/IN (for moderate to severe pain)

- Adult: 1-2 mcg/kg q 10 min PRN
- Pedi: 1-2 mcg/kg q 10 min PRN, max single dose 50 mcg

Consider 4410 Light Procedural Analgesia and Sedation PRN after 2 doses of Fentanyl without relief OR as an option for initial agent in traumatic musculoskeletal pain.

4410 Light Procedural Analgesia and Sedation (LPAS)

Ketamine

- Adult: 10 mg IV, repeat q 5 min PRN
  20 mg IM, repeat q 5 min PRN

  - NOTE for **IV** administration: To draw up the correct volume – take a 10 mL NS flush, discharge 1 mL saline, and draw up 1 mL ketamine. You now have a concentration of 5 mg/1 mL. Administer 2 mL PRN.

  - NOTE for **IM** administration: To administer the correct volume – draw up 0.4 mL and administer PRN.

- Pedi: 0.2 mg/kg IV, repeat at 0.1 mg/kg IV q 5 min PRN
  Max single dose 10 mg
  0.4 mg/kg IM, repeat at 0.2 mg/kg IM q 5 min PRN
  Max single dose 20 mg

4500 Seizures and Convulsions

Community First Responder (CFR)

Obtain BGL and temperature

EMT

See 4700 Fever

Advanced EMT (AEMT)

Assist patient with magnet stimulation device (Vagal Stimulator) q 3 - 5 min, up to 3 times

First Responder Paramedic (FRP)

Midazolam is indicated immediately in the actively convulsing patient.
There should be **no** delay of benzodiazepine therapy in order to obtain IV/IO access.

Midazolam IM/IN for ongoing seizure

- Adult: 10 mg, repeat q 10 min PRN
- Pedi: 0.2 mg/kg, repeat q 10 min PRN

Midazolam IV/IO for ongoing seizure once established

- Adult: 5 mg, repeat q 10 min PRN
- Pedi: 0.2 mg/kg, repeat q 10 min PRN

4600 Toxicology Emergencies/Adverse Reactions

Poison Center (PC) should be consulted for advice concerning toxicology; however, PC recommendations are NOT medical orders. If recommendations communicated by PC are not within this Scope of Care, the interventions require formal OLMC consultation/authorization.

800-816-1100 (Healthcare Provider)
800-222-1222 (General Public, Alternate)

If consulting PC, be prepared to provide the following information:

- Patient name, age, and approximate weight
- Substance name and quantity
- Exposure route and time
- Name of the facility to which patient will be transported

4601 Symptomatic Beta Blocker Overdose

First Responder Paramedic (FRP)

Epinephrine IV/IO

- Adult: Epinephrine 10 mcg/mL (1:100,000/"push-dose")
  - 10 - 20 mcg (1 - 2 mL) q 3 - 5 min PRN
- Pedi (≥ 10 kg): Epinephrine infusion
  - 5 mcg/min titrated to age appropriate SBP
  - Note: 2 mg Epinephrine 1 mg/mL (1:1,000) in 100 mL NS yields 20 mcg/mL. Begin at 15 gtts/min using a micro set
- Pedi (< 10 kg): Epinephrine 0.1 mg/mL (1:10,000) bolus IV/IO
  - 0.01 mg/kg q 3 - 5 minutes PRN titrated to age appropriate SBP, max total dose 0.5 mg

4602 Symptomatic Calcium Channel Blocker Overdose

First Responder Paramedic (FRP)

Calcium Chloride IV/IO

- Adult: 1 gm in 100 mL NS over 10 min
- Pedi: 20 mg/kg in 100 mL NS over 10 min

4603 Carbon Monoxide

CO levels > 10 mmHg in a non-smoker with acute exposure AND signs/symptoms is likely a toxic exposure.
CO levels between 10 - 15 mmHg in a long-time smoker are not unusual at baseline.

Community First Responder (CFR)

Oxygen via applicable adjunct at the highest flow possible
If possible, obtain the following information for communication to receiving facility:

- Ambient CO concentration
- Duration of patient exposure

Determine carboxyhemoglobin levels if monitoring equipment is available for ALL firefighters and patients exposed to combustion products with any symptoms OR SpO_2 < 95%. Transport is indicated for CO > 10 mmHg in a non-smoker or > 15 mmHg in a smoker.

First Responder Paramedic (FRP)

CPAP

Consider 4410 Light Procedural Analgesia and Sedation PRN

4604 Cyanide

Cyanide may be suspected in occupational or smoke exposures (firefighting), industrial accidents, natural catastrophes, suicide and murder attempts, chemical warfare, and terrorism whenever there are multiple casualties of an unclear etiology.

Non-specific and early signs of cyanide exposure (inhalation, ingestion, or absorption) include the following warning signs and symptoms: anxiety, vertigo, weakness, headache, tachypnea, nausea, dyspnea, vomiting, and tachycardia.

The rapidity of onset is related to the severity of exposure (inhalation or ingestion) and may have dramatic, immediate effects. Patients *in extremis* will demonstrate a combination of the following: early hypertension with subsequent hypotension, sudden cardiovascular collapse, seizure, and coma.

Community First Responder (CFR)

Safely and rapidly separate the patient from the source of exposure
High flow oxygen

Advanced EMT (AEMT)

Establish 2 IV/IOs so that a primary line is used for hydroxocobalamin infusion

First Responder Paramedic (FRP)

CPAP

Consider 4410 Light Procedural Analgesia and Sedation PRN

Hydroxocobalamin IV/IO for hypotension, seizure, or altered mental status

- Adult: 5 gm in 200 mL NS over 15 min
- Pedi: 70 mg/kg in 200 mL NS over 10 - 15 min

4605 Dystonic Reaction

Dystonic reactions are abnormal, involuntary, and uncomfortable muscle movements that are sometimes seen with the use of some medications, particularly anti-psychotics.

First Responder Paramedic (FRP)

Diphenhydramine IV/IO/IM

- Adult: Up to 50 mg
- Pedi: 1 mg/kg, max dose 25 mg

4606 Emergence Reaction

Emergence reactions are a phenomenon specific to dissociative anesthetics like ketamine. They are seen in up to 12% of patients, less frequently in young children and the elderly. They are described as hallucinations, "awake dreaming", periods of confusion, and irrational behavior. They are not always unpleasant. When present, they occur as the therapeutic effects of ketamine are wearing off and are typically short-lived. Patients with these reactions can often be talked through them with calm reassurance. When significantly disturbing, benzodiazepines are very effective at treating them.

First Responder Paramedic (FRP)

Midazolam IV/IN/IM

- Adult: Up to 5 mg, repeat q 10 min PRN
- Pedi: 0.1 - 0.2 mg/kg, repeat q 10 min PRN

4607 Opiate

EMT

Naloxone IM/IN

- Adult: up to 2 mg, repeat q 2 min PRN. Start with low dose and titrate to effective ventilations.
- Pedi: up to 0.1 mg/kg, repeat q 2 min PRN. Titrate to effective ventilations.

Advanced EMT (AEMT)

Naloxone IV/IO/IM/IN.

- Adult: up to 2 mg, repeat q 2 min PRN. Start with low dose and titrate to effective ventilations.
- Pedi: up to 0.1 mg/kg, repeat q 2 min PRN. Titrate to effective ventilations.

4608 Organophosphate

First Responder Paramedic (FRP)

Route and concentration of atropine is contingent upon drug availability

Mark I Auto-Injector Kit, if available (Adult only)

Atropine IV/IM (for organophosphate toxicity unresponsive to the Mark I)

- Adult: 2 - 6 mg, repeat q 5 min PRN
- Pedi: 0.05 mg/kg, repeat q 5 min PRN

4609 Symptomatic Stimulant Toxicity

First Responder Paramedic (FRP)

Midazolam IV/IO/IM/IN

- Adult: Up to 5 mg, repeat q 10 min PRN until a RASS 0 is reached
- Pedi: 0.1 - 0.2 mg/kg, repeat q 10 min PRN until a RASS 0 is reached

Refer to 9260 RASS for further details.

4610 Alcohol Withdrawal and Delirium Tremens

First Responder Paramedic (FRP)

Midazolam IV/IO/IM/IN

- Adult: Up to 5 mg, repeat q 10 min PRN until a RASS 0 is reached
- Pedi: 0.1 - 0.2 mg/kg, repeat q 10 min PRN until a RASS 0 is reached

Refer to 9260 RASS for further details.

4611 Symptomatic Tricyclic Antidepressant Toxicity

First Responder Paramedic (FRP)

Sodium Bicarbonate infusion

- Adult: 1 mEq/kg in 1,000 mL NS wide open
- Pedi (> 2): 1 mEq/kg in 1,000 mL NS wide open
- Pedi (≤ 2): 1 mEq/kg of 4.2% in 100 mL NS wide open

4700 Fever

EMT

Acetaminophen PO (for temperature > 100.4° F)

- Adult: 500 - 1000 mg
- Pedi: 15 mg/kg (~0.5 mL/kg), up to 1 gm

5000 Medical Conditions

5010 Abdominal Pain

It is appropriate to treat undiagnosed abdominal pain with narcotics as otherwise indicated. Pain should be treated in accordance with 4400 Pain Control.

