Centura Agencies
El Paso/Teller Counties
Prehospital Practice Guidelines

APPLIES TO THE FOLLOWING AGENCIES:

- **Aramark/ Pike's Peak EMTs-Hurtado**
- **Asteri EMS-Hurtado**
- **Black Forest Fire Rescue Protection District-Hurtado**
- **Cascade Volunteer Fire Department-Hurtado**
- **City of Fountain Fire Department-Hakkarinen**
- **Colorado Bureau of Land Management EMTs-Hurtado**
- **Colorado Centre Metropolitan District-Hakkarinen**
- **Colorado College EMS Squad-Hurtado**
- **Colorado Springs Utilities Wildland Team-Hurtado**
- **Donald Wescott Fire Protection District-Hurtado**
- **Edison Volunteer Fire Department-Hakkarinen**
- **El Paso County Search and Rescue/Wildland-Hurtado**

- **Falcon Fire Protection District-Hurtado**
- **Four Mile Fire Protection District-Hurtado**
- **NE Teller County Fire Department-Hurtado**
- **Palmer Lake Fire Department-Hurtado**
- **SW HWY 115 Fire Protection District-Hakkarinen**
- **Teller County Search and Rescue-Hurtado**
- **Teller County Sheriff's Office SWAT-Hurtado**
- **Tri Lakes-Monument Fire Department-Hurtado**

UPDATED 08/01/2022

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Introduction

Colorado EMS Providers working in the prehospital setting are expected to know and adhere to the scope of practice established in Colorado Department of Public Health and Environment.

6 CCR 1015-3 CHAPTER TWO - RULES PERTAINING TO EMS PRACTICE AND MEDICAL DIRECTOR OVERSIGHT.

The Chapter Two rules are used by the **Region IV Medical Director's Committee** to establish the medical guidelines prehospital providers are expected to follow when operating in the prehospital environment. These guidelines are also used to ensure that all personnel falling under medical directors within Region IV receive similar training in, and are competent to perform, the skills and medical acts contained within.

a) Understanding communication challenges faced by many of southern Colorado's EMS providers, individual medical directors may establish the circumstances and methods by which an EMS provider obtains authorization to perform any medical act and/ or skill while rendering direct patient care.

b) Where evidence-based practice is available, the Region IV Medical Directors Committee diligently evaluates the research available and drafts guidelines that will assist EMS providers in **delivering the best possible patient care with the best possible patient outcomes**. Where evidence is lacking, the Committee has relied on best practices, expert advice, and consensus to guide the development of a guideline or procedure.

c) While every attempt has been made to standardize the guidelines and the medical acts and skills contained within this document, individual medical directors may create guidelines that reflect their beliefs, the capabilities of their EMS providers, and/or the needs of the community being served. **It is imperative that EMS providers working in multiple systems, for multiple agencies, and/or under multiple medical directors know and adhere to the guidelines specifically approved by each agency's medical director.**

d) Where these Guidelines and agency Standard Operating Policies (SOPs) are in conflict (especially regarding the rendering of medical treatment and care), the guidelines contained in this document are considered the approved Region IV standard of care and are always to be followed. Agency-specific medical guidelines living outside of this document are not the approved standard of care and are not endorsed by any El Paso County Medical Director.

No guideline can account for the wide variety of clinical scenarios encountered by EMS providers. From time to time, it is expected that circumstances will arise that are not covered within these guidelines. In such instances, providers should function within their scope of practice and use all available resources (including On-Line Medical Consultation) to ensure the best outcome, supported by clear, detailed documentation of their clinical reasoning and judgment.

The content of these guidelines is to be reviewed on an annual basis, however, updates necessary to reflect advances in patient care, provider skills and training, legislative changes, and/or changes within the community at-large will be rolled out on an "as-needed" basis.

Reviewed by:

These guidelines have been reviewed by the Penrose EMS Institute Educators and Staff.

Approved by:

These Agency-specific Guidelines have been approved by the Penrose EMS Institute Medical Direction Team, which includes David Hakkarinen, MD, FACEP, Tim Hurtado, DO, FACEP, Stein Bronsky, MD, and Casey Lyons, DO, well as physician members of the Region IV Medical Directors Committee.

Special Thanks:

The Penrose EMS Institute Medical Direction Team would like to thank all those involved in carefully reviewing and recommending edits contained in these revised Guidelines.

Any project this complex and detailed is prone to errors. Please review these guidelines carefully and route any potential errors, unclear directions, or suggestions for improvement to your agency's EMS Officer, your agency's Medical Director or Penrose EMS Institute Educator assigned to assist your agency's Medical Director.

Guideline Keys

For guidelines using an algorithm format, acts allowed for each provider certification level are identified by borders around the appropriate instruction boxes using the following color key:

EMR (*)	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

(*) All EMR providers must be certified through the National Registry of EMTs (NREMT) at the EMR level and registered with the State of Colorado EMTS Office, in order to perform the acts allowed listed under EMR instruction boxes.

Individual medication and procedure guidelines include a color-coded box at the top, indicating whether a specific provider level can administer the medication, if the medication can be administered as a standing order **(SO),** requires base contact for a verbal order **(VO),** and requirements for any repeat doses. Anywhere there is a "**NO**" it is not allowed.

Provider Level	First Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	VO	VO
AEMT	VO	VO
Intermediate	SO/YES	SO/YES
Paramedic	SO/YES	SO/YES

Medications or procedures that are only allowed to be performed by agencies with a current **State-approved Waiver to the Acts Allowed** are clearly marked and **indicated with asterisks***and outlined or written in BROWN.**

Medications and procedures will be **CAPITALIZED**, *italicized*, underlined, and written in ***BLUE*** to signify a cross reference point.

Teaching points deemed sufficiently important to be included in algorithm-based guidelines are in grey-filled boxes, i.e.:

Guideline Key:	
< means LESS THAN	> means GREATER THAN or MORE THAN
≤ means EQUAL TO OR LESS THAN	≥ means EQUAL TO OR GREATER THAN

Pediatric Guidelines

For the purposes of these guidelines, pediatric patients are defined either by an individual guideline until the patient's weight-based calculations equal the adult dose. For detailed information, see ***GENERAL PEDIATRIC OVERVIEW***. Pediatric-specific information within a guideline will be noted by **PURPLE TEXT**.

Guideline Education and Training

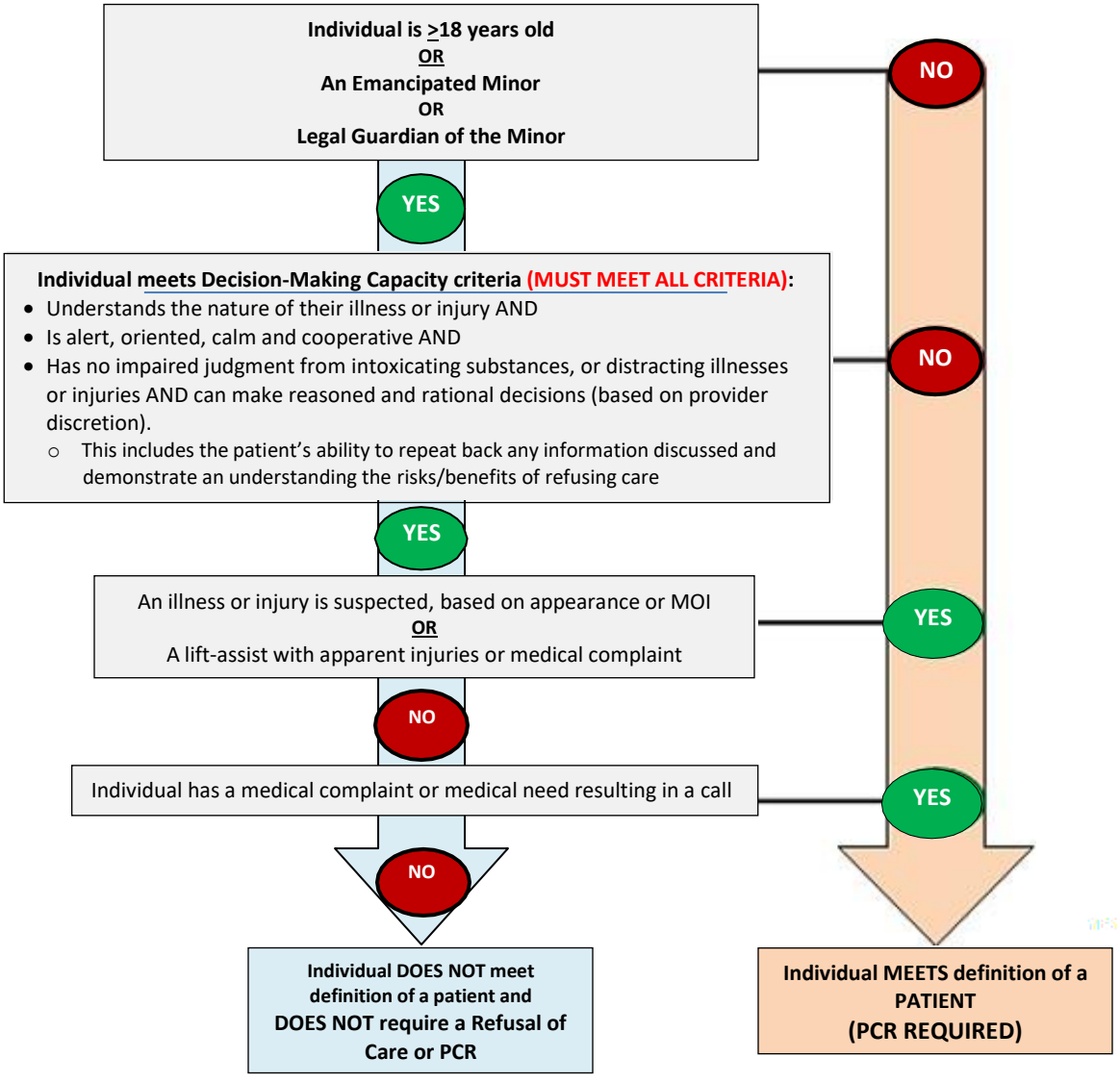
The curriculum for initial EMS provider training may not cover some of the treatments, procedures, and medications included in these guidelines. The acts allowed by Colorado's Chapter Two Rules are more extensive than those required to be taught using the National EMS Scope of Practice model.

Therefore, it is the responsibility of all EMS agencies and their Medical Directors to ensure that initial training, verification of competence, and maintenance of the skills falling outside traditional EMS education are documented for all agency providers. This may be of additional importance when training and orienting new providers, providers moving to a higher level of certification, and providers new to Colorado, prior to allowing them to practice independently.

Patient Determination

Description

a. When in doubt as to whether individual is a "patient", err on the side of caution and perform a full assessment as well as documentation.
b. No guideline can anticipate every scenario and providers should use best judgment.
c. If further care and evaluation is warranted AND the patient is refusing to be treated/transported, then refusal documentation **MUST** be completed. SEE ***PATIENT REFUSAL GUIDELINE.***



Patient Consent

Decision Making Capacity

1) A person has appropriate **decision-making capacity** if the individual or responsible party;
   a) Is alert, orientated, reliable, calm, and cooperative **AND**
   b) able to understand the nature and consequences of his or her illness or injury **AND**
   c) able to understand the nature and consequences of the proposed or refused treatment **AND**
   d) does **NOT** exhibit **IMPAIRED JUDGEMENT AND** can make reasoned and rational decisions (based on provider discretion)
      i. This includes the patient's ability to repeat back any information discussed and demonstrate an understanding of the risks/benefits of refusing care.
2) The patient should be assessed to determine that they are oriented, understand what happened, understand what may possibly happen if treated (or not treated), and have a plan of action, such as how to get home from scene, if refusing treatment.
3) If the patient does not have appropriate decision-making capacity under these guidelines, consent should be obtained from another responsible party.
   a) They must also have appropriate decision-making capacity and be legally "of age", a spouse, an adult son or daughter, aparent or stepparent, an adult brother or sister, or a legal guardian.
4) If the patient does not have appropriate mental capacity and none of the above persons can be reached, the person should be treated and transported to a medical facility.
   a) It is preferable to enlist support and agreement in this course of action from law enforcement.

Consent

1) A patient has the right to consent to or to refuse treatment. If the patient does not have decision-making capacity, a biological relative or legally appointed guardian has this same right (see below).
   a) Age of consent varies from state-to-state. In general, the patient must be over 18 years-of-age or between 15 and 18-years-old and emancipated.
      i. An Emancipated Juvenile per Title 19 section 19-2-511 of the Colorado Revised Statutes is anyone $\geq$ 15 and < 18 years who has, with the real or apparent consent of the juvenile's parents, demonstrated independence from the juvenile parent's matters of care, custody, and earnings. The term may include, but shall not be limited to, any such juvenile who has the sole responsibility for their own support, who is married, or who is in the military.
2) Consent is "**implied**" when the patient is unable to consent to treatment due to age, mental status, or medical condition **AND** no responsible party is available to grant that consent.
3) In no event should legal consent procedures be allowed to delay immediately-required treatment.
   a) If the time delay to obtain lawful consent from an authorized person would present a serious risk of death or serious impairment to their health or would prolong severe pain or suffering of the patient, treatment may be undertaken to avoid that risk.
4) If the patient is a minor, consent should be from a competent biological parent, adoptive parent, or court-appointed legal guardian.
   a) This includes school systems where *loco parentis* exists; this allows teachers and other responsible adults to act on behalf of a student when a biological parent, adoptive parent, or court-appointed legal guardian is not available.
5) Consent is **"involuntary"** in rare circumstances where a person other than the patient may authorize consent.
   a) This may include a court order (guardianship), authorization by a law enforcement officer for prisoners in custody or detention, or for persons under a mental health hold or commitment who are a danger to themselves or others or are gravely disabled.

Special Considerations

1) A provider should render care in "good faith"; this may help reduce the risk of legal consequence for failure to treat and/or negligence. Do not let fear of legal consequences prevent rendering of care.
2) The best defense against any legal question of consent, decision making capacity, and the need for care, is a well-documented prehospital care report.
   a) A well-written account of the patient and care rendered will be invaluable, if legal questions are raised at a future date, and will convey the provider's competence and adherence to standards of care.
3) A medical provider with no previously established professional relationship with the patient has no medical authority to direct care on scene.
   a) Contact your Leadership or Medical Control.

Patient Refusal

Description

a) Any individual who has **decision-making capacity** may refuse treatment, examination, or transport.
   i. See the ***PATIENT CONSENT GUIDELINE*** for the definition of **decision-making capacity**.

b) If further care and evaluation is warranted **AND** the patient is refusing to be treated/transported, then a refusal **MUST** be completed.

c) The patient or a legally responsible party **MUST**:
   a. Be alert, oriented, reliable, calm, and cooperative
   b. Understand the nature and consequences of his or her illness or injury
   c. Understand the nature and consequences of any proposed treatment or treatment being refused.
   d. Not demonstrate **IMPAIRED JUDGEMENT AND** be able to make reasoned and rational decisions (based on provider discretion)
   e. Voluntarily refuse treatment or transport

d) EMS personnel on scene are responsible for a reasonable assessment of the patient to determine if there is an injury, illness, or reason for transport and treatment.
   i. They should consider the nature of the incident, potential mechanism, actions of the patient, as well as the patient's verbal statements.
   ii. They should make sure the refusal is informed and voluntary.