Because all abdominal pain has the potential to be from a surgical condition which may require anesthesia, all patients with abdominal pain shall be kept NPO throughout EMS care.

5020 Acute Adrenal Insufficiency (Addisonian Crisis)

Consider in any patient with known Addison's Disease/adrenal insufficiency or who is on chronic (more than a month) steroids with abrupt cessation who has the following symptoms:

- Abdominal pain
- Nausea/vomiting
- Hypotension
- Altered mental status
- Persistent hypoglycemia after treatment

Treatment is also appropriate if the patient has a physician's order for steroids (usually SoluCortef), but is unable to self-administer.

First Responder Paramedic (FRP)

Methylprednisolone IV/IO

- Adult: 125 mg over 1 min
- Pedi: 2 mg/kg over 1 min, max dose 60 mg

SoluCortef IV/IO/IM (ordered by the patient's personal physician)

- Adult: usual dose is 100 mg OR the specified dose prescribed by the endocrinologist
- Pedi: specified dose prescribed by the endocrinologist

5100 Allergic Reaction/Anaphylaxis

For all allergic reaction/anaphylaxis patients, continuously assess capnography (if available), pulse oximetry, and blood pressure throughout patient care.

5110 Allergic Reaction

An allergic reaction is defined as an exposure to an allergen accompanied by symptoms from the respiratory, cardiovascular, gastrointestinal, or integumentary systems.

Community First Responder (CFR)

For localized skin irritation, apply a cold pack

EMT

Albuterol, nebulized for respiratory involvement

- Adult: 7.5 mg, repeat PRN titrated to symptom improvement
- Pedi: Same as adult

Ipratropium Bromide for respiratory involvement

- Adult: 0.5 mg, repeat PRN (may be combined with Albuterol)
- Pedi: Same as adult, max dose 1 mg

Diphenhydramine PO

- Adult: 50 mg
- Pedi: 1 mg/kg

First Responder Paramedic (FRP)

Diphenhydramine IV/IO/IM

- Adult: 25 - 50 mg
- Pedi: 1 mg/kg

Methylprednisolone IV/IO

- Adult: 125 mg over one minute
- Pedi: 2 mg/kg over one minute, max dose 60 mg

5120 Anaphylaxis

Treatments for anaphylaxis include treatments for allergic reaction.
An anaphylactic reaction is defined by one of the following three conditions:

- Exposure to suspected allergen AND hypotension
- Exposure to suspected allergen AND symptoms from TWO or more of the below body systems:
  - Respiratory
  - Cardiovascular
  - Gastrointestinal
  - Integumentary
- Allergic reaction that has failed to respond to treatment or has worsened

Community First Responder (CFR)

EpiPen

- Adult (> 30 kg): Adult EpiPen, assist patient with self-administration
- Pedi (> 30 kg): Same as adult
- Pedi (< 30 kg): EpiPen Jr, assist patient with self-administration

EMT

Epinephrine 1 mg/1mL (1:1,000) IM

- Adult (>30 kg): 0.3 mg, q 5 min
- Pedi (> 30 kg): Same as adult
- Pedi (< 30 kg): 0.15 mg, q 5 min

Advanced EMT (AEMT)

IV/IO access

Normal Saline infusion IV/IO

- Adult: 20 mL/kg, titrated to SBP ≥ 100 mmHg
- Pedi: 20 mL/kg, titrated to age appropriate SBP

First Responder Paramedic (FRP)

Epinephrine 1 mg/1mL (1:1,000), nebulized (for laryngeal edema with stridor)

- Adult: 2 mg added to 2 mL NS (4 mL total)
- Pedi: Same as adult

Epinephrine infusion IV/IO (for persistent hypotension following IM Epinephrine)

- Adult: 5 mcg/min titrated to SBP ≥ 100 mmHg
  - Note: 2 mg Epinephrine 1 mg/mL (1:1000) in 100mL NS yields 20 mcg/mL. Begin infusion at 15 gtts/min using a micro set.
- Pedi (≥ 10 kg): Same as adult titrated to age appropriate SBP
- Pedi (< 10 kg): Not indicated. See bolus below.

Epinephrine 0.1 mg/1 mL (1:10,000) IV/IO

- Adult: Not indicated. See infusion above.
- Pedi (≥ 10 kg): Not indicated. See infusion above.
- Pedi (< 10 kg): 0.01 mg/kg q 3 - 5 minutes PRN titrated to age appropriate SBP, max total dose 0.5 mg

5200 Atraumatic Headaches

Narcotics are very rarely indicated or helpful for migraines and, in fact, can make chronic headaches worse.

Community First Responder (CFR)

Decrease noxious stimuli
Provide relaxation techniques, distractions, and guided imagery
Administer high flow oxygen, regardless of SpO_2
Apply cold packs to the forehead and the base of the skull

EMT

Acetaminophen PO

- Adult: 500 - 1000 mg
- Pedi: 15 mg/kg (~0.5 mL/kg), max dose 1 gm

Advanced EMT (AEMT)

Normal Saline Infusion IV/IO

- Adult: 10 - 20 mL/kg
- Pedi: Same as adult

First Responder Paramedic (FRP)

Metoclopramide IV infusion

- Adult: 20 mg in 100 mL NS wide open
- Pedi: OLMC

Diphenhydramine IV to be given in conjunction with metoclopramide

- Adult: 25 - 50 mg
- Pedi: OLMC

OLMC Fentanyl IV/IM/IN

- Adult: 0.5 - 1 mcg/kg
- Pedi: OLMC

5300 Obstetrical Emergencies

Community First Responder (CFR)

5310 Breech Birth

If the newborn's head doesn't deliver, push and maintain the vaginal wall off the newborn's face
Position mother in 9240 McRoberts Position

5320 Pre-Eclampsia/Eclampsia

Pre-eclampsia is a state of pregnancy induced hypertension (PIH) and associated proteinuria and may continue post-partum for a period of six weeks to three months. Patients may present with focal weakness, paresthesia, and/or visual disturbances.

Eclampsia is pre-eclampsia PIH with seizures.

First Responder Paramedic (FRP)

Immediately treat active seizures with benzodiazepines under 4500 Seizures and Convulsions concurrently with:

Magnesium Sulfate infusion IV/IO for eclampsia

- Adult: 4 gm in 100 mL NS over 4 min

5330 Normal Vaginal Delivery

Apply counter to pressure as the infant emerges
If membranes are intact, gently tear them open
Keep the newborn warm, dry, and at vaginal level until the cord is severed
Allow the infant to nurse
Obtain an APGAR score at 1 min and 5 min after delivery
It is appropriate to treat pain associated with delivery according to 4400 Pain Control

5340 Nuchal Cord

Attempt to slip the cord over the newborn's head
Clamp and cut the cord

5350 Post-Partum Hemorrhage

Fundal Massage

5360 Prolapsed Cord/Limb Presentation

Position mother in Trendelenberg and lift the presenting body part off the cord

5400 Stroke

Attempt to transport family member or witness with patient.

Community First Responder (CFR)

Obtain Cincinnati Prehospital Stroke Scale
Establish time patient was last known to be normal
    If symptoms are present on waking, they are assumed to have begun prior to onset of sleep
Assess vital signs including blood glucose and pulse oximetry

EMT

Maintain blood glucose level > 60 mg/dL

Advanced EMT (AEMT)

IV/IO Access

First Responder Paramedic (FRP)

A "Stroke Alert" or "Code Stroke" patient is defined as a patient with all of the following:

- Positive CPHSS (Refer to 9210 Cincinnati Pre-Hospital Stroke Scale
- Consistent history
- Known symptom onset < 4.5 hours

12-lead ECG

Destination determination:
    Patients who qualify under "Stroke Alert/Code Stroke" parameters will be transported to the closest primary stroke center listed in 9100 Hospital Capabilities for rapid evaluation of thrombolytic eligibility.

5500 Blood Glucose Management

For patients with an insulin pump, care is directed at treating hypoglycemia first, then turning off or disconnecting the pump.

5501 Symptomatic Hypoglycemia

Defined by GCS ≤ 14 AND Blood Glucose Level:

- Adult: < 60 mg/dL
- Pedi > 1 month: Same as adult
- Neonate: < 40 mg/dL
  - Note: Oral Glucose is not indicated in neonatal patients

Community First Responder (CFR)

Obtain BGL

Heel stick is preferred in newborns/infants

Administer simple carbohydrate drink or food, as tolerated, initially, followed by complex carbohydrates

EMT

Oral Glucose PO (for symptomatic hypoglycemic patient with patent airway)

- Adult: 15 gm, repeat q 5 min PRN, as tolerated
- Pedi: 7.5 gm, repeat q 5 min PRN, as tolerated

Advanced EMT (AEMT)

Glucagon IM (for symptomatic hypoglycemia, if IV is not readily available)

- Adult: 1 mg, repeat once after 15 min PRN
- Pedi: 0.1 mg/kg, repeat once after 15 min PRN, max 1 mg

Dextrose 10% IV/IO

- Adult: Infuse wide open until symptoms resolve
- Pedi: 5 mL/kg, infuse wide open until symptoms resolve

5502 Hyperglycemia

Advanced EMT (AEMT)

Normal Saline bolus IV/IO for suspected diabetic ketoacidosis or hyperosmolar hyperglycemic state

- Adult: Up to 20 mL/kg regardless of initial blood pressure
- Pedi: Up to 20 mL/kg regardless of initial blood pressure

5600 Sepsis

Systemic Inflammatory Response Syndrome (SIRS) is a group of symptoms that may indicate serious infection. SIRS criteria are met if two or more of the following criteria are present in patients ≥ 18 years old:

- Sustained heart rate > 90 bpm
- Respiratory Rate > 20/min
- Temperature < 96.8° F or > 100.4° F

Advanced EMT (AEMT)

Normal Saline bolus IV/IO

- Adult: 20 mL/kg

First Responder Paramedic (FRP)

Early notification of "Sepsis Alert" is indicated ONLY if the patient:

- Meets SIRS criteria AND
- Has a clinical suspicion of infection AND
- Lowest $EtCO_2$ ≤ 25 mmHg

Sepsis Alert should not be called in the absence of any one of these criteria.

6000 Trauma

6001 Trauma Alert Definition

A "Trauma Alert"/"Code Trauma" patient is one who meets the criteria in 9300 Trauma Transport for transport to the nearest trauma center. These criteria are based on the 2011 CDC Guidelines for the Field Triage of Injured Patients.

6050 Traumatic Cardiac Arrest

For patients in cardiac arrest from traumatic etiology:

- See 1233 Withholding Resuscitative Efforts
- Begin and continue CPR only until able to complete all possible corrective actions, including, but not limited to:
  - Basic airway maneuvers as needed to allow ventilations
  - Bilateral needle thoracostomy
  - Pericardiocentesis

Resuscitation does not need to continue for any specific period of time after completion of the above steps prior to termination. See 1234 Termination of Resuscitation

6100 Burns

For patients with second degree burns or worse affecting > 20% body surface area (BSA), or major burns to the airway, face, hands, feet, or genitalia (without other traumatic mechanism), consider air medical transport.

6110 Chemical Burns

Consult Emergency Resource Guide
Contact Poison Control Center

6120 Electrical/Lightning

When multiple patients are struck simultaneously by lightning or a high voltage source, those in respiratory or cardiac arrest should be given the highest priority of care, even those who appear dead on initial evaluation.

Community First Responder (CFR)

Safely evacuate the patient from the electrical source
Identify potential entry and exit wounds
Remove items that may constrict swelling tissue
Be alert to the possibility of impending cardiac arrest
Maintain patient warmth
Spinal motion restriction in the unconscious patient
Dressings:
< 10% BSA: Wet sterile dressings
> 10% BSA: Dry sterile dressings

Advanced EMT (AEMT)

Normal Saline bolus IV/IO

- Adult: 10 - 20 mL/kg
- Pedi: Same as adult

First Responder Paramedic (FRP)

OLMC Sodium Bicarbonate IV/IO for high to voltage injury or direct lightning strike

- Adult: 1 mEq/kg in 1,000 mL NS wide open
- Pedi (> 2): 1 mEq/kg in 1,000 mL NS wide open
- Pedi (≤ 2): 1 mEq/kg of 4.2% in 100 mL NS wide open

6130 Thermal Burns

Community First Responder (CFR)

Stop the burning process
Be alert for developing airway compromise
Remove and account for all jewelry on a burned extremity
Maintain patient warmth for significant burns
Dressings:
< 10% BSA: Wet sterile dressings
> 10% BSA: Dry sterile dressings

Advanced EMT (AEMT)

Normal Saline bolus IV/IO

- Adult: 10 - 20 mL/kg (for significant burns, regardless of initial blood pressure or perfusion status)
- Pedi: Same as adult

6200 Crush Injury

Advanced EMT (AEMT)

Normal Saline infusion IV/IO

- Adult: 20 mL/kg
- Pedi: Same as adult

First Responder Paramedic (FRP)

ECG Monitoring

OLMC Sodium Bicarbonate IV/IO

- Adult: 1 mEq/kg in 1,000 mL NS wide open
- Pedi (> 2): 1 mEq/kg in 1,000 mL NS wide open
- Pedi (≤ 2): 1 mEq/kg of 4.2% in 100 mL NS wide open

6300 Pelvic Trauma

EMT

Apply age specific device (preferable) or sheets to reduce pelvic volume for hypotensive patients with an unstable pelvis.

6400 Wound Closure

Tactical Paramedic

After thorough and extensive wound irrigation and contaminant removal, the wound shall be cleaned and dried, then one of the following wound closure techniques may be utilized:

Tissue Adhesive – apply topically to well approximated, non-gaping, superficial skin wounds

Skin Staples – for closure of larger, wider wounds or wounds under tension

If there is a suspicion that, even after aggressive irrigation and contaminant removal, the patient is still at risk of infection, contact OLMC for a call-in prescription for antibiotics.

Note: Do not close any wound that cannot be adequately irrigated or that has foreign bodies that cannot be removed.

6500 Miscellaneous Trauma

6510 Bleeding Control

Community First Responder (CFR)

Direct pressure with sterile dressing
Direct pressure with hemostatic dressing, if available
A tourniquet may be applied for life-threatening hemorrhage not controlled by lesser means

- Apply to proximal aspect of affected extremity
- Record time of application on device
- Do not remove or loosen once placed
- May apply multiple tourniquets if needed

EMT

Wound Packing

- Hemostatic dressing used to stop arterial bleeding in junctional areas (areas of the body which are not amenable to placing a tourniquet – the axilla, groin, and buttocks)
- May also be used as a secondary means to control hemorrhaging to the extremities after tourniquet placement
- Not used on the head or the anterior or posterior torso

Advanced EMT (AEMT)

Consider fluid treatment under 4200 Circulatory Support

First Responder Paramedic (FRP)

For patients with traumatic life-threatening, non-compressible bleeding (including unstable pelvic fractures) with ALL of the following:

- Persistent hypotension with SBP < 90 mmHg
- Injury occurred within the last 2 hours
- Age > 18 years
- NOT pregnant

Tranexemic Acid IV/IO

- Adult: 1 gm in 100 mL NS infused over 10 min
- Pedi: Not indicated

Suspected unstable pelvic fractures, see 6300 Pelvic Trauma

Tactical Paramedic

Use of injectable hemostatic agents (XSTAT)

6515 Traumatic Brain Injury

Patients with traumatic brain injuries do not tolerate hypoxia or hypotension well; both increase mortality and should be prevented.

- Maintain SpO_2 > 95%

- Maintain SPB > 90 mmHg (Refer to 4200 Circulatory Control)
- Keep head of bed/stretcher elevated 30°

6520 Epistaxis

Community First Responder (CFR)

Control bleeding with uninterrupted direct pressure to the fleshy areas of the nose for at least 15 minutes.
May use nasal clamp, if available.
Dissuade patient from swallowing blood.

First Responder Paramedic (FRP)

Oxymetazoline IN

- Adult: 1 - 2 activations following voluntary clearing of nares by conscious patient
- Pedi: Not indicated

6530 Skeletal Injury

Community First Responder (CFR)

Splint in the position of least pain
If a pulse is absent distal to the injury, attempt to reposition once, then splint

6540 Snakebite

Community First Responder (CFR)

Minimize patient movement
Remove restrictive jewelry and clothing
Apply a splint to the affected extremity
Position below heart level
Confirm anti-venom is available at receiving facility
Provide early notification to the receiving facility if envenomation is likely
Mark and timestamp the borders of the area of discoloration or swelling
Safely identify the snake, if possible

First Responder Paramedic (FRP)

Consider treatment under either 4110 Anxiety Management or 4400 Pain Control

6550 Spinal Motion Restriction (SMR)

The use of spinal motion restriction is necessary in any patient with the potential for spinal compromise. This potential is based on mechanism of injury AND patient presentation. While it may be indicated in some situations, it is also important to understand that there is very little proven benefit to the use of a long spine board. Additionally, there is potential for harm with the use of the long spine board. While these SOCs encourage applying SMR to only those patients likely to benefit from it, it is important to understand that this will most likely best be accomplished by using only a cervical collar and forgoing the use of the long spine board. This practice is supported by both the National Association of EMS Physicians and the American

College of Surgeons in their 2013 joint position statement (EMS Spinal Precautions and the Use of the Long Backboard. PEC 2013;17:392 to 393).

The diagram in 9310 Spinal Motion Restriction Algorithm outlines the decision support process to determine if SMR is indicated. In general, if SMR is indicated, it should involve only a cervical collar without a long spine board. Our default position for trauma patients is that, if they fail the SMR clearance process in the Spinal Motion Restriction Algorithm, they need a cervical collar only. There are, however, some circumstances where the long spine board may still be indicated.

Community First Responder (CFR)

Apply cervical collar for patients who cannot be cleared under 9310 Spinal Motion Restriction Algorithm

Most patients should be transported with a cervical collar seated or lying on the stretcher without a backboard.

In general, backboards should only be used for patients that require the board for movement or extrication.