Role of On-line Medical Control

1) The role of medical control is to assist on-scene providers in determining the patient's ability (or inability) to make medical treatment decisions and assist when a patient is refusing but needs to be transported (in the judgement of the on-scene provider). It is imperative that an accurate and concise report be given, so the medical control physician to be able to provide good, situational advice
2) Contact with Medical Control **DOES NOT** need to be made (standing order) in cases where **ALL** the following are present:
   a) The patient is:
      i. 18 years-of-age **or**
      ii. an emancipated minor **or**
      iii. a minor with a biological parent/court appointed guardian on-scene or available via phone **or**
      iv. A minor in the care of adults employed by their school system (loco parentis)
   b) **NO** life threatening/debilitating injuries or acute medical illness are present
   c) There is **NO** reasonable expectation of patient condition worsening BRUE
3) Consider Medical Control contact, **IF** further guidance is needed in situations such as, but not limited to, the following:
   a) Patient is a Minor (<18 years-of-age) and no biological parent/legal guardian is on-scene or available via phone
   b) EMS personnel on scene are **NOT** in agreement or have doubts regarding the patient's ability to refuse
   c) Life-threatening, debilitating injury, or acute and potentially life-threatening medical illness is present

Documentation/ Agency-specific Refusal of Care Form

1) Anyone who can be considered a patient, and/or receives any kind of medical assessment **REQUIRES** at least one (**1**) set of documented vital signs, a completed patient care report, AND an agency-specific **Patient Refusal of Care** form.
2) Refer to your agency's standard operating procedures (SOPs) for agency-specific Refusal of Care documentation and requirements.
   a) If the patient will not/cannot sign the Refusal of Care form, document reason in the narrative (i.e. patient refuses to sign etc.).
3) A Refusal of Care form **MUST be completed for every patient** receiving any kind of medical assessment at a multi- patient scene (such as motor vehicle crash).

Patient Refusal

4) Every level of EMS provider can and should complete their agency-specific Refusal of Care form, after performing any kind of medical assessment in the field.
   a) When multiple EMS agencies are on scene, **both** agencies must document that a Refusal of Care form was completed (and which agency completed the form) in their respective patient care reports.
5) Any EMS agency may dictate that their providers contact Medical Control for all refusals of care.

Advising the Patient

a) Discussion with an individual (or legal guardian) who is refusing care, as well as documentation that the patient fully understands everything that is being discussed, must include the following explanations:
   a) Prehospital care is not a substitute for evaluation and treatment by a physician in a licensed clinical setting.
   b) Prehospital care is severely limited and is geared towards transport to definitive care.
   c) A list of all the risks of the patient's refusal of care, along with any reasonable alternatives to refusing.
   d) The patient (or dependent) could have a serious or life-threatening injury or illness that could worsen without further care and transport, and the patient could suffer serious permanent disability or death as a result.
   e) The patient may change their mind at any time and contact 9-1-1 for further medical assessment, care and transport.

General Assessment & Care

Description

1) All patients will require a basic amount of supportive care and assessment; some will require a more advanced assessment and care. This guideline is designed to lay out the minimum requirements for BLS and ALS care, while acknowledging potential situational-specific scenarios.

Assessment

1) A complete patient assessment is critical for identifying injuries or illness. It helps to create a working diagnosis that will guide treatment decisions by a BLS and/or ALS provider. It involves five steps:
    a) Scene evaluation
    b) Primary assessment
    c) Medical interview
    d) Secondary assessment
    e) Continual reassessment

Vital Signs

1) In most medical settings, the standard, baseline vital signs are as follow:
    a) Level of consciousness (APVU)
    b) Pulse rate & quality
    c) SpO_2
    d) Respiratory rate & quality
    e) Blood pressure
    f) Body temperature, if available
2) In some instances, along with baseline vital signs, patient assessment can be expanded to evaluate:
    a) $EtCO_2$
    b) Blood glucose
    c) ECG (including 12-lead (if clinically indicated)
    d) Lung sounds
    e) Glasgow Coma Scale (if clinically indicated)
    f) Capillary refill
    g) Pupils
3) The EMS provider is responsible for recognizing the need to expand the baseline vital signs to help ensure a comprehensive assessment.
    a) Obtain multiple sets of vitals to identify trends, unless scene and transport time are brief
    b) Unstable patients **SHOULD** have vital signs assessed every 5 minutes
4) Normal vital sign ranges for the average healthy adult, while at rest are:
    a) Blood pressure: 90/60 mm/Hg to 120/80 mm/Hg
    b) Breathing: 12 to 18 breaths per minute
    c) Pulse: 60 to 100 beats per minute
    d) Temperature: 97.8°F to 99.1°F (36.5°C to 37.3°C)/average 98.6°F (37°C)
5) For Pediatric Vital Signs, see ***GENERAL PEDIATRIC OVERVIEW***

General Assessment & Care

General Supportive Care

1) Basic Life Support
   a) Maintain airway and provide appropriate oxygenation and ventilation
   b) Attempt to keep SpO_2 Sat $\geq$ 90% and $\leq$ 98%
   c) Monitor $EtCO_2$, when indicated. Target range is between 35 and 45 mmHg
   d) Monitor baseline and expanded vital signs (listed above)
   e) Control bleeding, provide wound care, and splint extremities, when indicated
   f) Appropriately apply cardiac monitoring leads (including both 4-and-12 leads), when indicated
   g) Establish vascular access (IV/IO), when indicated (EMT-IV certification level only)
   h) Perform venous sampling (blood draws), when indicated (EMT-IV certification level only)
   i) Administer BLS medications, including oral antiemetic, when indicated and within provider's scope of practice
   j) Call for ALS providers (including air medical), potential rendezvous with ALS providers, or transport to the **MOST** appropriate facility

2) Advanced Life Support
   a) Provide all BLS supportive care listed above
   b) Monitor, interpret and treat cardiac rhythms, when indicated; including 12-lead serial ECGs and post-arrest evaluation
   c) Provide pain management, when indicated (and within the ALS provider's scope of practice)
   d) Administer ALS medications and skills when indicated (and within the ALS provider's scope of practice)
   e) Consider additional resources (including air medical when indicated). Transport to the **MOST** appropriate facility

Facility Notification

1) When transporting medical patients to a hospital Emergency Department, the following information **should** be transmitted to the receiving facility by the reporting EMS provider. Report should be concise and take less than 60 seconds.
   a) EMS agency name and unit number
   b) Provider's name and level of certification
   c) Emergent or non-emergent transport & estimated ETA to hospital
   d) Clear and understandable patient age (i.e. 18-year-old, 1-8-year-old) and patient gender
   e) Patient's chief complaint or reason for transport
   f) History of current event (include any safety concerns)
   g) Any pertinent medical history and/or medications
   h) Assessment findings and any trends:
      i. LOC: altered, uncooperative
      ii. Airway/breathing status: $EtCO_2$, O_2 sat
      iii. Description of any secondary injuries
      iv. Vital signs: BP, RR, breath sounds, BGL, skin, ECG findings
   i) Treatment interventions: i.e. O_2, airway management, CPR, meds administered, management of pain/injuries
   j) Response to treatment interventions
   k) Ask the receiving facility for any orders or clarifications

General Pediatric Overview

Description

a) Pediatric patients are defined as birth until patients' weight-based calculations equal the adult dose
   a) Benzodiazepines are an exception to the above statement

Medical Treatment - Age Ranges

1) Pediatric age ranges will differ, when making transport decisions, as well as performing specific procedures (refer to ages in specific guidelines)
   a) For specific facilities, see ***DESTINATION GUIDELINE***
   b) For consent, see ***CONSENT GUIDELINE***
   c) For Rapid Sequence Induction (RSI), see ***WAIVER GUIDELINE***
   d) For needle and surgical cricothyrotomy information, see ***AIRWAY PROCEDURES GUIDELINE***

Normal Pediatric Vital Sign Ranges

Pediatric Age Group	BGL	Respiratory Rate	Heart Rate	Systolic BP	Systolic Hypotension	Weight in Kilos
Neonate (<28 days)	40 to 99	30 to 53	100 to 205	67 to 84	<60	4.5 to 7
Infant (1-12 months)	127 +/-24	30 to 53	100 to 190	72 to 104	<70	9 to 22
Toddler (1-2 years)	137 +/-24	22 to 37	98 to 140	86 to 106	<70 + (age in years x2)	22 to 31
Preschooler (3-5 years)	128 +/-24	20 to 28	80 to 120	89 to 112	<70 + (age in years x2)	31 to 40
School Age (6-11 years)	90 to 180	18 to 25	75 to 118	97 to 115	<70 + (age in years x2)	41 to 92
Adolescent (12 to 15 years)	90 to 130	12 to 20	60 to 100	110 to 131	<90	>110
Normal pediatric SpO2 values have not yet been decisively recognized and are lower in the immediate newborn period. • In general, a SpO2 of <92% should be a cause of concern and may be suggestive of a respiratory disease or cyanotic heart disease.						
Normal ETCO2 is 35-45 mm HG, and a normal waveform is rectangular shaped. These values are consistent across all age groups.						
Temperature ranges do not vary with age. The temperature considered to be a fever in pediatric patients is 100.4 F						
Reference: Chris Novak and Peter Gill for http://www.pedscases.com/						

Brief Resolved Unexplained Event (BRUE); formerly known as Apparent Life-Threatening Event (ALTE)

1) Defined as an episode in an infant < 1 year of age, that is frightening to the observer; characterized by cyanosis or pale complexion; absent, decreased, or irregular breathing; marked change in muscle tone (hyper- or hypotonia) or altered responsiveness that has resolved.
2) BRUE is diagnosed only when there is no explanation for a qualifying event, and after conducting an appropriate history and physical examination.
   a) Any child experiencing a BRUE **SHOULD** be transported to ED for evaluation; monitor vital signs en route.
3) Make sure to document the following:
   a) Document observer's impression of the infant's color, respirations, and muscle tone.
   b) Was the child apneic, or cyanotic or limp during event?
   c) Was there seizure-like activity noted?
   d) Was any resuscitation attempted or required, or did event resolve spontaneously?
   e) How long did the event last?

Special Considerations

1) For pediatrics, reference a Pediatric Field Guide, Broselow Tape, Handtevy Guide, or other approved source.
2) Airways are smaller, softer, and easier to obstruct or collapse.
3) Respiratory reserve is small. Minor insults such as improper positioning, emesis, stomach filled with air, or airway narrowing can lead to major problems.
4) Circulatory reserve is also small. The loss of one unit of blood is enough to account for severe shock or death in an infant. Conversely, 500 mL of unnecessary fluid can result in x` pulmonary edema.
5) Vital signs and level of consciousness can be difficult to assess. History, a high index of suspicion, and "soft signs" can be critical. Listen to the parents. They know when changes have occurred, even if they have difficulty expressing what has changed.

Destination Guideline (General)

Description

1) Destination choices should be based on the following:
    a) Patient's request
    b) Request by family, primary care physician, or caretaker
    c) Nature and/or severity of the patient's condition
    d) Proximity to hospital
    e) Specialty care provided at an individual facility
    f) If the patient exceeds EMS capabilities for stabilization, you may transport to **ANY** emergency department regardless of hospital destination level or capabilities
2) If the patient has no hospital preference, transport them to the closest appropriate hospital. The destination decision **MUST** be documented in the destination box of the PCR and include the reason. (Closest - no preference, patient request, family request, staff request, trauma center, burn center; hospital divert, triage, paramedic divert)
3) When necessary, responsibility for determining patient destination lies with the on-scene medical supervisor,
4) **EXCEPT** in the following situations:
    a) In multi-casualty incidents, the destination responsibility lies with the Medical Supervisor on scene, or, if appointed, the Transportation Unit Leader or Group Supervisor
    b) Police may determine hospital destination for individuals in custody or under arrest if not seriously ill or injured. In serious or critical situations, patients will be transported to the most appropriate facility
    c) Trauma patients meeting the criteria for transport to a trauma center **SHOULD** be taken to an appropriate trauma center designated pursuant to the Statewide Trauma Care System Act
5) Destination guidelines may be overridden for patients in **EXTREMIS** who are **NOT** expected to survive transport to the appropriate designated hospital. Examples may include:
    a) Uncontrollable airway emergencies
    b) Active cardiopulmonary arrest
    c) Imminent breach delivery (***EXCLUDING Children's)***
6) When a hospital is on divert, the patient **SHOULD** be transported to the next most appropriate hospital
    a) If **ALL** hospitals are on divert, facilities are then required to accept patient as if they are not on divert

Children's Hospital Destination Guideline

a. Pediatric patients with any of the following care **SHOULD** be transported to Children's Hospital.
    a) Any critically ill pediatric patient up to 21 y/o (provider discretion)
    b) Cardiac arrest with ROSC
    c) Status seizures
    d) Medically-complex child
    e) Patient of any age with pre-established care at Children's Hospital (call prior to transport)
    f) Respiratory distress in the technology-dependent child
    g) Suspected:
        i. Button Battery ingestion
        ii. Stroke
        iii. BRUE/ ALTE
        iv. Non-accidental trauma

Destination Guideline (General)

Specific Destination Guidelines

Condition	Penrose Hospital	Memorial Central	Saint Francis	Memorial North	Grandview Hospital	Children's Hospital	Evans Army Hospital	PPRH	St. Thomas More
Critical Illness **(Adult)**	YES	YES	YES	YES	YES	NO	YES	NO	YES
General Illness **(Adult)**	YES	YES	YES	YES	YES	NO	YES	YES	YES
Critical Illness **(Pediatric)**	NO	NO	NO	NO	NO	YES ≤ 21	NO	NO	NO
General Illness **(Pediatric)**	YES	YES	YES	YES	YES	YES ≤ 21	YES	YES	YES
STEMI	YES	YES	YES	YES	NO	YES ≤ 17	NO	NO*	NO*
Stroke: Last Known Normal ≤ 4 Hours	YES	YES	YES	YES	YES	YES ≤ 17	NO	YES	YES
Stroke: Last Known Normal > 4 to 24 hours	YES	YES	NO	NO	NO	YES ≤ 17	NO	NO	NO
Stroke: Last Known Normal > 24 hours	YES	YES	YES	YES	YES	YES ≤ 17	NO	NO	NO
Behavioral/ETOH	YES	YES	YES	YES	YES	YES ≤ 17	YES	YES	YES
SANE (sexual assault)	NO	YES	NO	YES Call Prior to Tx	NO	YES ≤ 17	NO	NO	NO
OB <20 weeks	YES	YES	YES	YES	YES	NO	YES	YES	YES
OB ≥20 weeks	NO	YES	YES	YES	NO	NO	YES	NO	YES

Patients with military DOD ID cards and with nonlife-threatening and/or psychiatric conditions SHOULD be considered fortransport to Evans Army Community Hospital on Fort Carson. Contact Evans Medical Control ER at 719-526-7526

Pediatrics: Trauma < 15 years old & Medical <18 years old

*If, due to weather or other circumstances, a STEMI patient is expected to have transport time longer than 60 minutes to a non-PCI facility, transport to the closest Emergency Department (PPRH or St. Thomas More) shall occur for consideration of IV thrombolytics.

Destination Guidelines (TRAUMA)

If unable to adequately ventilate or Imminent arrest transport to the closest appropriate facility

Trauma Criteria	Age Range	Penrose Main	MEMO Central	Saint Francis	MEMO North	Children	PPRH	St. Thomas More
PHSYIOLOGIC • Intubation (advanced airway) or assisted ventilations • GCS motor score < 5 • Respiratory rate < 10 or > 29 • Any S/S of abnormal perfusion (i.e. Shock*) such as; • Delayed cap refill >2 sec ○ **ADULTS**: Systolic BP <90 ○ **PEDIATRICS**: *Low systolic BP for age; See Pediatric Field Guide** **PEDIATRIC (Additional Considerations)** • Any S/S of respiratory insufficiency; ○ Severe hypoxia ○ Accessary muscle use, grunting or abdominal breathing • Any S/S of abnormal perfusion (*i.e. Shock**) such as; ○ *Depressed or deteriorating mental status**	<15	NO	NO	NO	NO	YES	NO	NO
	15-17	YES	YES	NO	NO	YES	NO	NO
	≥18	YES	YES	NO	NO	NO	NO	NO
ANATOMIC • Penetrating injuries to the head, neck, torso, or extremities above the elbow or knee • Flail chest • TWO (2) or more proximal long bone fractures (humerus &/or femur) • Unstable pelvic fracture • Paralysis or other evidence of spinal cord injury • Amputation above the wrist or ankle • Crushed, degloved, or mangled extremity • Open or depressed skull fracture **PEDIATRIC (Additional Considerations)** • *Elbow deformity** • *Significant blunt trauma to chest and/or abdomen** ○ i.e. Flail chest, seatbelt sign • *Suspected TBI with any of the following* ○ *Abnormal AVPU/following commands** ○ *CSF leak (nose ears)** ○ Open or depressed skull fracture ○ *Burns > 20% BSA deep partial and/or full thickness**	<15	NO	NO	NO	NO	YES	NO	NO
	15-17	YES	YES	NO	NO	YES	NO	NO
	≥18	YES	YES	NO	NO	NO	NO	NO
MECHANISM OF INJURY • Falls > 20 feet (**ADULT**) or 3x the height (**PEDIATRICS**) • High risk auto crash, with such components as: ○ Intrusion of vehicle of 12 inches in occupant compartment; >18inches any site ○ Ejection (partial or complete) from automobile ○ Death In same passenger compartment ○ Moderate/high speed crash with unrestrained or improperlyrestrained child • Auto vs. Pedestrian/Bike thrown, run over, or with significant impact (auto going >20 mph) • Motorcycle crash > 20 mph • Events involving high energy dissipation, such as: ○ Ejection from motorcycle, ATV, animal, etc ○ Striking a fixed object with momentum ○ Blast, explosion, or high energy electrical injury	<15	NO	YES	YES	YES	YES	YES	YES
	15-17	YES	YES	YES	YES	YES	YES	YES
	≥18	YES	YES	YES	YES	NO	YES	YES
OTHER CONSIDERATION • Older **ADULT**: the risk of death increases after age 55 years • Anticoagulation or bleeding disorders • End stage renal disease requiring dialysis • Pregnancy > 20 weeks • Suspicion of hypothermia • Intra-abdominal injury/seat belt sign • Burns >10% TBSA (2nd or 3rd degree) &/or to the hands, face, feet, groin, or inhalation injury • EMS provider judgement for triage to a higher level trauma center • Suspicion of non-accidental trauma	<15	NO	NO	NO	NO	YES	NO	NO
	15-17	YES	YES	YES	YES	YES	YES	YES
	≥18	YES	YES	YES	YES	NO	YES	YES
	Pregnancy ≥ 20 wks	NO	YES	YES	YES	NO	YES	YES

Age	SBP
<1yr	<60
1-10 yrs	<70 +(2x age in yrs)
>10 yrs	<90

Any item denoted by an * and that is italicized is additional criteria NOT provided by the state. See appendix for more info on PPRH.