“Standing take-downs” of ambulatory patients should not be performed.

6560 Taser Probe Removal

Law enforcement policy may require a patient to be transported if a conducted energy weapon was used. Providers will honor this policy if the patient is in custody of the law enforcement agency.

Community First Responder (CFR)

Remove probes if necessary for patient care
If possible, cut wires and tape probes in place

6570 Tooth Avulsion

Avoid touching roots
Place in container and transport in (in order of preference):

1. Patient saliva
2. Milk
3. Normal saline
4. Water

6580 Potential Need for Amputation

Should field staff, in conjunction with on-scene command staff, feel that the only remaining alternative to a patient’s death in the setting of a prolonged extrication is a field amputation, on-scene command staff should request a response by the University Medical Center – Brackenridge Field Surgical Team. This should be done through Austin/Travis County EMS Dispatch. They have an existing procedure in place to activate this team. They will coordinate transport of the team to the scene with the on-scene command staff.

The purpose of this team’s response is to provide surgical assessment and procedural expertise. They will assess the scene and determine if a surgical procedure is possible or helpful.

6590 Corneal Abrasion

Tactical Paramedic

Tetracaine 0.4% Solution

- Adult: 1 - 2 gtts, repeat q 5 min PRN
- Pedi: Same as adult

9000 Appendices

9100 Hospital Capabilities

Use the following matrix to determine closest appropriate facility.

	GENERAL ED	STEMI/ROSC	TRAUMA CENTER	**PRIMARY** Stroke Center	**COMPREHENSIVE** Stroke Center	PEDIATRIC SPECIALTY CENTER	PEDIATRIC TRAUMA CENTER	NICU
Brackenridge	■	■	■	■	■			
Cedar Park	■	■		■				
Dell Children's Medical Center						■	*	■
Lakeway Regional Medical Center	■	■		■				
Baylor Scott & White McLane Children's Medical Center						■	*	
Baylor Scott & White Round Rock	■	■		■				
Baylor Scott & White Taylor	■							
Baylor Scott & White Temple	■	■	■	■				■
Baylor Scott & White Marble Falls	■							
Baylor Scott & White Llano	■							
St. David's Georgetown	■			■				
St. David's Austin Main	■	■		■	■			■
St. David's Round Rock	■	■	■	■				■
St. David's North Austin	■	■		■				■
St. David's Children's Hospital						■		■
St. David's Heart Hospital	■	■						
St. David's South Austin	■	■		■				■
Seton Medical Center (main)	■	■		■	■			■
Seton Southwest	■							
Seton Northwest	■							
Seton Highland Lakes	■							
Seton Williamson	■	■	■	■				

* Dell and BS&W Children's are appropriate destinations for children under age 15 with significant trauma.

9200 Reference Information

9210 Cincinnati Pre-Hospital Stroke Scale (CPHSS)

The Cincinnati Pre-Hospital Stroke Screen is positive if any of the following are abnormal:

1. Facial Droop (have patient smile and show their teeth)
    a. Normal: Both sides of face move equally
    b. Abnormal: One side of face does not move at all

2. Arm Drift (have patient hold both arms out with locked elbows, palms up and not touching. Maintain this for 10 seconds with eyes closed)
    a. Normal: Both arms move equally or not at all
    b. Abnormal: One arm drifts compared to the other

3. Speech (have the patient say “you can’t teach an old dog new tricks”)
    a. Normal: Patient uses correct words with no slurring.
    b. Abnormal: Slurred, inappropriate or absent words

9220 Delayed Sequence Intubation Checklists

9221 Williamson County EMS DSI Checklist

Roles

☐ Identify the lead medic _____ ☐ Identify the airway operator _____

☐ Identify who will hold the BVM _____

Pre-procedure	Equipment	Troubleshooting
☐ 4-lead ECG in place ☐ SpO_2 in place w/good pleth wave ☐ $EtCO_2$ w/every breath ☐ Accurate blood pressure	☐ Pre-oxygenation assembly: BVM, HME, $EtCO_2$, PEEP, CPAP mask (optional) ☐ Intubation kit ☐ King Vision camera (Test blade & screen before intubation) ☐ Stop watch ☐ Suction ☐ C-collar ☐ iGel readily available	**P**t's ears to sternal notch **R**aise the mandible **O**PA/NPA **T**humbs down masking **E**tCO_2 with every breath **C**heck PEEP/Oxygen **T**ension/Distension Head of bed elevated at least 15° Ramp patient

Sedation and Pre-oxygenation

☐ **Correct Hypotension** with **Push-Dose Epi 1:100,000 1-2 mL q 3-5 minutes for SBP > 100 mmHg**
- To mix: Add 1 mg of Epinephrine 1:10,000 to 9 mL NS

☐ Administer **Ketamine 2mg/kg**
- Pre-intubation $EtCO_2$ _____
- Post-ketamine, pre-intubation respiratory rate _____

☐ Replace $EtCO_2$ cannula with **standard nasal cannula** at **MAX regulator flow**

☐ Perform 2-handed mask seal w/pre-oxygenation assembly & **set PEEP to at least 5 cm/H_2O**
- Adequate breathing & $SpO_2 \geq 94\%$: BVM seal with **NO** ventilations
- Adequate breathing & $SpO_2 < 94\%$: BVM seal with **NO** ventilations **AND** increase PEEP
- Inadequate breathing: BVM seal with ventilations

☐ Maintain **$SpO_2 \geq 94\%$** for **at least 3 minutes**
- Use stopwatch to record pre-oxygenation duration
- **Time $SpO_2 \geq 94\%$ _____**

☐ Administer **Rocuronium 1 mg/kg** & wait at least 90 seconds or until paralysis is achieved
- **Time Rocuronium administered _____**

Intubate Patient

☐ Use continuous suction during intubation attempt

You MUST IMMEDIATELY discontinue intubation attempt if ANY of the following occurs:

☐ SpO_2 drops < 94%

☐ Significant decreased in heart rate

☐ Peri-intubation arrest

☐ If at any point the lead medic calls for a "bail out"

Attempt #1	Attempt #2
Attempt start time: _____	Attempt start time: _____
Attempt complete time: _____	Attempt complete time: _____
Lowest SpO_2 during attempt: _____%	Lowest SpO_2 during attempt: _____%
Lowest HR during attempt: _____bpm	Lowest HR during attempt: _____bpm

Successful	Unsuccessful
☐ Confirm placement w/direct visualization by 2 medics	☐ Resume DSI pre-oxygenation procedure and maintain $SpO_2 \geq 94\%$ for at least 3 minutes
☐ $EtCO_2$	☐ Correct any peri-intubation hypotension w/fluid bolus, push-dose Epi, or Norepinephrine infusion
☐ Lung and epigastric sounds	☐ Switch airway operator to a different medic for the second and last attempt
☐ Secure ET tube	☐ If 2nd attempt is unsuccessful, place iGel or ventilate until breathing returns
☐ Place c-collar/restrict head & neck movement	ONCE SUCCESSFUL
☐ Reassess tube placement	
☐ Deploy ventilator, if possible, & attempt to match pre-intubation respiratory rate	

Post-Intubation Sedation and Analgesia

☐ **Ketamine 2 mg/kg *slow*** IV/IO

- After securing the tube
- At least every 30 minutes or more frequently PRN
- Document a RASS score _____ (Goal = RASS -5)
- Consider Ketamine infusion for transports > 20 minutes
  - 1 mg/min, titrated up to effect (200 mg/100 mL NS at 30 gtts/min w/60 gtt/mL set)

☐ Reassess tube placement frequently and after moving the patient

9222 Marble Falls Area EMS DSI Checklist

Incident Number: _____ DSI Check Sheet Check all boxes & fill all blanks

Writer _____ Airway Operator _____ Medic Holding BVM Mask _____
(Watches SpO2 and reads/fills out check sheet)

Patient's Weight in Kgs _____

Preparation:

☐ ECG ☐ BP (every 2 minutes) ☐ SpO2 ☐ EtCO2 ☐ NC/NRB/CPAP (Circle One) ☐ IV

☐ Correct Hypotension ☐ Patient on stretcher with head at 15 degrees, ears level with sternum

☐ King Vision Handle ☐ King Vision Blade ☐ Tube Tamer/C Collar ☐ OPA/NPA

☐ ET Tube ☐ EtCO2 Detector (filterline) ☐ BVM/filter/EtCO2/PEEP ☐ Suction

☐ 10cc Syringe ☐ Stethoscope ☐ I Gel ☐ Bougie

☐ Ketamine ☐ Rocuronium

Sedation & Oxygenation Procedure:

☐ Ketamine 2.0 mg/kg Slow IV/IO *Ketamine Dose:* _____ *Time:* _____

☐ Replace Smartcap with nasal cannula, increase flow to MAX

☐ Nasal Cannula and BVM with two handed seal and PEEP at 5cm *Pre-intubation Resp. Rate:* _____

☐ Squeeze bag only if patient is breathing inadequately *Pre-intubation EtCO2:* _____