Level 4 Criteria: Non-life threatening injuries and absent of any above criteria — **Grand View Hospital**

Death in the Field

Description

1) This guideline applies to patients of all ages,including victims of SIDS. It cannot address all possible contingencies; therefore, the provider should, when in doubt,attempt resuscitation.
    a) Once advanced life support has been initiated, care should not be terminated except as outlined in these guidelines

Death in the Field Indications

1) An obvious death in the field is a standing order if the below criteria is met
2) Determination of death in the field (without initiation of resuscitation) should include the following instances;
    a) Patient is unresponsive, pulseless, apneic, AND
        i. Decomposition, **or**
        ii. Rigor mortis or dependent lividity with warm air temperature, **or**
        iii. Down time ≥ 15 minutes as related by an apparently reliable source, **or**
        iv. Any advanced directive **or**
            - Physician orders as specified on the Colorado Medical Orders for Scope of Treatment (MOST) form: "No CPR. Do Not Resuscitate/DNR/Allow Natural Death"
            - Physical document not required, see ***ADVANCED DIRECTIVE GUIDELINE***
        v. Trauma that is incompatible with life,
            - i.e. Decapitation, exposed brain matter, incineration, etc.
        vi. Multiple casualty situations where system resources are required for stabilization of viable patients
        vii. Meeting Cardiac Arrest Criteria, see ***MEDICAL CARDIAC ARREST GUIDELINE***
            - Unwitnessed arrest **AND** ≥ 73 years old, **AND** non-shockable rhythm

Termination of Resuscitation (TOR) Indications

1) Provider discretion, the timeframe to Termination of Resuscitation (TOR) can be extended or shortened
    a) **ADULTS >19**: Recommend a minimum of **4 cycles** (**8 minutes**)
    b) **PEDIATRICS: <18**: recommend a minimum of **10 cycles** (**20 minutes**)
2) If positive pressure ventilation (PPV) with persistent $EtCO_2$<10
3) If no reversible causes have been identified and resuscitative efforts are deemed futile
4) Trauma (all levels)
    a) No ROSC following appropriate interventions, which may include opening the airway, bag-valve-mask ventilation, advanced airway, needle decompression, fluid therapy, and/or pelvic binding as clinically indicated
    b) Resuscitation is considered futile after 10 minutes

Special Considerations

1) The following patients found pulseless and apneic warrant resuscitation efforts beyond 20 minutes and **SHOULD** be transported:
    a) Hypothermia
    b) Drowning with hypothermia and submersion ≤60 minutes
    c) Pregnant patient with estimated gestational age ≥23 weeks (obvious pregnancy)
    d) Lightning strike/significant electrocution
2) It is **NOT** recommended to transport patients to a facility without a pulse
    a) In special circumstances where transport was initiated, care should be continued until the patient has been delivered to the appropriate facility
3) Only the coroner can provide time of death. When documenting please use the phrase "termination of resuscitative efforts" and provide the time of termination and document the agency's primary medical director name as the standing order physician
    a) If medical control is contacted document the name of the physician and details of the discussion

Death in the Field

Potential Crime Scene

1) If the situation appears to be a potential crime scene;
    a) During patient care limit scene alteration as much as possible beyond what is required for patient care and scene safety
    b) Observe the position of anything relevant to the body (such as sheets, weapons, etc.) and the position of the body. Make notes (for law enforcement) about these and about anything disturbed as soon as possible.
    c) Do not leave the scene until law enforcement assumes control
    d) Consider shielding the body if in public view as long as it does not disturb the potential crime scene

Documentation

1) Documentation is extremely important when dealing with a death in the field or termination of resuscitation and **SHOULD** include the following:
    a) Position of the patient when found
    b) Details on the environment
    c) Name of the physician or the agency's primary medical director as the standing order physician, if contacted for pronouncement
    d) Name of the person/entity the patient was released to (police, nursing home, Hospice, coroner etc.)
    e) How the DNR/ advanced directive was identified
    f) Attach ECG to ePCR, if applicable

Mandatory Reporting

Description

a) This guideline is designed to assist the prehospital provider in determining mandatory reporting situations as per Colorado State Law C.R.S. 19-3-304, passed in 2014, which includes the role of EMS providers as mandated reporters

Definition of Abuse

1) Any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse, or exploitation OR an act or failure to act which presents an imminent risk of serious harm
2) Forms of Abuse include:
   a) Neglect (this includes significant self-neglect)
   b) Physical
   c) Sexual
   d) Emotional

Mandatory Reporting

1) Mandated reporters are required to "register their suspicion" of abuse. This is not considered a direct accusation.
2) Informing providers at the receiving healthcare facility of your suspicions for **DOES NOT** meet the requirements of a mandated reporter
   a) EMS providers ARE REQUIRED to register their suspicion with law enforcement and/ or the appropriate authorities
   b) EMS providers reporting their findings in "good faith" are immune from criminal prosecution and civil lawsuits
3) If the mandatory reporter suspects any of the following, they are to report the information within 24-hours of encountering the situation to local law enforcement and/or appropriate authorities either by written and/or verbal report
   a) Known or suspected abuse mentioned above of a child or "at-risk elder" who is 70-or-older or an "at-risk adult" of any age with intellectual or developmental disabilities
   b) Any patient with domestic assault injury
4) Information to report:
   a) The name, address, age, sex, and race
   b) The name(s) and address(s) of the person(s) responsible for the suspected abuse or neglect (if known)
   c) The nature and extent of the injuries (if known)
   d) Knowledge of previous cases of known or suspected abuse or neglect
   e) The family composition, including any siblings
   f) The name, address and/or contact phone number, and occupation of the person making the report
   g) Relation of the person making report to the child and/or how information was obtained
   h) Any action taken by the reporting source
   i) Any other information reporting person feels is important
5) Mandatory reporters who **DO NOT** report abuse can be charged with a class 3 misdemeanor and held liable for damages proximately caused by failing to report

Special Considerations

1) For children, contact law enforcement and/or call **1-844-CO-4-Kids or 1-844-264-5437** to report your concerns.
2) For Adult, Adult Protective Services website- https://humanservices.elpasoco.com/adult-protective-services/ for form.
3) Protecting patient confidentiality **DOES NOT** legally justify a failure to report specific cases defined by law.
4) During transport and treatment of a patient meeting the definition of potential mandatory reporting;
   a) Confine history-taking to pertinent medical needs
   b) Observe patient's behavior around caregivers
   c) Provide same-sex provider, if requested and available, and respect patient's emotional needs
   d) Don't judge, accuse, or confront the victim or their suspected assailant, especially victims of domestic violence. Doing so may threaten the victim's safety and prevent them from seeking medical and/or legal assistance in the future
   e) Protect all possible evidence, when dealing with reported or suspected sexual assault. Patients should not bathe, clean up, or change their clothing

Description

a) This guideline is designed to assist the prehospital provider with specific skills and or medications allowed through the waiver process.

1) In Colorado, the EMS provider scope of practice is defined by the Colorado Department of Public Health and Environment (CDPHE). Decisions about scope of practice are based on recommendations from the Colorado Emergency Medical Practice Advisory Council (EMPAC), a state council of experts in EMS.
2) The EMS scope of practice for Colorado is defined in legislation as ***CHAPTER TWO - RULES PERTAINING TO EMS PRACTICE AND MEDICAL DIRECTOR OVERSIGHT.***
3) If a medical director wishes to allow the EMS providers serving under his or her license to practice a skill beyond the Chapter Two Scope of Practice, they may apply to the EMPAC for a waiver of the skill or medication they wish to add; or for any additional indications for an existing medication not currently recognized by the State.
   a) If enough medical directors are applying for the same waiver, the EMPAC can consider moving the waivered skill or medication into the standard scope of practice at the next review and revision.
4) Scope of practice waivers may be authorized by the medical director under standing orders or direct verbal order of a physician, including by electronic communications, depending upon what was specifically requested in the application and what the EMPAC specifically approved.
5) **NO** EMS provider shall function beyond their scope of practice identified in Chapter Two until their medical director has received official written confirmation that the waiver has been granted by the department AND the medical director has given them specific permission to do so.
6) Use of any waivered skill or medication must be documented, and the data reported to the state, according to the terms of the waiver approved by the state. Anytime you practice a waivered skill or administer a waivered medication, you must notify the medical leadership of your agency for reporting purposes.
7) Use of Ketamine for Pain Management must be report to the State EMTS office here: https://www.colorado.gov/pacific/cdphe/ems-medical-direction

Hakkarinen's Medical Waivers

Waivered Act	EMR	EMT	EMT -IV	AEMT	Intermediate	Paramedic	MAAM Medics
Procedures & Medications							
MAAM	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
MAAM Medications;							
Etomidate	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
Rocuronium	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
Succinylcholine	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
Vecuronium	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
Ketamine for MAAM	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**
Medication							
Ketamine for Pain Management	**NO**	**NO**	**NO**	**NO**	**NO**	**SO**	

Waivers to Scope of Practice

Hurtado's Medical Waivers

Waivered Act	EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic
Ketamine						
Ketamine for Pain Management	NO	NO	NO	NO	NO	YES
Reduction of Joint Dislocations						
Patella	NO	SO	SO	SO	SO	SO
Fingers and Toes	NO	SO	SO	SO	SO	SO
Shoulders	NO	SO	SO	SO	SO	SO
EPCSAR and NETCO Only						
TXA Epistaxis	NO	SO	SO	SO	SO	SO
TXA Hemorrhage	NO	NO	NO	NO	NO	SO

Advanced Directives

Description

1) This guideline outlines minimum standards required to treat a patient with a valid Do Not Resuscitate order (DNR), state-approved Medical Orders for Scope of Treatment (MOST), Physician Orders for Life-Sustaining Treatment (POLST), Advanced Care Directives (ACD), and/or in the care of Hospice.

Special Considerations

1) Any EMS personnel who, **in good faith,** complies with an advanced care directive shall not be subject to civil or criminal liability or regulatory sanction for such compliance pursuant to CRS Section 15-18.6-104, C.R.S., updated 12/15/2019.
2) An individual with an ACD, DNR, and/or MOST etc. shall receive evaluation by EMS personnel and be provided appropriate and available palliative treatment and measures.
    a) Any CPR Directive that is apparent and immediately available to EMS personnel and that directs resuscitation not be attempted constitutes lawful authority to withhold or discontinue CPR.
        i. Includes, but is not limited to, artificial ventilation, chest compression, delivering electric shock, placing tubes in the airway to assist breathing, or other basic and advanced resuscitative therapies.
3) There are many ways that an individual may make their wishes known regarding health care, particularly end-of- life decisions which may include, but is not limited to, documents such as a living will, medical durable power of attorney, CPR Directive, or other advance directives, including those from other states.
    a) Any document or item of information or instruction that clearly communicates the individual's wishes or intent regarding CPR may be regarded as valid and the individual's wishes honored.
    b) This Rule may include advanced directives from other States.
    c) **A valid CPR Directive that has been photocopied, scanned, faxed, or otherwise reproduced shall be honored.**
4) Careful and thorough assessments should be performed to identify complaints not related to the illness and care should be delivered with the utmost patience and compassion.
5) There may be circumstances in which you encounter patients (especially those in hospice) in cardiac arrest and DNR paperwork is not immediately available on scene. In this situation, it is justifiable to accept a verbal DNR verification from family members, significant others, facility staff, etc., who are intimately involved with patient care; **it is not mandated to have the physical DNR paperwork in order to honor it**.
6) In cases where the patient's status is unclear and the appropriateness of withholding resuscitation efforts questioned, EMS personnel should initiate CPR immediately and then contact medical control for oversight.

Key Terms

1) **Do Not Resuscitate (DNR)/CPR Advanced Directive**: A physician order to refrain from cardiopulmonary resuscitation.
2) **Medical Order for Scope of Treatment (MOST) Form**: A resource for the seriously ill that summarizes and consolidates information about a patient's preferences for life-sustaining treatments including: CPR, artificial nutrition, and hydration.
3) **Physician's Orders for Life-Sustaining Treatment (POLST) Form:** A form for when a person becomes seriously ill or frail and toward the end of life. It gives medical orders to emergency personnel based on the current medical situation. POLST forms and advance directives are both advance care plans but they are NOT the same.
4) **Do Not Intubate (DNI):** A form outlining a patient's wishes to not have an endotracheal tube placed.
5) **Advanced Care Directive (ACD):** An expression of treatment preferences, guidelines, or instructions regarding medical treatment made by an individual, or for an individual by that individual's authorized agent, in advance of the need for such treatment.
    a) **Living Will**: Legal document used to state certain future health care decisions when a person becomes unable to make decisions their own. It is only used at the end of life when a person is terminally ill or permanently unconscious. It will also describe the type of medical treatment the person would want or not want to receive. It can describe under what conditions an attempt to prolong life should be started or stopped.
    b) **Medical Power of Attorney (MPA):** A legal document that allows an individual to delegate a person to make medical decisions when the individual cannot make decisions for themselves.
6) **Hospice**: Administer supportive care to individuals who are in the final phase of a terminal illness who require comfort care or non-terminal individuals who need assistance managing symptoms of life-limiting or chronic illness.

7) **Comfort Measures**: Refers to medical treatment of a terminally ill patient where the natural dying process is permitted to occur while assuring maximum comfort. To include but **NOT** limited to;
    a) Clearing the airway, suctioning, supplemental oxygenation, CPAP, AND/OR nebulizers
    b) Position of comfort AND/OR ***PAIN MANAGEMENT***
    c) Anti-emetic to alleviate nausea and/or vomiting, see ***NAUSEA/VOMITING GUIDELINE***
    d) Bleeding control AND/OR splinting

Specific Complaints

1) **Cardiac Arrest**
    a) DNR: With a DNR patient, do not initiate resuscitative efforts or if resuscitative efforts have been initiated then cease care when a valid Colorado State approved DNR has been identified.
        i. In situations where the patient does not have one of the above acceptable valid forms then proceed with resuscitation
    b) DNI/MOST/POLST/ACD: Be sure to make every effort possible to honor the wishes of the patient and/or MPA as described in the Living Will or ACD.
2) **Patients in the care of Hospice**
    a) Should have a MOST form or other related documents outlining medical wishes
    b) If there is documentation of a DNI/MOST/POLST/ACD and/or in the care of Hospice, the patient should receive full treatment per guidelines except for any intervention specifically prohibited
3) **Exacerbation of Preexisting Disease**:
    a) If the complaint is due to complications/exacerbation of the preexisting disease that motivated the patient's decision to have a ACD/DNR/MOST etc., than provide ***GENERAL SUPPORTIVE CARE*** and ensure comfort measures as described above and as clinically indicated
4) **General Medical Complaint**:
    a) Treat the complaint per the clinically indicated guideline and provide ***GENERAL SUPPORTIVECARE***
5) **Traumatic Injury**:
    a) Treat injury per the clinically indicated guideline and provide ***GENERAL SUPPORTIVE CARE***
6) **Suicide:**
    a) Not all patients who attempt suicide are necessarily incapable of making a rational decision about their health care. Treat per the ***BEHAVIORAL HEALTH EMERGENCY*** guideline
        i. In some cases, it may be appropriate to withhold resuscitation attempts in suicidal patients in cardiac arrest who have a preexisting DNR/MOST/POLST/ACD etc.