☐ *IF SpO2 drops, or doesn't increase to 94%, Increase PEEP*

☐ *WAIT 3 MINUTES, keeping SpO2 at 94% or greater!*

STOP and/or Do Not Progress if SpO2 is lower than 94%, significant bradycardia, cardiac arrest or Lead Medic Requests STOP

Time that SpO2 reached 94% or greater: _____

☐ Rocuronium 1.0 mg/kg Slow IV/IO (wait 90 seconds / paralysis) *Rocuronium Dose:* _____ *Time:* _____

Intubation:

Suction before and during intubation attempt

1st Attempt ET Size: _____ **Time** _____ **to** _____ **Lowest SpO2 and HR** _____/_____

2nd Attempt ET Size: _____ **Time** _____ **to** _____ **Lowest SpO2 and HR** _____/_____

I gel Size: _____ **Time** _____ **to** _____ **Lowest SpO2 and HR** _____/_____

☐ 2 Medics Visualize

☐ Epigastric/Lung Sounds

☐ Secure Tube

☐ C Collar

☐ Reassess Placement, also after any movement

☐ Ventilator, consider matching initial respiratory rates

If first attempt is unsuccessful:

1. *Restart 3 minute oxygenation while troubleshooting*
2. *Switch airway operators, if one is available*
3. *Ensure BP and SpO2 are adequate, before 2nd attempt*

Measurement at Teeth: _____

Post intubation:

Place Gastric Tube **RASS Score** **(goal is 5)**

Ketamine 2.0mg/kg slow IV/IO *at least* every 30 minutes Ketamine Dose Time:

9230 Pediatric Transport Guidelines

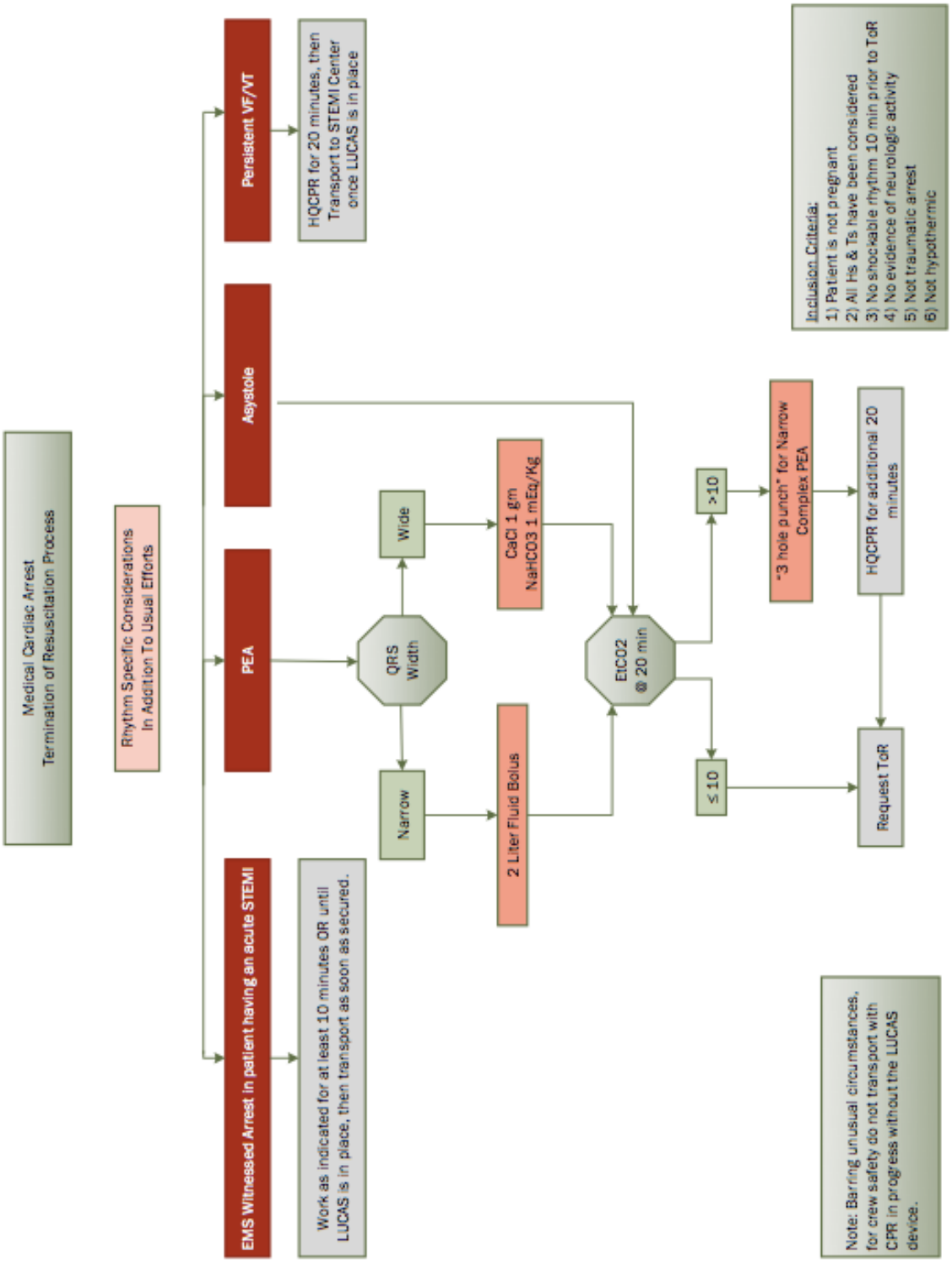
Pediatric patients may be transported to either full service emergency departments or a pediatric specialty center listed in Hospital Capabilities (Refer to 9100 Hospital Capabilities).

Patients should be transported to the nearest full service emergency department unless one or more of the following criteria exist:

- Cardiac arrest with ROSC
- Respiratory failure (any patient requiring the use of an airway adjunct)
- Seizures requiring the use of benzodiazepines
- ALTE (Apparent Life Threatening Event)
- Significant trauma (e.g., meeting Trauma Alert/Code Trauma criteria)
- Altered mental status
- Technology dependence (e.g., on a vent at home)
- Prior cardiac surgery
- Cardiac dysrhythmias (e.g., SVT, AF, VT)
- Infant ($\leq$ 3 months old) fever
- Parental request

9240 McRoberts Position

9250 Termination of Resuscitation



9260 Richmond Agitation-Sedation Scale (RASS)

Score	Term	Description	
+4	Combative	Overtly combative, violent, immediate danger to staff	
+3	Very agitated	Pulls or removes tube(s) or catheter(s); aggressive	
+2	Agitated	Frequent, non-purposeful movement; fights ventilator	
+1	Restless	Anxious, but movements are not aggressive or vigorous	
0	Alert and calm		
-1	Drowsy	Not fully alert, but has sustained awakening (eye opening/eye contact to *voice* for ≥ 10 seconds	Verbal Stimulation
-2	Light sedation	Briefly awakens with eye contact to *voice* (< 10 seconds)	
-3	Moderate sedation	Movement or eye opening to *voice*, but no eye contact	
-4	Deep sedation	No response to voice, but movement or eye opening to *physical* stimulation	Physical Stimulation
-5	Unrousable	No response to *voice or physical* stimulation	