Description

1) Prehospital providers may, under the supervision and authorization of a medical director, perform advanced emergency medical care acts and or administer medications consistent with and NOT to exceed those listed in Appendix D of *6 CCR 1015-3 CHAPTER TWO - RULES PERTAINING TO EMS PRACTICE AND MEDICAL DIRECTOR OVERSIGHT.*
2) The following medical skills and acts are approved for interfacility transport of patients, with the requirements that the skill, act, or medication allowed must have been initiated in a medical facility under the direct order and supervision of a licensed physician and are **NOT** authorized for field initiation.
   a) EMS continuation and monitoring of these interventions is to be allowed, with any alterations in therapy requiring direct verbal order from a physician.
   b) EMS providers should continue the same medical standards of care with regards to patient monitoring that were initiated in the facility.
3) EMS providers at any level of certification **SHALL** decline to transport any patient he or she believes requires a level of care beyond his or her scope of practice or training.
   a) EMS providers **SHALL** contact medical direction prior to transfer for any patient the provider perceives is receiving medications, skills, procedures, or acts felt contradictory to the current standards of care or guidelines.
4) Patients who require special monitoring (e.g. central venous pressure, intracranial pressure) or specialized equipment (i.e. intra-aortic balloon pump) should remain under the care of an experienced critical care practitioner, and every attempt should be made to transport these patients while maintaining an appropriate level of care.
   a) The capabilities of the facility and the transporting agency and, most importantly, the safety of the patient should be considered when making transport decisions.
5) Any medical skill and act not included in the following table is not allowed unless a waiver to the rules has been granted.
6) The EMS provider will determine transport priority and may delay the transfer due to high-risk weather and/or patientcondition assessment. Refer to individual agency policy.

Interfacility Transport Acts Allowed	EMT	EMT-IV	AEMT	EMT I-99	Paramedic
Fluid Administration/Maintenance					
Monitoring and maintenance of hospital/medical facility-initiated crystalloids	NO	YES	YES	YES	YES
Monitoring and maintenance of hospital/medical facility-initiated colloids (non-blood component) infusions	NO	NO	NO	YES	YES
Monitoring and maintenance of hospital/medical facility-initiated blood component infusion	NO	NO	NO	NO	YES
Initiate hospital/medical facility supplied blood component infusions	NO	NO	NO	NO	YES
Total parenteral nutrition (TPN) and/or vitamins	NO	NO	NO	YES	YES
Airway/Ventilation/Oxygen					
Ventilators - Automated Transport (ATV)[1]	NO	NO	NO	NO	YES
[1] Use of automated transport ventilators (ATVs) is restricted to the manipulation of tidal volume (TV or VT), respiratory rate (RR), fraction of inspired oxygen (FIO2), and positive end expiratory pressure (PEEP). Manipulation of any other parameters of mechanical ventilation devices by EMS providers require a waiver to these rules.					
Cardiovascular/Circulatory Support					
Aortic Balloon Pump Monitoring	NO	NO	NO	NO	NO
Chest Tube Monitoring	NO	NO	NO	NO	YES
Central Venous Pressure Monitor Interpretation	NO	NO	NO	NO	NO
Cardiac Medications					
Amiodarone - continuous infusion	NO	NO	NO	YES	YES
Lidocaine - continuous infusion	NO	NO	NO	YES	YES

Cardiac Medications

Anticoagulant - Glycoprotein inhibitors	NO	NO	NO	NO	YES
Anticoagulant - Heparin (unfractionated)	NO	NO	NO	NO	YES
Anticoagulant - Low Molecular Weight Heparin (LMWH)	NO	NO	NO	NO	YES
Diltiazem/ Cardizem infusion	NO	NO	NO	NO	YES
Dobutamine	NO	NO	NO	NO	NO
Epinephrine – infusion	NO	NO	NO	NO	NO
Nicardipine	NO	NO	NO	NO	YES
Nitroglycerin, intravenous	NO	NO	NO	NO	YES
Norepinephrine	NO	NO	NO	NO	NO
High Risk OB Medications					
Magnesium sulfate infusion	NO	NO	NO	NO	YES
Oxytocin/Pitocin infusion	NO	NO	NO	NO	YES
Miscellaneous Medications					
Antibiotic infusions	NO	NO	NO	YES	YES
Antidote infusion - Sodium bicarbonate infusion	NO	NO	NO	NO	YES
Electrolyte infusion - Magnesium sulfate	NO	NO	NO	NO	YES
Electrolyte infusion - Potassium chloride	NO	NO	NO	NO	YES
Insulin	NO	NO	NO	NO	YES
Mannitol	NO	NO	NO	NO	YES
Methylprednisolone/Solu-cortef - infusion	NO	NO	NO	NO	YES
Octreotide	NO	NO	NO	NO	YES
Pantoprazole/Protonix	NO	NO	NO	NO	YES

Interfacility Transport Acts Allowed – Critical Care Paramedic	**P-CC**
Manual Transport Ventilators	YES
Blood Chemistry Interpretation	YES
Rapid Sequence Intubation – Adult (age 13 & over)	YES

Medications - Critical Care Paramedic	**P-CC**
acetylcysteine (Mucomyst)	YES
alteplase (Activase)/ tPA infusion	YES
antibiotics	YES
bilvalirudin (Angiomax)	YES
diazepam (Valium)	YES
dobutamine (Dobutamine)	YES
esmolol (Brevibloc)	YES
etomidate (Amidate)	YES
fentanyl (Sublimaze)	YES
fosphenytoin (Cerebyx)	YES
ketamine (Ketalar)	YES
labetalol (Normodyne)	YES
levitiracetam (Keppra)	YES
metoprolol (Lopressor)	YES
midazolam (Versed)	YES
morphine sulfate	YES
norepinephrine (Levophed)	YES
phenytoin (Dilantin)	YES
propofol (Diprivan)	YES
rocuronium (Zemuron)	YES
succinylcholine (Anectine)	YES
TNKase (Tenecteplase)	YES
vecuronium (Norcuron)	YES

Airway Management

Definition:

1) The goal of airway management is to ensure patients receive adequate ventilation and oxygenation. This can be accomplished through various techniques including but not limited to, basic positioning, adjuncts, and/or advanced level airways.
    a) Assessment is crucial to the success of airway management helping to identify complications before they arise and thus ensuring a proper device is utilized in the right clinical situation.
    b) A difficult airway is defined as the clinical situation in which a conventionally trained prehospital provider has trouble with maintaining adequate ventilation and oxygenation.
        i. Successful airway management is not defined as the placement of an endotracheal tube (ETT), it is the ability to effectively oxygenate and/or ventilate.
2) The infectious disease operational timeline is determined by Medical Direction.

Description

1) Many aspects of this guideline have been modified to achieve the highest level of EMS provider safety during an infectious disease crisis such as COVID-19; the guideline will be reviewed again for modification after the exposure threat has resolved.
2) All airway management should be performed with EMS provider in recommended PPE.
3) All attempts should be made to optimize oxygenation/ventilation prior to placement of an advanced airway to the maximum point possible.
4) Advanced airway placement in conjunction with continuous waveform $EtCO_2$ and pulse oximetry.
5) Consider early insertion of an advanced airway in arrest with suspicion of primary respiratory etiology.
6) Ensure perfusion status prior to placing an advanced airway i.e. systolic BP<90, E_tCO_2<30, MAP<60.
    a) Administer early ***FLUID THERAPY.***
    b) Patients demonstrating inadequate perfusion administer an ***EPINEPHERINE INFUSION.***
7) **NO MORE THAN (3) ETT TOTAL ATTEMPTS PER PATIENT**
    a) Definition of an ETT intubation attempt is when the blade passes the teeth with the intent to insert an ETT through the vocal cords.
    b) Recommend oxygen administration at 8 L via nasal cannula during ETT attempt.
8) Consider cricothyrotomy in patients where effective oxygenation and/or ventilation cannot be provided.

Infectious Disease

1) Avoid aerosol-generating procedures (AGPs) (i.e. nebs, C-Pap, etc.) unless absolutely necessary; if AGPs are necessary, perform using a barrier device (BD) when possible.
2) Advanced airway preference in order is as follows:
    a) ALL SITUATIONS: iGel with viral filter > iGel with barrier device (BD) > Video Laryngoscopy (VL) intubation with filter > Video Laryngoscopy (VL) intubation with barrier device (BD) > VL intubation > iGel without barrier device or viral filter.

Non-Infectious Disease

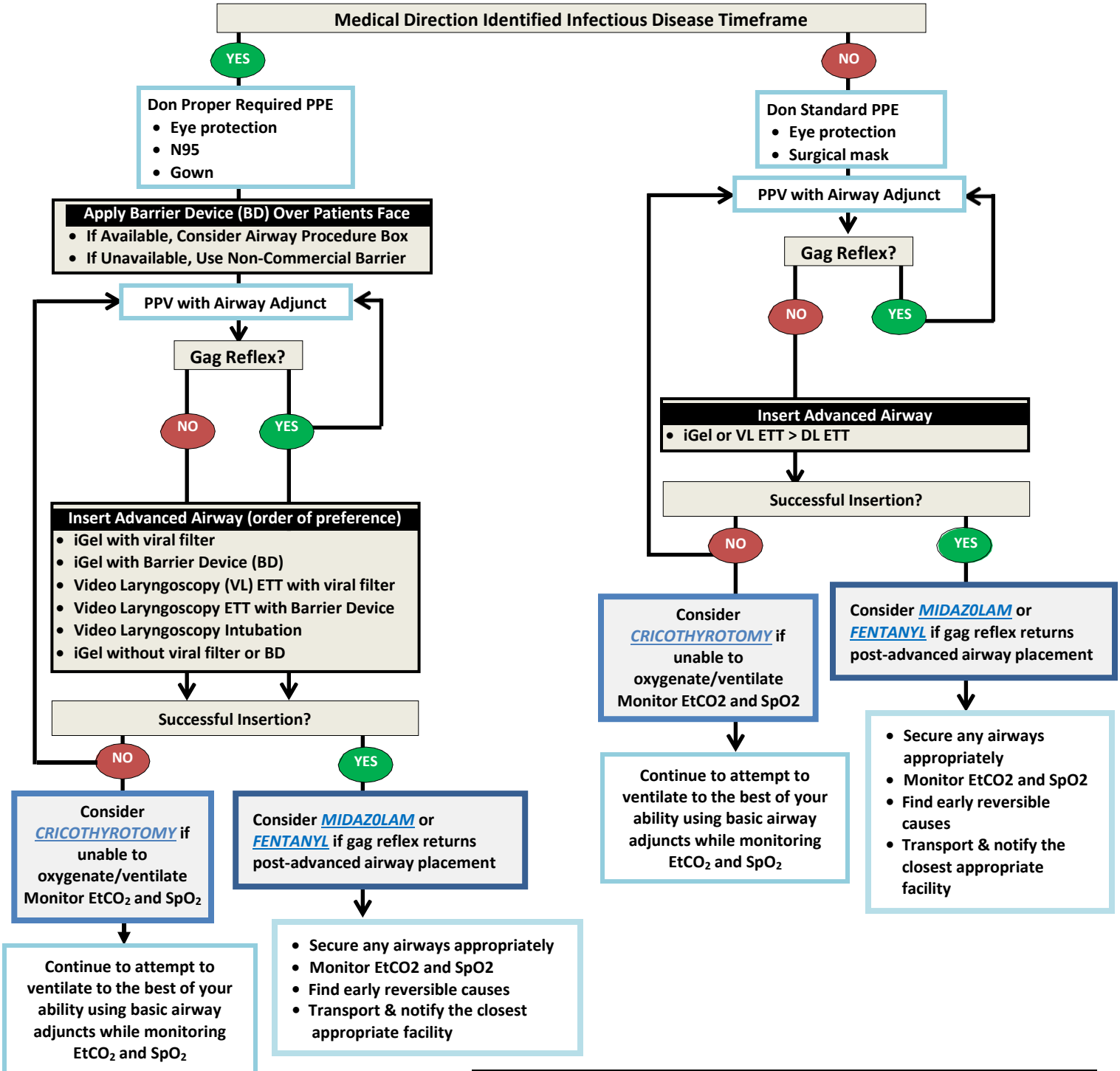
1) Advanced airway preference in order is as follows:
    a) Respiratory Arrest: iGel or VL intubation > DL intubation
    b) Cardiac Arrest: IGel > VL intubation > DL intubation
    c) ROSC: iGel or VL intubation > DL intubation

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Airway Management

Description:

a. This algorithm is intended to assist the prehospital provider navigate airway management in the setting of imminent or current respiratory arrest.



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Airway Procedures

Provider Level	Oral and Nasopharyngeal Airways	Continuous Positive Airway Pressure (CPAP)	Supraglottic Airway Devices	Oral Intubation 13 & over	Oral Intubation < 12 years old	Nasal Intubation	Surgical and Needle Cricothyrotomy	Needle Decompression
EMR	YES	NO	NO	NO	NO	NO	NO	NO
EMT	YES	YES	YES	NO	NO	NO	NO	NO
EMT-IV	YES	YES	YES	NO	NO	NO	NO	NO
AEMT	YES	YES	YES	NO	NO	NO	NO	NO
Intermediate	YES	YES	YES	YES	NO	NO	NO	YES
Paramedic	YES	YES	YES	YES	NO	NO	YES	YES

Nasopharyngeal Airway (NPA)

1) Indications:
   a) Unconscious/semi-conscious with an intact gag reflex needing airway support
2) Contraindications:
   a) Any resistance
   b) Improper size
3) Special Considerations:
   a) Can be utilized in patient's potential basilar skull fractures when airway management is required

Oropharyngeal (OPA)

1) Indications:
   a) Unconscious without an intact gag reflex needing airway support
2) Contraindications:
   b) Gag reflex
3) Special Considerations:
   c) Consider a more advanced airway, if ineffective or unable to insert properly

Continuous Positive Airway Pressure (CPAP)

1) Indications:
   a) Respiratory conditions exhibiting severe distress or failure such as:
      i) CHF/Pulmonary Edema
      ii) High altitude pulmonary edema
      iii) Asthma
      iv) COPD/Emphysema
      v) Drowning/Near-Drowning
      vi) Pneumonia
      vii) Hyperkalemia
2) Contraindications:
   a) Respiratory or cardiac arrest
   b) Systolic BP < 90 mmHg
   c) Lack of gag reflex
   d) Altered mental status, unable to follow verbal instructions or signal distress
   e) Vomiting, aspiration risk, or active upper GI bleed
   f) Suspected or known pneumothorax, penetrating chest trauma
   g) Severe epistaxis
   h) Patient size or facial anatomy prevents adequate mask seal

3) C-PAP Special Considerations:
   a) Should patient deteriorate on CPAP:
      i) Troubleshoot equipment
      ii) Consider advanced airway
      iii) Assess need for possible chest decompression due to pneumothorax
      iv) Assess for possibility of hypotension secondary to significantly reduced preload caused by positive pressure ventilation.
   b) There is no age criteria; it is based on size of the mask. If the mask properly fits (without modification), then use is allowed.
   c) In-line nebulized medications may be given during CPAP as clinically indicated and in accordance with manufacturer recommendations
   d) Continuously monitor $EtCO_2$
   e) The default size of mask utilized is medium. Medium will fit the majority of patients
   f) If the patient is anxious, consider mild sedation; see ***BEHAVIORAL EMERGENCY GUIDELINE***
   g) Consider pretreating with an antiemetic; see ***NAUSEA VOMITING GUIDELINE***

Supraglottic Airway

1) Indications:
   a) Cardiac arrest after continuous compressions, defibrillation, and BLS airway management has been completed
   b) Unresponsive patient without a gag reflex
   c) Rescue airway when intubation is difficult/ is unsuccessful
2) Contraindications:
   a) Intact gag reflex
   b) Obstructive lesions below the glottis
   c) Caustic ingestion (does not apply to I-Gel airways)
   d) Patients with known or suspected esophageal varices (does not apply to I-Gel airways)
   e) Patients under/over height/length for tube size used
3) Special Considerations:
   a) Airway sizing is based on patient's IDEAL body weight and not their actual weight
   b) Ensure correct sizing per manufacturer recommendations for best results
   c) Pediatric I-Gels do not come with a manufacturer's securing device; consider attaching tape or tube tie to package

Oral Endotracheal Intubation

1) Indications:
   a) Patients whose clinical condition warrants airway or ventilation management due to worsening or impending respiratory compromise and/or the unconscious patient without a gag reflex
2) Contraindications:
   a) None, if there is the need for definitive airway management
3) Special Considerations:
   a) Have backup plans, equipment (including rescue airway device), and supplies ready
   b) **Direct video laryngoscopy is preferred**, but not required, during initial attempt, if available
   c) Consider utilizing a bougie stylet
   d) In addition to waveform capnography, confirm and document **3** other methods of correct tube placement
   e) Ventilate at the appropriate rate and volume for the patient's age and/or condition
   f) If the intubated patient deteriorates, think "DOPE"
      i) Dislodgement
      ii) Obstruction
      iii) Pneumothorax
      iv) Equipment failure (no oxygen)

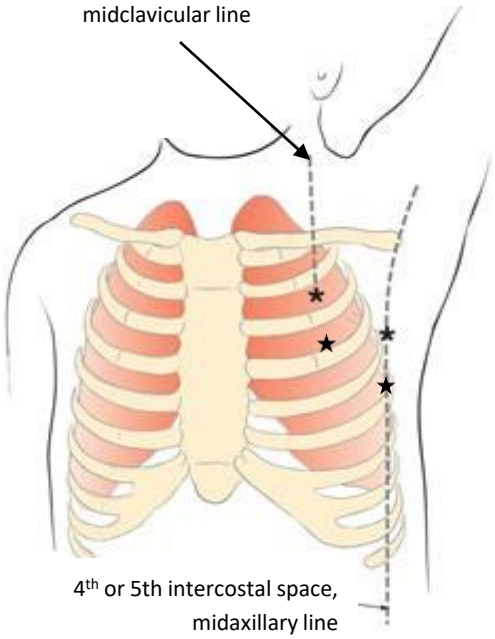
Airway Procedures

Cricothyrotomy

1) Indications:
   a) A life-threatening condition exists AND advanced airway management is indicated AND you are unable to establish an airway or ventilate the patient by any other means. ("Cannot intubate/cannot ventilate"). Examples include but are not limited to;
      i) Acute upper airway obstruction, which cannot be relieved by obstructed airway maneuvers
      ii) Upper airway trauma with inability to orally intubate a patient who has severe respiratory insufficiency/ unmanageable airway secretions
   b) Perform Bougie-assisted Surgical Cric: Patient age ≥8 years old
   c) Perform Needle Cric: Patient age 1 to 8 years old. Provides 20 - 40 minutes of oxygenation
   d) Cricothyrotomy is not indicated for <1 year old
   e) Needle Cricothyrotomy: Asthma- If other resources are exhausted
2) Contraindications:
   a) Tracheal transection
   b) Significant trauma to the cricoid cartilage or larynx
   c) Unable to locate anatomical landmarks
3) Special Considerations:
   a) For surgical cricothyrotomy, **bougie-assisted technique is preferred**
   b) Bleeding is common in surgical cricothyrotomy, even with correct technique; have suction available

Needle Decompression

1) Indications:
   a) Suspected tension pneumothorax associated with hypotension and/or poor perfusion
   b) Blunt or penetrating trauma to the thorax
2) Contraindications:
   a) None in the emergency setting
3) Special Considerations:
   a) If patient deteriorates after needle decompression, be prepared to assist with ventilation
   b) Acceptable locations include the,
      i. 2nd anterior (between 2nd & 3rd ribs) **or** 3rd (between 3rd &4th ribs) intercostal space **at the midclavicular line or**
      ii. 4th lateral (between 4th & 5th ribs) **or** 5th (between 5th & 6th ribs) intercostal space **at the midaxillary line**.
   c) Guide the catheter over the top of the inferior rib during insertion
   d) Insertion in pediatric patients is 1/3 the depth of the chest
   e) *Consider* 1.5 inch 14- or 16-gauge catheter
   f) Angiocath may become occluded with blood or by soft tissue. Be prepared to repeat the procedure as clinically indicated
   g) Do not remove original catheter; place another next to the first
   h) Midaxillary is preferred location, if hemothorax is suspected



Cardiac-Related Procedures

Provider Level	Cardiac Monitoring (Noninterpretive)	Cardiac Monitoring (Interpretive)	12-Lead ECG	Automated External Defibrillator	Manual Defibrillation	Synchronized Cardioversion	Transcutaneous Pacing (TCP)	Vagal Maneuvers
EMR	YES	NO	YES	YES	NO	NO	NO	NO
EMT	YES	NO	YES	YES	NO	NO	NO	NO
EMT-IV	YES	NO	YES	YES	NO	NO	NO	NO
AEMT	YES	NO	YES	YES	NO	NO	NO	NO
Intermediate	YES	YES	YES	YES	YES	NO	YES	NO
Paramedic	YES	YES	YES	YES	YES	YES	YES	YES

Cardiac Monitoring

1) Indications:
   a) Patients with clinical syndromes or situations at increased risk of cardiac arrhythmias
   b) Patients who experience transient symptoms such as seizure, brief resolved unexplained event (BRUE), dizziness, palpitation, syncope, chest pain that may suggest a cardiac arrhythmia, and after administering opioids and/or benzos for pain management
   c) Routine monitoring of heart rate
2) Contraindications:
   a) None in the emergency setting
3) Special Considerations:
   a) Avoid placement directly over implanted devices
   b) Avoid placement over medication patches. Remove patch, cleanse skin, and apply electrodes

12- Lead ECG

1) Indications:
   a) Patients with clinical syndromes or situations at increased risk of cardiac arrhythmias
   b) Patients with suspicion of acute coronary syndromes
   c) Post cardiac arrest patients
2) Contraindications:
   a) None in the emergency setting
3) Special Considerations:
   a) Consider right sided or posterior ECG if inferior or posterior myocardial infarction is suspected
   b) Small areas of hair on the client's chest or extremities may be shaved
   c) If patient's skin is exceptionally oily, scaly, or diaphoretic rub the electrode site with a dry 4" × 4" gauze pad or alcohol pad before applying the electrode to help reduce interference in the tracing
   d) During the procedure, ask the patient to breathe normally. If the respirations distort the recording, ask them to hold his/her breath briefly to reduce baseline wander in the tracing

Automated External Defibrillator (AED) and Manual Defibrillation

1) Indications:
   a) All patients in cardiopulmonary arrest (for AED use)
   b) Pulseless ventricular tachycardia and/or ventricular fibrillation (for Manual Defibrillation)
2) Contraindications:
   a) Patients with a pulse
3) Special Considerations:
   a) Infant pads are generally used for patients < 1 year of age or < 15 kg
   b) Energy setting
      i. AED: **ADULT:** Automated, **PEDIATRIC** >Neonate
         1. NOT ALLOWED for neonate pediatric patients
      ii. Manual: **ADULT:** maximum joules, repeat as needed **PEDIATRIC**: 4 joules/kg repeated as needed

Cardiac-Related Procedures

Synchronized Cardioversion

1) Indications:
   a) Tachydysrhythmia with a pulse (ventricular tachycardia, torsade de pointe, SVT, A-fib/Flutter with RVR, etc.) and signs of poor perfusion
2) Contraindications:
   a) Repetitive, self-terminating, short-lived tachycardias (i.e. runs of non-sustained VT)
3) Special Considerations:
   a) Do not be overly concerned about the dysrhythmias that normally occur in the few minutes following successful cardioversion. These usually respond to time and adequate oxygenation and should only be treated if they persist more than 5 minutes
   b) ***MIDAZOLAM*** may be used in conscious adult patients prior to cardioversion
   c) ENERGY SETTING
      i) **ADULT:** Maximum joules, repeat as needed
      ii) **PEDIATRIC:** 2 joules/kg, repeat as needed

Transcutaneous Pacing (TCP)

1) Indications:
   a) Bradydysrhythmia with a pulse and signs of poor perfusion
2) Contraindications:
   a) Moderate to severe hypothermia
   b) Pulseless cardiac arrest
   c) Bradycardia due to trauma
3) Special Considerations:
   a) Consider ***PAIN MANAGEMENT***
   b) Muscle tremors may complicate evaluation of pulses; femoral pulse may be more accurate. Utilizes $EtCO_2$ to help identify improved perfusion
   c) Studies indicate no relationship between body surface area, weight, and capture thresholds and although most children will achieve capture between 50 to 100 mA higher current requirements are possible
   d) The pacing rate must be set high enough to perfuse the patient
   e) ENERGY SETTING
      i) **ADULT:** Set rate at 60 beats per minute, begin energy at lowest dose and increase energy until electrical/mechanical capture
      ii) **PEDIATRIC:** Set rate at 80 beats per minute, begin energy at lowest dose and increase energy increase energy until electrical/mechanical capture

Vagal (Valsalva) Maneuvers

1) Indications:
   a) Stable tachydysrhythmia
2) Contraindications:
   a) Patient unable to attempt the maneuver or follow commands
3) Special Considerations:
   a) Patients should be instructed on how to perform vagal maneuvers properly before attempting one
   b) Preferred Technique,
      i) To improve conversions success rate, place the patient in Trendelenburg position and if the patient is able have them draw their knees to their chest. Once in position have the patient blow out the plunger of a 10 mL syringe
      ii) In pediatrics a bag of ice with water (easily moldable) can be applied to the face
      iii) Any vagal maneuver has a higher success rate when held for 30 seconds
      iv) Repeat as needed until conversion or patient becomes unstable

Law Enforcement Blood Draw

Description:

If a blood draw is requested by Fire District/Department, the following procedures shall commence:

Procedure:

a) Law Enforcement shall contact El Paso County Dispatch and advise the need for a blood draw.
b) El Paso County Dispatch shall contact Fire District/Department who will identify the closest available fire station to the Law Enforcement.
c) El Paso County Dispatch will notify the fire station by phone with an estimated ETA for the Law Enforcement.
d) Fire District/Department understands that if an emergency call for service arises prior to the Law Enforcement's arrival at the fire station, the fire unit will respond to the call for service.
    i. Upon arrival of the Law Enforcement, Fire Department will notify dispatch of an in-station alarm for a Fire District/Department blood draw. This request will take this fire unit out of service while performing the blood draw.
    ii. FD personnel will document this activity as indicated below.
e) If at any time during this process a significant emergency incident (i.e., structure fire, cardiac arrest, etc.) arises in the station's district, the company shall immediately return to service and respond to the emergency incident.
    i. FD personal shall follow the above procedure to identify a different fire station to complete the blood draw procedure.
f) All materials for the blood draw procedure will be provided by Law Enforcement,
    i. Law Enforcement will be responsible for all evidence collected as part of the blood draw procedure including storage and testing of the samples.
g) A Paramedic or an EMT-IV may perform the procedure.

Special Considerations:

a) Complete documentation of procedure on ePCR system NFER's section if no patient care rendered, or assessment performed

Miscellaneous Procedures

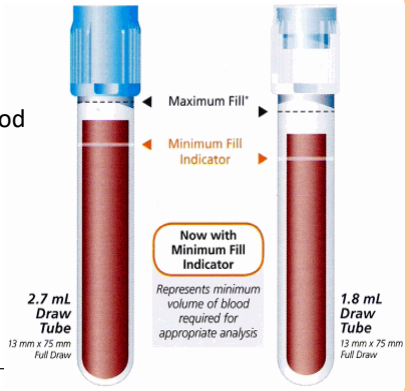
Provider Level	Suction (upper airway)	Suction (lower airwatl)	Venous Blood Draw	Gastric Tube Insertion (oral)	Gastric Tube Insertion (nasal)
EMR	YES	NO	NO	NO	NO
EMT	YES	NO	NO	NO	NO
EMT-IV	YES	NO	YES	NO	NO
AEMT	YES	YES	YES	NO	NO
Intermediate	YES	YES	YES	YES	NO
Paramedic	YES	YES	YES	YES	YES

Suctioning

1) Indications:
   a) Obstruction of the airway or stoma (secondary to secretions, blood, or any other substance) that need to be cleared
   b) Clear secretions, blood, etc in a patient currently being assisted by an airway adjunct such as an OPA/NPA, endotracheal tube, supra glottic airway, tracheotomy tube, or cricothyrotomy tube
2) Contraindications:
   a) None
3) Special Considerations:
   a) Suctioning, particularly through endotracheal tubes, always risks suctioning the available oxygen, as well as the fluid, from the airway. Limit the suction time to a few seconds while the catheter is being withdrawn
   b) Patients with pulmonary edema may have endless frothy secretions. Be sure to allow time for the patient to breathe, even though it is tempting to continue suctioning
   c) Complications may be caused both by inadequate and overly vigorous suctioning. Technique and choice of equipment are very important. Choose equipment with enough power to suction large amounts rapidly to allow time for ventilation

Blood Draw (Non-Law Enforcement)

a) Indications:
   i. Blood sampling should be considered in any patient where lab testing would be medically beneficial
b) Contraindications:
   i. None
c) Special Considerations:
   i. **DO NOT** delay time sensitive treatments or transport in order to attain blood sampling
   ii. Avoid areas with cellulitis, hematomas, vascular shunt/graphs, and/or vascular access devices
   iii. Order of blood draw: **BLUE**, **RED**, **GREEN**, LAVENDER
      - Ensure the **BLUE** tube has been filled to marker line



Orogastric/ Nasogastric Tube Insertion

1) Indications:
   a) Adult and pediatric patients, following advanced airway placement to relieve air build-up in the stomach
   b) Maintenance of a previously placed gastric tube
2) Contraindications:
   a) Actual or suspected laceration or perforation of the esophagus
   b) Ingestion of a caustic substance
3) Special Considerations:
   a) Anticoagulant use (e.g., coumadin, warfarin) or disorders of coagulopathy (hemophilia) is a relative contraindication
   b) Nasal gastric tube placement – consider facial maxillary trauma

Monitoring Devices

Provider Level	Blood Glucose Monitor	SpO_2	$EtCO_2$	spCO Monitor
EMR	YES	YES	YES	YES
EMT	YES	YES	YES	YES
EMT-IV	YES	YES	YES	YES
AEMT	YES	YES	YES	YES
Intermediate	YES	YES	YES	YES
Paramedic	YES	YES	YES	YES

Blood Glucose Monitor

1) Indications:
   a) Known or suspected diabetic-related complaints
   b) Patients with metabolic or endocrine disorders and presenting with non-specific complaints
   c) Patients with altered mental status
   d) Bradycardia or hypothermia in infants
   e) Newborn delivery in the field with abnormal APGAR score
   f) Traumatic brain injury
   g) Seizures
2) Contraindications:
   a) None
3) Special Considerations:
   a) Hypo/Hyperglycemia numbers are relative to patient's normal blood glucose level

SpO_2

1) Indications:
   a) Any and all patients who require a respiratory assessment and/or have a respiratory complaint
2) Contraindications:
   a) None
3) Special Considerations:
   a) Inaccurate measurements may be caused by:
      i) CO poisoning
      ii) Elevated levels of bilirubin, carboxyhemoglobin, or methemoglobin
      iii) Externally applied coloring (such as nail polish)
      iv) Severe anemia or low arterial perfusion
      v) Motion artifact
      vi) Hydroxycobalmin administration