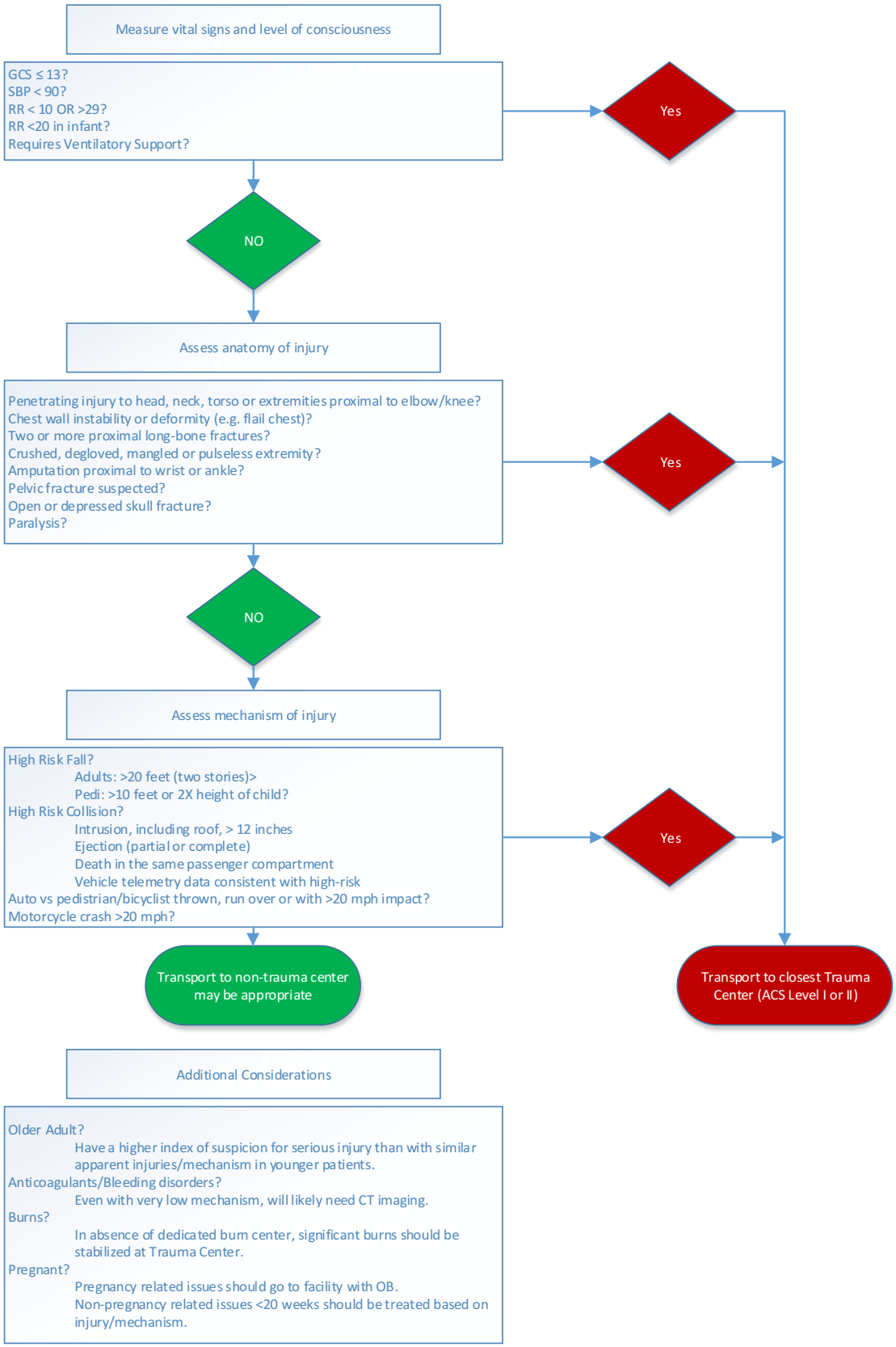
Procedure for RASS Assessment	Score
1. Observe patient	
a. Patient is alert, restless, or agitated	0 - +4
2. If not alert, state pt's name & *say* to open eyes & look at speaker	
a. Pt awakens w/sustained eye opening & eye contact	-1
b. Pt awakens w/eye opening & contact, but not sustained	-2
c. Pt has any mvmt in response to voice, but no eye contact	-3
3. If no response to verbal stimulation, physically stimulate pt by shaking shoulder and/or rubbing sternum	
a. Pt has any movement to physical stimulation	-4
b. Pt has no response to any stimulation	-5

Withhold further analgesia or sedation for non-intubated patients with a RASS score < 1 to avoid oversedation.

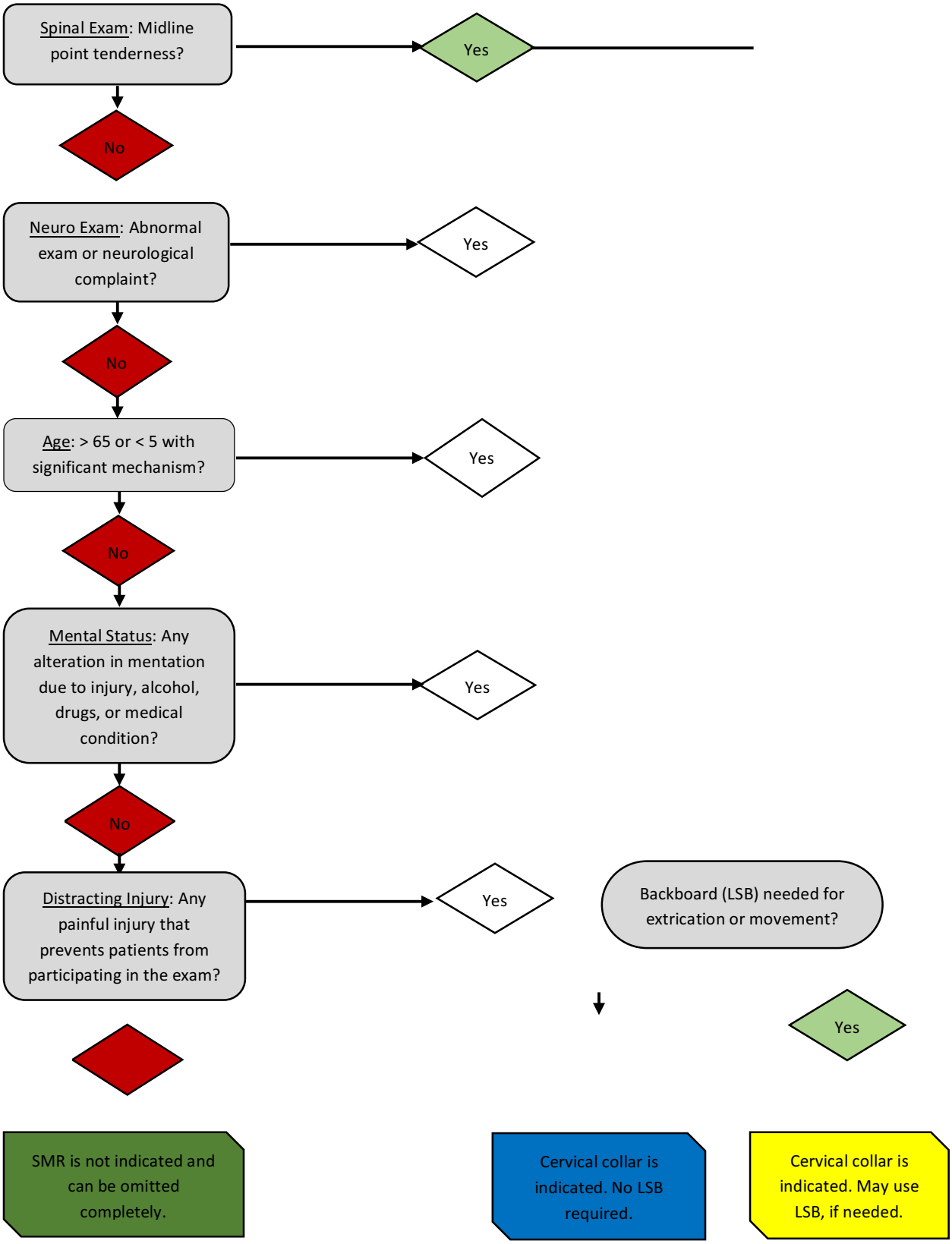
Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation- Sedation Scale: validity and reliability in adult intensive care patients. Am J Respir Crit Care Med 2002; 166:1338-1344.

Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S et al. Monitoring sedation status over time in ICU patients: the reliability and validity of the Richmond Agitation Sedation Scale (RASS). JAMA 2003; 289:2983-2991.

9300 Trauma Transport



9310 Spinal Motion Restriction Algorithm

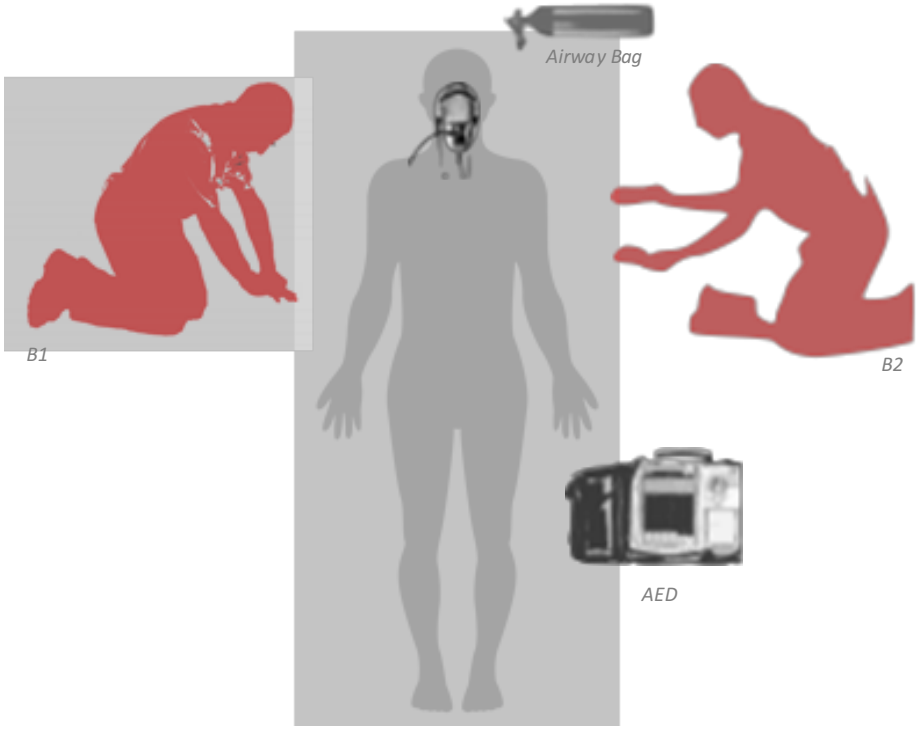


9400 Pit Crew Configurations

9401 Care Priorities

1. Cardiac arrests are complex orchestrations. By following the below configurations, time critical interventions can be performed in the most efficient way possible.
2. Keep the following priorities in mind:
    a. Do NOT lose focus on performing high quality manual CPR upon arrival of the Lucas Device
    b. Use the feedback from the CPR feedback device to optimize compressions
    c. Remember passive oxygenation is performed ONLY in two situations:
        i. Limited providers to perform interventions
        ii. The arrest is in an adult and of presumed cardiac etiology
    d. Assure $EtCO_2$ is in place and functioning
    e. Ensure that the arrival and placement of the Lucas device does not distract from other priorities
    f. Endotracheal intubation should be performed after other tasks have been achieved
    g. Compressions should NEVER be interrupted for intubation