$EtCO_2$

1) Indications:
   a) Initial and continuous confirmation of advanced airway placement
   b) Any patient receiving CPR
   c) Any patient with a respiratory complaint or depression
   d) Any patient with suspected shock
   e) Any patient receiving narcotics **and/or** benzodiazepines
2) Contraindications:
   a) None

3) Special Considerations:
   a) All patients with an advanced airway and/or CPR will have $EtCO_2$ monitored and documented
      i) Copies of the post advanced airway waveform and waveform at time of transfer of care to receiving facility will be attached to the Patient Care Record (PCR)
   b) Patients with normal cardiac and pulmonary function should have a level of 35 to 45 mmHg
   c) If no $EtCO_2$ is detected, evaluate 3 factors:
      i) Loss of airway function: improper tube placement, apnea
      ii) Loss of circulatory function: cardiac arrest, exsanguination, massive PE
      iii) Equipment malfunction: tube dislodgement, adapter is disconnected or obstructed
4) $EtCO_2$ value > 10 may be utilized to confirm the quality of chest compressions and the adequacy of an airway including BVM and advanced devices. $EtCO_2$ value 10-20 represents high quality compressions
5) If $EtCO_2$ value significantly increases, assess for ROSC
6) In the post resuscitation patient, no effort should be made to lower $EtCO_2$

SpCO Monitor

1) Indications:
   a) Known or suspected carbon monoxide poisoning
2) Contraindications:
   a) None
3) Special Considerations:
   a) Be sure to follow manufacturer instructions as some require no direct sun light on probe sensor
   b) Inaccurate readings may occur due to misplaced/dislodged probes
   c) If an abnormal level of CO is detected, always confirm by measuring other fingers and average
   d) Inaccurate measurements may be caused by,
      i) Elevated levels of bilirubin, carboxyhemoglobin, or methemoglobin
      ii) Externally applied coloring (such as nail polish)
      iii) Severe anemia or low arterial perfusion
      iv) Motion artifact
      v) Hydroxycobalmin administration

Provider Level	IV Access (Peripheral)	IV Access (External Jugular)	IV Access (Umbilical Vein)	IV Access (AV Fistula)	Intraosseous (IO) Access	Access PICC/ Central Line
EMR	NO	NO	NO	NO	NO	NO
EMT	NO	NO	NO	NO	NO	NO
EMT-IV	YES	NO	NO	NO	YES	NO
AEMT	YES	YES	NO	NO	YES	NO
Intermediate	YES	YES	NO	NO	YES	NO
Paramedic	YES	YES	NO	NO	YES	NO

Intravascular (IV) Access

1) Indications:
   a) Where fluid replacement therapy and/or intravascular medications may be clinically indicated
2) Contraindications:
   a) No absolute contraindications exist
3) Special Considerations:
   a) Avoid placing a peripheral IV in an injured, infected, or burned extremity
   b) Avoid placing a peripheral IV in a site with a arteriovenous (AV) fistula or an atrophied extremity (stroke patient)
   c) Continuous monitoring is indicated to ensure that the IV has not infiltrated
   d) If an accidental arterial puncture occurred, as evidenced by arterial pulsation of blood out of the catheter, remove the catheter and apply direct pressure using gauze for at least 10 minutes
   e) Peripherally inserted central catheter (PICC) access including tunneled catheters or implanted ports is NOT allowed

Intraosseous (IO) Access

1) Indications:
   a) For adults and pediatrics use anytime in which vascular access is difficult/impossible to obtain in emergent, urgent, or medically necessary cases
2) Contraindications:
   a) Fracture of the targeted bone
   b) Previous orthopedic procedures near insertion site (prosthetic limb or joint)
   c) IO within the past 24-to-48 hours in the targeted bone
   d) Infection at the insertion site
   e) Inability to locate landmarks or excessive tissue over the insertion site
3) Approved Sites:
   a) EZ-IO
      i. Humeral Head (proximal humerus)
      ii. Proximal tibia
      iii. Distal femur
   b) Manual IO
      i. Proximal tibia
4) Special Considerations:
   a) Consider alternate site if excessive tissue is present at insertion site
   b) Consider alternate site if infection/burn is present at insertion site

Nausea/Vomiting

Description

a) The chances of aspiration due to excessive vomiting can be reduced through the administration of an antiemetic and can also increase the effectiveness of pain management medications administered prehospital.
b) By disrupting the stimulus to vomit and by reducing nausea, a patient will be more comfortable during transport.

Indications

a) Nausea or vomiting stemming from any medical or traumatic complaint
b) Prophylaxis treatment for ***PAIN MANAGEMENT***, ***CPAP***, or ***SPINAL MOTION RESTRICTION***
c) Prophylaxis treatment for any patient with high risk of motion sickness

Initial assessment
Maintain airway and monitor for possible aspiration
Acquire VS & early 12-lead EKG, if clinically indicated

***ODT ZOFRAN*: PRN every 10 mins**
- **ADULT: 4 mg**
- **PEDIATRIC >40 kg: 4 mg**

Establish vascular access

Consider ***ZOFRAN*: PRN every 10 minutes**
- **ADULT: 4 mg ODT/IN/IM/IV/IO**
- **PEDIATRIC <40 kg: 0.1 mg/kg ODT/IN/IM/IV/IO**

Consider *DROPERIDOL*: PRN every 10 mins up to 2 total doses
- **Adult:** 2.5 mg SLOW IV/IO or IM
- **Pediatric (2 to 12 years old):** 0.01 mg/kg slow IV/IO or IM; **MAX** single dose of 1.25 mg

HALDOL: **Adult:** 5mg IV/IM Gastrointestinal/Cyclical Vomiting
PEDIATRIC: NOT Allowed

Hypotension or Dehydration

NO → **General supportive care**

YES → **Consider *IV FLUID*:**
- **ADULT and PEDIATRIC: 20 mL/kg bolus repeated as needed**

General supportive care

Special Considerations

- **Vomiting or diarrhea may be symptoms of a more serious problem, but all cause some degree of hypovolemia. The most serious causes are GI bleed or other intra-abdominal catastrophe.**
- **Vomiting as an isolated symptom should always be suspected to be secondary.**
  - **Consider ingestion, cardiac disease or other serious conditions.**
  - **Occasionally, a cardiac patient may present with vomiting or diarrhea as their predominant symptom.**
  - **May be the initial presentation of CO poisoning.**
- **Dehydration may be particularly severe in children with simple vomiting and diarrhea.**
  - **Vascular access may be very difficult to obtain, particularly with infants.**
  - **Transport for definitive treatment is usually best.**
- **Blood in the GI tract is an irritant and can cause vomiting as well as diarrhea.**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Pain Management

Indications for Management of Pain with Medication

1) Pain stemming from an isolated traumatic injury or an easily identifiable medical condition.
2) Pain associated with myocardial ischemia. (See ***ACS GUIDELINE***).
3) Patient complaint of generalized abdominal pain.

Precautions

1) Most pain medications should only be given to hemodynamically stable patients and titrated slowly to effect. In hemodynamically unstable patients, consider giving smaller, incremental doses of ***FENTANYL, MORPHINE, DILAUDID***,or ***KETAMINE***.
2) Opioid and/or benzo pain medications may cause changes in hemodynamic status and/or respiratory depression. (including apnea) that can occur suddenly and without warning and are more common in children and the elderly.
3) Chest wall rigidity has been reported with rapid administration of ***FENTANYL.***
4) Strongly consider ½ typical dosing in elderly patients or when combining benzodiazepines and opioids.

General Patient Care Requirements

1) **All** patients receiving opioid and/or benzo pain medications should receive constant SpO_2, $EtCO_2$ and blood pressure monitoring. ECG monitoring is also highly encouraged.
   a) When this is not possible (i.e. in a back-country environment), pulse oximetry and constant verbal engagement with the patient are the minimum monitoring requirements.

Other Medication Options

1) The administration of a combination of benzodiazepines (***MIDAZOLAM, ATIVAN or VALIUM***) and opiates, for the purpose of pain management, anxiety and/or muscle relaxation is permitted; **these patients require constant EtCO2 monitoring.**
   a) Ensure that the patient can independently maintain an open airway and normal breathing pattern, maintain normal hemodynamics, and respond appropriately to physical stimulation and verbal commands.
2) Consider an antiemetic prior to administration of an opioid for nausea, see ***NAUSEA VOMITING GUIDELINE.***
3) Consider benzodiazepines for anxiety associated with pain, see ***BEHAVIORAL EMEGENCIES GUIDELINE.***

Special Considerations

1) The objective of pain management is not the complete relief of all pain, but rather, to make a patient's pain tolerable enough to allow for adequate assessment, treatment, and transport.
2) The use of benzodiazepines may be indicated for pain resulting from muscle spasms but will not control other types of pain as effectively as the appropriate dose of opiates.
3) Be prepared to treat respiratory depression / apnea.
4) Fentanyl is the first line medication for treating pain in pregnant patients (including both OB or GYN pain), unless allergy exists.
5) Pain is a secondary concern in trauma; look for major bleeding or life-threats first. Once stabilized, consider pain management.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Pain Management

Initial assessment; identify underlying cause
Maintain patent airway and *OXYGENATION*
Acquire VS & early 12-lead EKG as clinically indicated
Use an age appropriate pain scale* to measure patient's level of pain

Mild to Moderate Pain

General supportive care
Manage pain with non-invasive treatments (if applicable) such as position of comfort, rest, ice, splinting and elevation

ACETAMINOPHEN: NOT Repeated
- ADULT: Assist patient with taking 500 - 1,000 mg PO
- PEDIATRIC > 6 MONTHS: May assist parent or guardian to administer 15 mg/kg dose PO.MAX dose of 1,000 mg

OR

IBUPROFEN: NOT Repeated
- ADULT: Assist patient with taking 600 mg PO
- PEDIATRIC > 6 MONTHS: May assist parent or guardian to administer 10 mg/kg PO, MAX dose of 600 mg

OR: Establish vascular access, if indicated

KETORALAC: NOT Repeated
- ADULT: 15mg IV/IO or 30mg IM
- PEDIATRIC > 2 YEARS: 0.5mg/kg IV/IO/IM. MAX dose 15mg IV/IO or 30mg IM

Moderate to Severe Pain

Establish vascular access, if indicated

Opiates

FENTANYL;
- ADULT: 50 to 100 mcg IV/IO over 1 -2 minutes or IN/IM; repeat every 10 minutes as needed
- PEDIATRIC: 1 mcg/kg IV/IO over 1 to 2 minutes or IN/IM. Repeat every 10 mins as needed. MAX single dose 50 mcg

OR

MORPHINE: PRN every 10 minutes
- ADULT: 2 to 4 mg bolus IV/IO administered over 1 to 2 minutes or rapid IM (NOT administered for pain due to ACS)
- PEDIATRIC: 0.1 mg/kg bolus IV/IO administered over 1 to 2 minutes or IM MAX single dose of 4 mg

DILAUDID: PRN every 10 minutes
- ADULT: 0.5 mg bolus IV/IO administered over 1 to 2 minutes or IM
- PEDIATRIC: NOT Allowed

*****Waivered ONLY*****

KETAMINE;

ADULT and PEDIATRIC >7 yo:
- 20 mg IV/IO; Repeat as needed every20 minutes up to 3 TOTAL doses; If time allows, add to a 50 mL NS or D5W bag, & administer over 5 to 10 minutes

OR
- 40 mg IN/IM; Repeat as needed every20 minutes up to 3 TOTAL doses.
- Contact Medical Control for additional doses

Spasm/Anxiety

Benzodiazepines

MIDAZOLAM: PRN every 10 minutes
- ADULT: Up to 5 mg IV/IO/IN/IM
- PEDIATRIC: 0.1 mg/kg IV/IO/IN/IM, MAX single dose of 5 mg

OR

LORAZEPAM: PRN every 10 minutes
- ADULT: 2 mg IV/IO/IN/IM over 1 to 2 mins
- PEDIATRIC: 0.1 mg/kg IV/IO/IM/IN over 1 to 2 minutes, MAX single dose of 1 mg

OR

DIAZEPAM: PRN every 10 minutes
- ADULT: 2.5 to 5 mg IV/IO/IM/IN
- PEDIATRIC: 0.1 mg/kg IV/IO/IM/IN MAX single dose of 10 mg

*Age Appropriate Pain Scale

Wong-Baker FACES™ Pain Rating Scale

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Spinal Motion Restriction

Description: This guideline is modeled after the National Emergency X-Radiography Utilization Study (NEXUS) criteria

Mechanism of injury or preexisting medical condition that implies potential need for spinal motion restrictions

Establish manual, in-line cervical stabilization

Does the patient present with ANY of the following?

- IMPAIRED JUDGEMENT from intoxication or recreational drugs, distracting injury/illness, and/or CANNOT make rational decisions
- Barriers to evaluating for spinal injury (e.g. language or developmental barrier)
- Patient >65 or <5 years of age
- Neurologic complaints or deficits, i.e. numbness, tingling, weakness or burning
- Midline pain/tenderness to palpation, especially significant pinpoint, isolated pain/tenderness

YES

Splint cervical spine
Remind patient NOT to move
Monitor respiration; be prepared to assist ventilations as needed

Does neuro exam reveal obvious motor or sensory deficits?

NO

Is patient alert, oriented, calm, and cooperative?

YES

Are there signs or symptoms of hypovolemic or neurogenic shock?

YES

Establish IV access
IV FLUIDS **- 20 mL/kg NS IV/IO**
Keep the patient warm!

Patient REQUIRES Spinal Motion Restriction

NO

YES

Patient DOES NOT require SMR

- Release manual inline stabilization
- Leave cervical spine splint in place
- Transport patient in position of comfort
- General supportive care
- Document cervical clearance

NO

Patient does not require SMR
General supportive care
See *GENERAL TRAUMA CARE GUIDELINE*

Spinal Motion Restriction (SMR)

Includes cervical collar and acceptable devices
- Not necessarily a backboard

- Acceptable devices
  - Ambulance stretcher
  - Vacuum mattress
  - Scoop stretcher
  - Long spine board

Special Considerations

- Patient self-extrication from a vehicle with assistanceis considered better than standard extrication procedures.
- Patients with penetrating trauma only require motion restrictions when there is an obvious motoror sensory deficit on exam.
- Unconscious, blunt trauma patients REQUIRE fullspinal splinting
- Use caution when assessing for spinal injury in elderly patients because they have a higher risk for injury and may have minimal symptoms.
- Always err on the side of caution and restrict motion if any of the criteria are NOT obviously clear
- Neurological exam documentation is REQUIRED in patients with potential cervical or high thoracic trauma, including serial exams.
- Victims of hanging REQUIRE spinal motion restriction.
- Consider prophylactic *ZOFRAN* administration
- Manage pain, per *PAIN MANAGEMENT GUIDELINE*
- If the patient is agitated, see *BEHAVIORALEMERGENCY GUIDELINE*

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Taser Probe Removal

Provider Level	Taser Probe Removal	Provider Level	Taser Probe Removal
EMR	YES	AEMT	YES
EMT	YES	Intermediate	YES
EMT-IV	YES	Paramedic	YES

Description

1) Taser guns use technology that interrupts muscular function, resulting in painful contractions that can be incapacitating. EMS personnel may be requested to assess patients after Taser gun deployment, and/or to remove a Taser probe lodged in someone's skin.
2) Complete medical documentation is required whether or not EMS transports the patient.
   a) If the patient is not being transported, make sure the refusal documentation includes a good history of events leading up to and following the Taser event.

Indications

   a) Taser probe(s) imbedded in skin.

Contraindications

1) Patient is **NOT** physically under control or in an accessible position.
2) When the Taser probe is imbedded in an eye, the face, neck, spinal column, breast, groin, a joint space or vascular structure, the probe **SHOULD NOT** be removed in the field AND the patient **MUST** be transported for treatment.

Precautions

1) Confirm that the Taser has been shut off and the barb cartridge has been disconnected from the Taser device.
2) When a Taser probe is used in conjunction with pepper spray propellant, there is a burn hazard.
   a) Electrical arcing from imperfect (but still effective) probe contact can ignite the propellant.
   b) The resulting combustion may not leave visible burns but may lead to complaints of heat and localized pain. If the patient complains of these symptoms, evaluate for possible minor burns.
3) Be aware that secondary injuries may result from falls sustained after the device has been deployed. Subjects should not be confused after being tased.
4) There have been reports of deaths involving the use of a Taser on a combative patient. Review of these outcomes site the use of improper or prone restraint of patients, patient use of drugs and patients presenting with excited delirium and hyperthermia as co-morbid factors.
   a) It is imperative that these patients receive a thorough assessment for these risk factors, and are not improperly restrained.
   b) A patient presenting with any of these risk factors should be transported for further evaluation.

Complications

1) The subject must be transported to the hospital if he or she meets any of the following criteria:
   a) Probe lodged in any of the above listed sensitive areas.
   b) Subject has a previous cardiac history.
   c) Subject appears intoxicated.
   d) Subject is non-compliant to direct instructions.
2) Inspect probe for breakage or other abnormal findings. If probe is not intact, the patient needs to be transported for further evaluation.

Special Considerations

1) ECG monitoring is indicated, if the patient is over 40-years-old and/or has a history of cardiac issues.
2) Removed probes should be handled like contaminated sharps and should be disposed of accordingly.
   a) Law enforcement will provide the necessary sharps container so that the probes can be logged as evidence.

Wound Care Procedures

Provider Level	Extremity Splinting	Eye Irrigation Non-Invasive	Eye Irrigation Morgan Lens	Hemostatic Agent	Occlusive Dressing	Pelvic Binder	Pressure Dressing	Traction Splint	Tourniquet	Wound Packing
EMR	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
EMT	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
EMT-IV	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
AEMT	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
Intermediate	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Paramedic	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Extremity Splinting

Indications:

a) Any time a patient complains of extremity pain post trauma, regardless of deformity presence

b) In the presence of gross deformity with circulatory compromise, splint extremity in anatomically correct position

Contraindications:

c) None

Special Considerations:

d) Do not allow a deformed extremity to distract you from life threatening injures that need immediate attention

e) Extremity CMS needs to be checked/documented before and after splinting

Eye Irrigation – Non-Invasive

Indications:

a) Removal of foreign substance from the eye

b) Chemical burns to the eye after consulting the MSDS or Emergency Response Guideline Manual

Contraindications:

c) Laceration or penetrating injury to the globe of the eye

d) Chemical burn when chemical is reactive with water

Special Considerations:

e) MACE is an oil-based product. Irrigation with water will only spread the irritant

f) Safety comes first. Do not irrigate if substance is unknown and there is concern for provider/patient safety

g) Consider ***TOPICAL OPHTHALMIC ANAESTHETIC***

Eye Irrigation – Invasive (Morgan Lens)

Indications:

a) Chemical burns to the eye after consulting the MSDS or Emergency Reponses Guideline Manual

Contraindications:

b) Laceration or penetrating injury to the globe of the eye or the eyelid

c) Chemical burn when chemical is reactive with water

d) Patients who have been sprayed in the eye with MACE

Special Considerations:

e) The Morgan Lens can be used when lengthy irrigation time is required

f) Consider ***TOPICAL OPHTHALMIC ANAESTHETIC***

Hemostatic Agents

Indications:

a) Patients with external bleeding that is not controlled effectively by direct pressure and dressing

Contraindications:

b) None when used in the emergency setting

Special Considerations:

c) Hemostatic agents should be used in conjunction with **3 full minutes of direct pressure**

Occlusive Dressing

Indications:

a) Open wounds to the abdomen, injures to the neck involving large vessels, and open wound to the chest when an airtight seal is needed to prevent further injury

Contraindications:

b) None

Special Considerations:

c) Frequently monitor the patient for a developing tension pneumothorax due to open wounds to the chest

Pelvic Binder

Indications:

a) Stabilization of a known or suspected unstable pelvic fracture

Contraindications:

b) Suspected isolated hip fracture

Special Considerations:

c) Improper placement of a pelvic binder can do more harm than good. Placement should be low over the pelvic ring, not around the top of the hips

d) Tighten to anatomic position as overtightening can cause increased bleeding

Pressure Dressing

Indications:

a) To maintain pressure once direct pressure has controlled external bleeding

Contraindications:

b) None

Special Considerations:

c) Pressure dressings are not the same as an Ace bandage – they must be applied tightly

Traction Splint

Indications:

a) Stabilization of a known or suspected isolated mid-shaft femur fracture

Contraindications:

b) Suspected injury to the knee or close to the knee, hip, pelvis, or lower leg/ankle of injured leg

Special Considerations:

c) **DO NOT** release manual traction until splint is properly placed and holding traction

Wound Care Procedures

Tourniquet

Indications:

a) Patients with external bleeding in an extremity that is not controlled effectively by direct pressure and dressing

Contraindications:

b) Any location other than an extremity

Special Considerations:

c) **DO NOT** cover tourniquet

d) More than one tourniquet may be needed, in addition to the first tourniquet applied

e) Be sure to document when, where, and by whom the tourniquet was placed

Wound Packing

Indications:

a) Large open junctional wounds where packing is needed in conjunction with **10 full minutes of direct pressure** and exterior dressing application

i) Axilla, inguinal areas, and extremities

Contraindications:

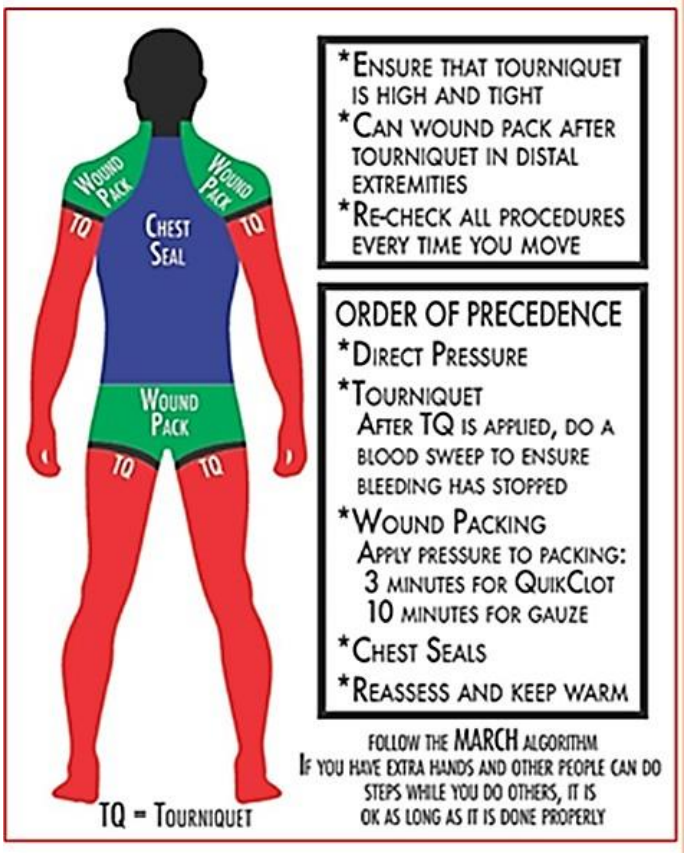
b) Large wounds to the trunk

Special Considerations:

c) If hemostatic agent gauze is used for wound packing, **hold direct pressure to the hemorrhaging vessel for 3 minutes**

d) If non-hemostatic agent gauze is used for wound packing, **hold direct pressure to the hemorrhaging vessel for 10 minutes**

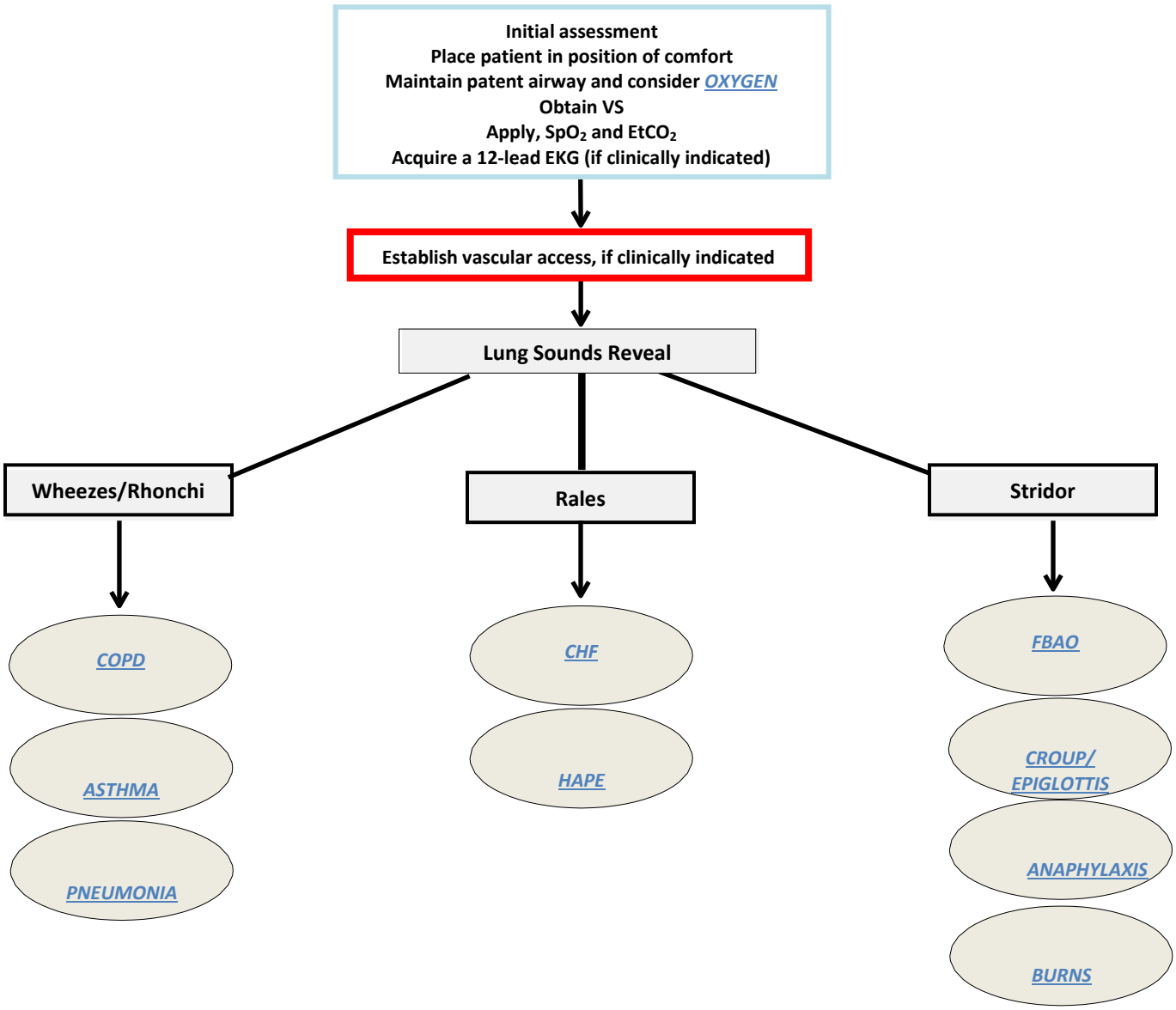
Be cautious of neck wounds. Look for subcutaneous emphysema. If present, apply an occlusive dressing



Standard Dyspnea Care

Description

1) Causes of respiratory distress can be numerous, making the assessment and treatment difficult. This guideline is designed to create a simplified and standard treatment algorithm.
2) The goal is to maximize both oxygenation and ventilation without causing hyperoxemia.
3) Lungs sounds in conjunction with $EtCO_2$ and SpO_2 are crucial during the assessment and are **REQUIRED** on every respiratory distress patient.
4) There are many non-pulmonary causes of dyspnea. If clear lung sounds are present, consider other causes such as: pulmonary embolus, myocardial infarction, carbon monoxide poisoning, and/or anxiety.
5) Consider ***ADVANCED AIRWAY PLACEMENT***, if respiratory/cardiac arrest is imminent.
6) For pediatrics, reference Pediatric Field Guide, Broselow Tape, Handtevy Guide, or approved apps.



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Wheezes/Rhonchi

ALBUTEROL MDI: use spacer, if available
- ADULT: 2 to 4 sprays of MDI
- PEDIATRIC: 2 to 4 sprays of MDI

ALBUTEROL NEB: PRN every 10 minutes
- ADULT and PEDIATRIC >2: 2.5 mg in 3 mL NS
- PEDIATRIC <2: 1.25 mg in 3 mL NS

Consider (severe cases)

CONTINOUS NEB:
- ADULT and PEDIATRIC > 2: 7.5 mg of *ALBUTEROL* in 9mL via neb:
- PEDIATRIC < 2: consider if child has a strong history of asthma in immediate family and/or child has previous diagnosis of asthma and no current history of fever.

Establish vascular access

Patient Condition Improved

YES

A General Supportive Care

NO

ATROVENT with *ALBUTEROL:* PRN q 15 mins
- ADULT: 0.5 mg in 3 ml via neb
- PEDIATRIC: 0.5 mg in 3 ml via neb

Consider CPAP
- ADULT: see *CPAP PROTOCOL*
- PEDIATRIC: see *CPAP PROTOCOL*

If patient's condition improves, Continue to BOX A

NO

Severe Asthma/Status Asthmaticus | COPD

EPINEPHRINE 1:1,000: IM LATERAL THIGH ONLY PRN every 3-5 mins
- ADULT: 0.5 mg (0.5 mL) IM in LATERAL THIGH ONLY
- PEDIATRIC: 0.01 mg/kg (0.01 mL/kg) Max single dose 0.5mg (0.5mL)

Consider (Severe Cases)

EPINEPHRINE 1:10,000: PRN every 3-5 minutes
- ADULT: 0.1 mg (1 mL) IV/IO
- PEDIATRIC: 0.01 mg/kg (0.1 mL/kg) IV/IO

DEXAMETHASONE: NOT repeated
- ADULT: 10 mg IV/IO/IM/PO
- PEDIATRIC: 4 mg/kg IV/IO/IM/OP MAX 10 mg

OR *SOLU-MEDROL:* NOT repeated
ADULT: 125 mg bolus IV/IO slow over 2 minutes or IM;
PEDIATRIC: 2 mg/kg bolus IV/IO slow over 2 minutes or IM, NOT to exceed 125 mg

Special Considerations
- *IM EPINEPHRINE* is only indicated for most severe asthma attacks that are not responding to inhaled bronchodilators. Use extreme caution when administering. ECG monitoring is mandatory.
- IV *MAGNESIUM* may be beneficial in some patients with status asthmatics; it should not be given routinely and should be reserved for life-threatening attacks NOT responding to conventional therapy.
- Wheezing may be a presentation of pulmonary edema. If "cardiac asthma" is suspected, see *RALES GUIDELINE*
- If fever present and significant suspicion of pneumonia, avoid steroid administration.
- If allowed, consider combining *ALBUTEROL* and *ATROVENT* (DUONEB) and administer via nebulizer.
- Consider *ADVANCED AIRWAY PLACEMENT*, if respiratory/cardiac arrest is imminent.