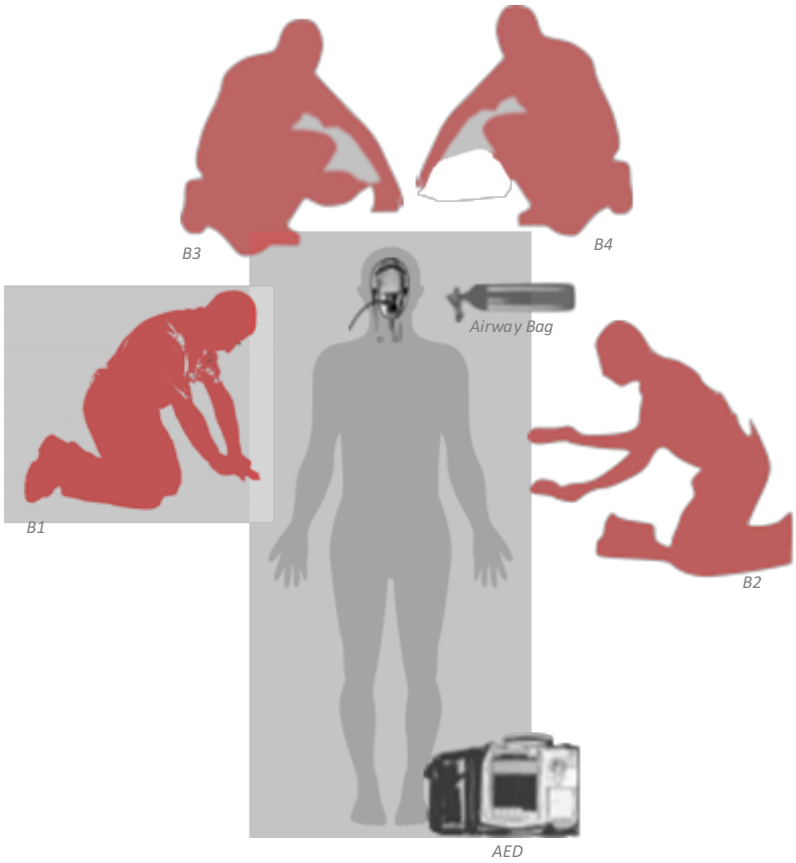
9410 Two BLS Providers



Intervention Sequence

1. Crew with two BLS providers arrives with no additional help
2. B1 (leader) assumes position at patient's right side
    a. Places airway bag at patient's head
    b. Checks responsiveness, initiates compressions:
        i. Delivers 100 compressions:
            1. 100 compressions per min
            2. Push hard, push fast, push deep
            3. Allow full chest recoil between compressions
            4. Assure proper vertical alignment directly over chest
3. B2 (partner) assumes position at patient's left side
    a. Places AED at patient's left foot
    b. Places MFPs to patient's chest
    c. Applies CPR feedback device to chest, if available, and assures proper function
    d. Applies OPA and NRB at maximal flow rate
4. B2 (partner) assumes compressions immediately following B1's 100th compression without any intervening actions (no pulse check)
5. B1 (leader) completes any tasks not yet finalized
    a. Reminds B2 to use CPR feedback instructions, if available, to optimize compression quality
6. B2 (partner) activates AED according to manufacturer's documentation and follows instructions
7. B1 (leader) resumes compressions as instructed by AED
    a. Delivers 100 compressions
8. B2 (partner) assumes compressions immediately following B1's 100th compression without any intervening actions (no pulse check) and continues until prompted to stop by AED
9. Repeat steps 6 - 8 in roughly 2 minute cycles until additional help arrives
10. Integrate additional help into process as noted in configurations below

9420 Three to Four BLS Providers

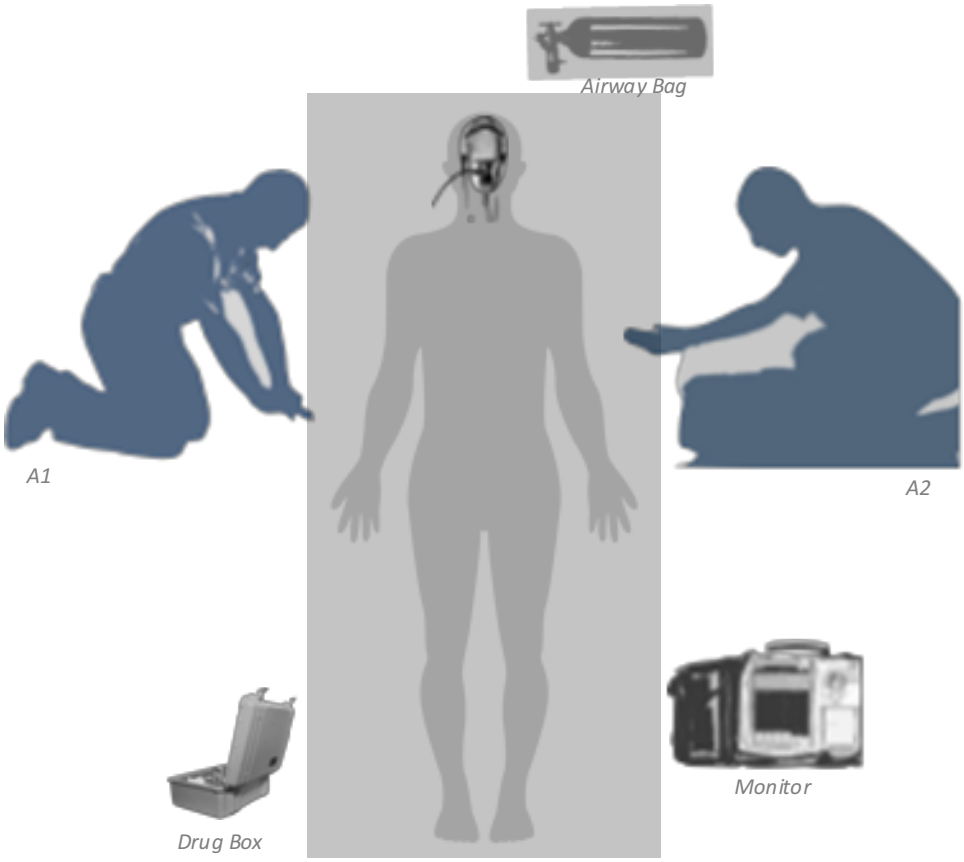


Intervention Sequence

1. B1 (leader) assumes position at patient's right side
    a. Places airway bag at patient's head
    b. Checks responsiveness, initiates compressions:
        i. Delivers 100 compressions:
            1. 100 compressions per min
            2. Push hard, push fast, push deep
            3. Allow full chest recoil between compressions
            4. Assure proper vertical alignment directly over chest
2. B2 (partner) assumes position at patient's left side
    a. Places AED at patient's left foot
    b. Places MFPs to patient's chest
    c. Applies CPR feedback device to chest, if available, and assures proper function
3. B3 assumes position at patient's head on right side
    a. Applies OPA and assembles BVM attached to oxygen at maximal flow
        i. Exception: arrest is from presumed cardiac etiology in which case use NRB at maximal flow for first 6 minutes, then begin positive pressure ventilation with BVM
    b. Begins asynchronous ventilations with one ventilation every 6 seconds (10 bpm)
        i. Squeeze bag slowly to avoid over to ventilation
        ii. Use "Smart BVM", if available
        iii. Use portable suction as needed
4. B4 assumes position at patient's head on left side, if personnel is available

    a. Assists B3 in assembling equipment
    b. Forms and maintains seal using 2-handed, thumbs-down seal strategy for 2-person ventilation
5. B2 (partner) assumes compressions immediately following B1's 100th compression without any intervening actions (no pulse check)
6. B1 (lead) completes any tasks not yet finalized
    a. Reminds B2 to use CPR feedback instructions, if available, to optimize compression quality
7. B2 (partner) activates AED according to manufacturer's documentation and follows instructions immediately following his 100th compression
8. B1 (leader) resumes compressions as instructed by AED
    a. Delivers 100 compressions
9. B2 (partner) assumes compressions immediately following B1's 100th compression without any intervening actions (no pulse check) and continues until prompted to stop by AED
10. Repeat steps 6 - 8 in roughly 2 minute cycles until additional help arrives
11. Rotate personnel into and out of compression positions as needed to avoid fatigue
12. Integrate additional help into process as noted in configurations below

9430 Two ALS Providers

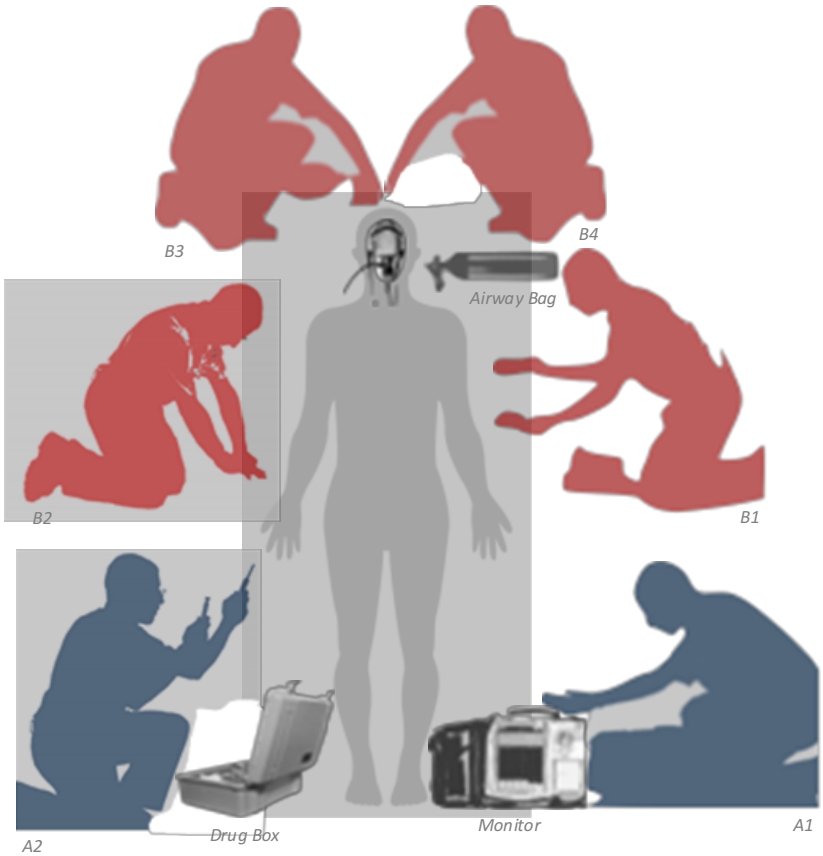


Intervention Sequence

1. Two ALS provider crew arrives with no additional help
2. A1 (partner) assumes position at patient's right side
    a. Places airway bag at patient's head
    b. Places drug box at patient's right leg/foot
    c. Checks responsiveness, initiates compressions:
        i. Delivers 100 compressions:
            1. 100 compressions per min
            2. Push hard, push fast, push deep
            3. Allow full chest recoil between compressions
            4. Assure proper vertical alignment directly over chest
3. A2 (leader) assumes position at patient's left side and in this sequence:
    a. Places monitor/defibrillator at patient's left leg/foot, turns monitor on
    b. Applies MFPs to patient's chest
    c. Applies CPR feedback device and assures proper function
    d. Applies $EtCO_2$ nasal cannula
    e. Applies OPA and NRB at maximal flow rate
4. A2 (leader) assumes compressions immediately following A1's 100th compression without any intervening actions (no pulse check)
5. A1 (partner) completes any tasks not yet finalized
    a. Reminds partner to use CPR device feedback to optimize compressions
    b. Establishes IO access and administers medications as appropriate

   c. Charges defibrillator at 1 min, 50 seconds (183 compressions) into each 2 min cycle. Ensures compressions continue until end of 200 compression cycle
      i. Assesses rhythm and delivers defibrillation as soon as a shockable rhythm is identified
      ii. If no shockable rhythm is present, dissipates monitor charge
   d. Assumes compressions with no more than a 7 second peri-shock pause
      i. Minimizes any peri-shock delay between compressions
6. Repeat in 200 compression/2 min cycles with the following priorities:
   a. Utilize CPR feedback device to optimize compression quality
   b. Minimize peri-shock pause
   c. Assure timely defibrillation
   d. Do not assist ventilations or place advanced airway until additional help arrives
7. When additional help arrives, they should assume compressor positions
   a. Paramedics then move to team leader and partner positions noted in configurations below

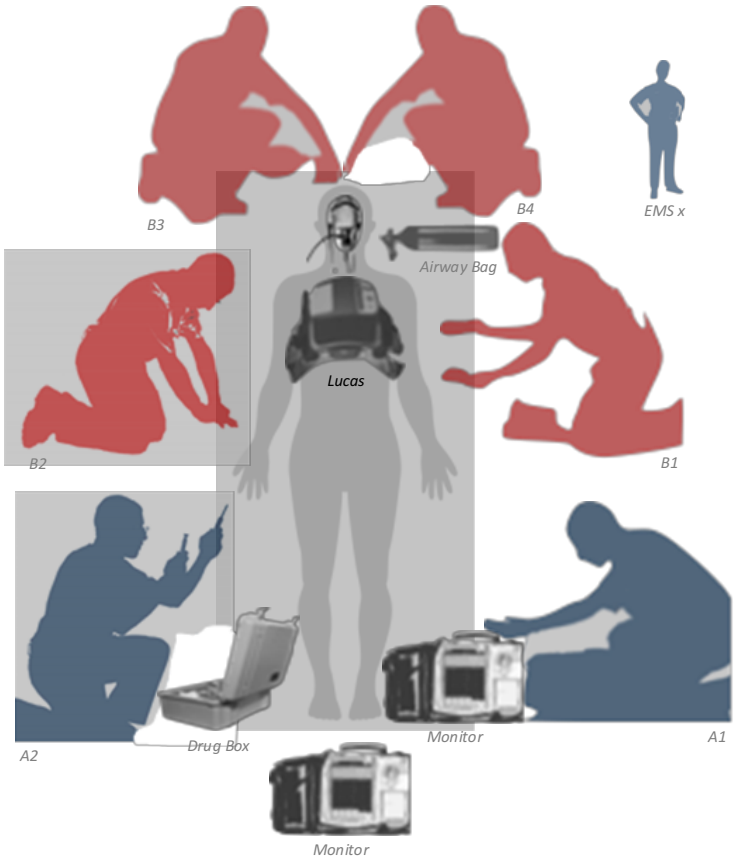
9440 ALS with Additional Providers Available



Intervention Sequence

1. BLS Is First On-scene
    a. Follow steps from appropriate configuration
    b. Upon arrival of EMS:
        i. A1 assumes team leader role and receives report from on scene team
            1. Assumes position at patient's feet on left side
            2. Places monitor at patient's left foot, prepares and places MFPs at next compressor swap. Turns monitor on.
            3. Places CPR feedback device if not already in place
            4. Provides coaching to use feedback to optimize compressions
            5. Once monitor is on and functioning, removes AED and pads if needed
            6. Uses monitor for defibrillation as in Two ALS Configuration above
        ii. A2 assumes position at patient's foot on right side
            1. Responsible for establishing IV/IO access if not already done
            2. Prepares and administers medications as appropriate
    c. At completion of 6 minutes of NRB ventilation, A2 may perform endotracheal intubation provided compressions are not interrupted
2. ALS Is First On-scene
    a. Follow steps from appropriate configuration
    b. Upon arrival of additional personnel:
        i. Additional personnel assume roles of B1, B2, B3, and B4. Compressor should assume compressions at the beginning of next compression cycle.

9450 Integration of Additional Devices, When Available



Intervention Sequence

1. After at least 10 minutes of manual compressions with a CPR feedback device:
    a. Continue with the next cycle of manual compressions
    b. Prepare Lucas:
        i. Prepare board and second set of MFPs for placement at the next rhythm analysis pause
        ii. Place board only (do not attach compression component) and second set of MFPs during pause
            1. Deliver shock, if needed, and resume manual compressions as soon as possible
        iii. Perform another full 2 min cycle of manual compressions with board in place
            1. Attach second set of MFPs to second monitor
        iv. At next rhythm analysis, attach compression component and adjust plunger depth
            1. Deliver shock with dual sequence defibrillation, if needed
            2. Initiate automated compressions in continuous compression mode
            3. Pause compressions for rhythm analysis at every 2 min cycle

9500 Acknowledgements

The creation of this document is truly the work of many. This is a very complex document that took hundreds of hours of hard work. While I have the pleasure of signing my name to it, it is the product of our systems. I would like to acknowledge the hard work of the committee members who spent countless hours in developing these SOCs and the many members of our teams who provided an outstanding (and incredibly detailed!) review. This product represents a common document that defines the joint medical practice of two EMS systems working together with one medical director. This group of very talented individuals took the best aspects of two separate protocol documents and created a joint standard. Likewise, they created a unified format, a look and feel that reflects the professionalism of two organizations. While I very much wanted to acknowledge the committee member's individual contributions, they felt like this was such a team effort that they requested I not individually recognize anyone. While respecting that wish, I want to thank each of them anyway (and I absolutely know who you are!).

Finally, this is absolutely the joint practice of medicine. To each member of these two EMS systems (and I very much include our first responder colleagues as integral members of our systems): thank you for the outstanding care you provide to our patients on a daily basis. Your compassion, commitment and service are an inspiration to me. You are the reason I am convinced I have the best job in the world. Thank you!

Take care,
Jeff

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