If Patient Condition Improved, Continue to BOX A

Consider (If no improvement)

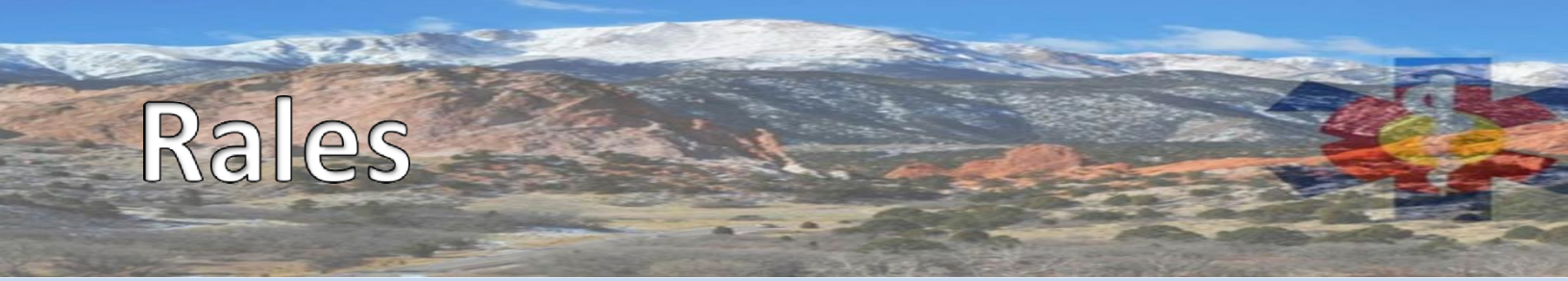
MAGNESIUM SULFATE: NOT repeated
- ADULT: 2 gm in 50 mL NS or D_5W IV over 10 minutes
- PEDIATRIC: 50 mg/kg in 50 mL NS or D_5W IV over 5 minutes IV/IO

Consider PPV, Adjuncts and SGA. See *AIRWAY MANAGEMENT GUIDELINE*

Consider in Severe Cases:

EPINEPHRINE INFUSION:
- ADULT and PEDIATRIC: 1 mg Epinephrine in a 1,000 mL NS or 0.5 mg in 500 mL NS, IV/IO infusion wide open to gravity. Continuously reassess BP until titrated effect. SBP > 90 systolic (see *PEDS GUIDE* for recommendation), and/or return of distal pulses, and/or improved mental status

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic



Rales

Suspected Cause

Congestive Heart Failure/Other

Establish vascular access; consider *IV FLUID* if clinically indicated
- Fluid challenge- 250-500mL NS IV/IO

Consider early CPAP
- ADULT: *see CPAP*
- PEDIATRIC: see *CPAP*

***NITROGLYCERIN:* Repeat 0.4 mg sublingual every 5 minutes PRN titrated to symptoms and blood pressure**
- ADULT:
  - SBP 100 to 120: 0.4 mg sublingual
  - SBP 121 to 200: 0.8 mg sublingual
  - SBP >200: 1.2 mg sublingual
- PEDIATRIC: NOT ALLOWED

Consider (if available)

NITROGLYCERIN PASTE:
- ADULT:
  - 0.5" to 2" applied to skin, cover with Tagaderm to prevent smearing
- PEDIATRIC: NOT ALLOWED

Patient Condition Improved

YES → **General supportive care**

NO →

If $ETCO_2$ reveals bronchospasm or clinical suspicion

***ALBUTEROL NEB:* PRN every 10 minutes**
- ADULT and PEDIATRIC >2: 2.5 mg in 3 mL NS
- PEDIATRIC <2: 1.25 mg in 3 mL NSConsider

CONTINOUS NEB:
- ADULT: 7.5 mg of *ALBUTEROL* in 9 mL via neb
- PEDIATRIC: NOT ALLOWED

***ATROVENT:* PRN every 15 minutes**
- ADULT: 0.5 mg in 3 mL via neb
- PEDIATRIC: 0.25 mg in 3 ml via neb

NO → **Ventilate using basic airway adjuncts and BVM while monitoring EtCO2 and SpO_2**
See *AIRWAY MANAGEMENT GUIDELINE*

YES → **General supportive care**

High Altitude Pulmonary Edema

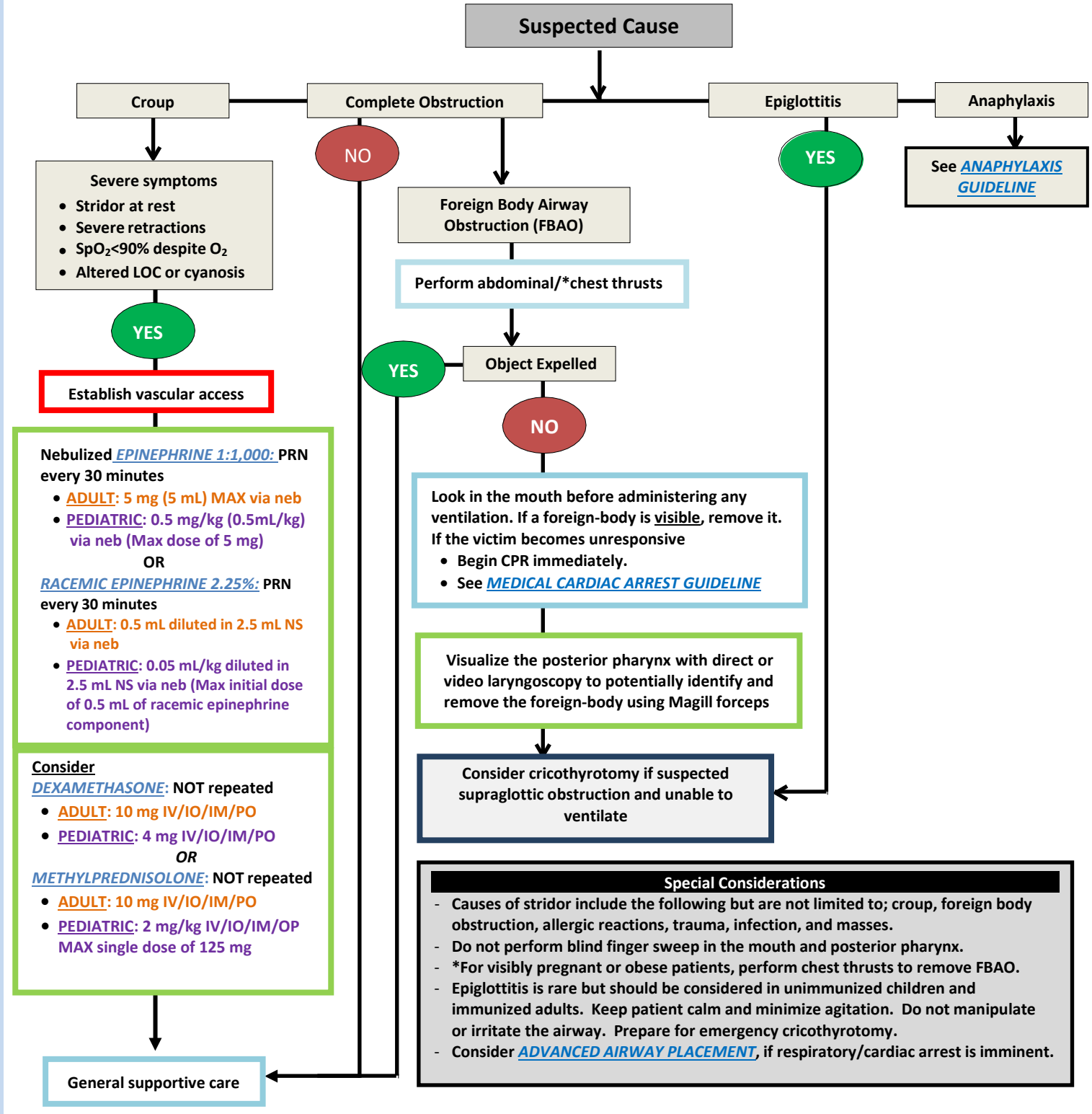
Immediate descent
General supportive care

Consider early CPAP
- ADULT: see *CPAP*
- PEDIATRIC: see *CPAP*

Special Considerations
- This guideline is designed to assist the prehospital provider with the treatment of patients with shortness of breath who are exhibiting rales.
- Refer to *STANDARD DYSPNEA* for initial treatment
- Maximize oxygenation and decrease work of breathing
- Consider myocardial infarction in patients with rales and obtain a 12-lead ECG. See *ACS GUIDELINE*
- Treat dysrhythmias per related cardiac guideline.
- Consider treatment of anxiety, see *BEHAVIORAL EMERGENCY*
- The most effective and reliable treatment of HAPE is immediate descent and administration of supplemental oxygen.
- Avoid nitroglycerin in any patient who has used phosphodiesterase inhibitors including, but not limited to the following; Viagra or Levitra in the past 24 hours or Cialis in the past 48 hours, due to possible severe hypotension.
- If in scope, consider *ALBUTEROL* and *ATROVENT* (DUONEB) and administering via neb twice beforeadministering continuous *ALBUTEROL*
- If patient presents with signs and symptoms of cardiogenic shock with poor perfusion, consider *EPINEPHRINE* drip.
- Consider *ADVANCED AIRWAY PLACEMENT*, if respiratory/cardiac arrest is imminent.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Stridor/FBAO



Acute Coronary Syndrome

Receiving Facility Capability						
Check Availability with EMResource						
Condition	PMC	SFMC	MC	MN	GV	CH
NON-STEMI	A/P	A/P	A/P	A/P	A	P
STEMI	A/P	A/P	A/P	A/P	X	P
A=Adult, P=Pediatric X=Does not accept						

Description

1) Chest pain can manifest with many signs and symptoms; the primary goal of this guideline is to identify patients with ACS/chest pain that meet Cardiac Alert criteria.
2) When activating a Cardiac Alert, the goal is to identify a patient with ST-segment elevation myocardial infarction (STEMI) in the prehospital setting, and to provide advanced notification to the receiving facility to minimize delay to definitive care.

Cardiac Alert Inclusion Criteria

1) **SIGNS AND SYMPTOMS CONSISTENT WITH ACS AND**
   12-lead ECG showing:
   a) ST-segment elevation (STE) of at least 1 mm in two or more anatomically contiguous leads, **OR**
   b) 2 mm ST depression or greater in V1-V2 (posterior), **OR**
   c) Modified Sgarbossa's Criteria (if LBBB or ventricular pacemaker present):
      i. Concordant ST-segment elevation ≥ 1 mm in any lead
      ii. ST depression > 1 mm in leads v1-v3
   d) For all level of EMS providers: 12-Lead ECG monitor interpretation of "**ACUTE MI**"
2) If unsure if patient meets Cardiac Alert criteria, consider activating a PULSARA General Alert and sending an attached image of the patient's 12-lead or call to request medical consult with receiving facility

Cardiac Alert Treatment

1) Notify receiving hospital ASAP with ETA and request **CARDIAC ALERT**
   a) **Do not delay hospital notification**. If possible, notify ED before leaving scene
2) ECG transmission (if available)
   a) Utilize Pulsara application with an attached image of patient's 12-lead, if available **or**
   b) Contact hospital by phone or radio and explain STEMI findings and activate cardiac alert
3) Strongly consider attaching defibrillation pads for precautionary measures
4) Rapid transport to appropriate facility
5) If patient does not meet inclusion criteria, yet clinical scenario and ECG suggests STEMI, consider activating a PULSARA General Alert and sending an attached image of the patient's 12-lead **or** call to request medical consult with receiving facility
6) Serial 12-leads, if time allows, including posterior and/or RV ECGs, if appropriate

Documentation Requirements

1) Time of first patient contact
2) Time of first ECG
3) Attach ECG to ePCR/patient care documentation
4) Serial 12-leads, if time allows, including posterior and/or RV ECGs, if appropriate

Special Considerations

1) Suspicion of an acute MI is based on a complete assessment and history.
   a) Do NOT be reassured by a "normal" monitor strip.
   b) Conversely, "abnormal" strips (particularly ST and T changes) can be due to technical factors or non-acute cardiac diseases.
   c) Changes **SHOULD** be documented and relayed to physician on arrival at ED.
2) Consider **ALL** potential causes of life-threatening chest pain including pulmonary embolus, dissecting aneurysm, pneumothorax, pneumonitis, etc.

EMR	EMT	E-IV	AEMT	Intermediate	Paramedic

Acute Coronary Syndrome

Receiving Facility Capability						
Check Availability with EMResource						
Condition	PMC	SFMC	MC	MN	GV	CH
NON-STEMI	A/P	A/P	A/P	A/P	A	P
STEMI	A/P	A/P	A/P	A/P	X	P

A=Adult, P=Pediatric X=Does not accept

Initial Assessment: Identify and treat underlying causes
Positive findings of ACS signs/symptoms
Maintain patent airway and *OXYGENATION* (SpO2 95-99%)
Begin cardiac monitoring; Acquire VS & early 12-lead ECG

Special Considerations

- Treat the patient's pain!
- Assess lung sounds prior to and during administering fluid to patients at increased risk of CHF
- Treat cardiac dysrhythmias per specific guidelines
- Consider placing right-sided and/or posterior 12-lead ECG leads

ASPIRIN: **NOT repeated**
- **ADULT: 162 to 324 mg tablets**
- **PEDIATRIC: NOT ALLOWED**

STEMI

YES → **Activate Cardiac Alert**

NO

Establish Vascular Access; consider two large bore IVs, if possible

Signs and Symptoms of Poor Perfusion

YES

IV FLUIDS: **PRN until improved perfusion, SBP between 80-100**
- **Challenge: 250-500 mL of NS IV/IO**

If SBP remains <90 in adults after fluid administration, Consider:

EPINEPHRINE INFUSION:
- **ADULT and PEDIATRIC: 1 mg Epinephrine in a 1,000 mL NS or 0.5 mg in 500 mL NS, IV/IO infusion wide open to gravity**
  - **Continuously reassess BP until titrated effect**
  - **BP > 90 systolic (≥ Peds Guide recommendation), and/or return of distal pulses, and/or improved mental status**

NO

Provide *PAIN MANAGEMENT*
FENTANYL:
- **ADULT:** 50-100 mcg IV/IO over 1-2 minutes or IN/IM

Consider *DILAUDID:* PRN 10 minutes
- **ADULT:** 0.5 mg IV/IO over 1-2 minutes or 0.5 mg IM
- **PEDIATRIC: NOT** allowed

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Bradydysrhythmias

Initial Assessment: Identify and treat underlying causes
Maintain patent airway and consider *OXYGEN*
Begin cardiac monitoring; Acquire VS & early 12-lead ECG

Signs of poor perfusion

NO

General supportive care

YES

FOR PEDIATRIC PATIENT:
Initiate CPR, if clinically indicated
(HR <60 BPM with S/S of poor perfusion)

Establish Vascular Access; Treat hypoperfusion
IV FLUID PRN until systolic BP between 80-100.
- Challenge: 250-500 mL NS IV/IO

TRANSCUTANEOUS PACING (TCP)
- ADULT: Set the rate at 60 bpm; begin energy at lowest dose and increase energy until achieving mechanical capture
- *PEDIATRIC:* Set the rate at 80 bpm; begin energy at lowest dose and increase energy until achieving mechanical capture

AND/OR
- *ADULT: EPINEPHRINE 1:10,000:* 1 mg PRN every 3 to 5 mins
- PEDIATRIC: 0.01 mg/kg (0.1 mL/kg) IV/IO q 3-5 mins

Consider Early

EPINEPHRINE INFUSION:
ADULT and PEDIATRIC: 1 mg 1:10,000 Epi in a 1,000 mL NS or 0.5 mg in 500 mL NS, IV/IO infusion wide open to gravity
- o Continuously reassess BP until titrated effect
- o SBP > 90, and/or return of distal pulses, and/or improved mental status and/or return of distal pulses, and/or improved mental status.

OR

PUSH-DOSE EPINEPHRINE: if patient is still hypotension (SBP <90) after administering fluid boluses.
ADULT and PEDIATRIC: Slow IV/IO push 0.3 mL of 10 mcg/mL concentration every 1-5 minutes.
- Administer to desired hemodynamic effect with goal of SBP > 90, and/or return of distal pulses, and/or improved mental status.

Special Considerations
- Consider possible causes; assess H's and T's!
- Consider opioid pain medication prior to TCP, if appropriate. Do not use Benzos. See *PAIN MANAGEMENTGUIDELINE*
- Symptomatic and severe bradycardia is typically related to:
  - o Ischemia
  - o Medications (beta blocker, calcium channel blocker)
  - o Electrolytes (hyperkalemia)
- TCP capture thresholds in children are like those of adults
- In pediatrics, identify and treat any potential respiratoryetiologies
- If stable and there is a 2nd degree type 2 or 3rd degree AV block, attach pacer pads and be prepared for pacing
- Consider epinephrine infusion early if poor perfusion orhypotension persists after TCP *OR*
- Consider push-dose epinephrine if hypotension persists

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Tachydysrhythmias

Initial Assessment: Identify underlying cause
Maintain patent airway; Consider *OXYGEN*
Acquire VS; Obtain 12-lead ECG

Establish vascular access; treat hypoperfusion
FLUID THERAPY:
Challenge: 250 – 500 mL NS IV/IO

Signs of poor perfusion

YES

NO

Wide Complex QRS > 0.12 second)

NO

Vagal Maneuvers

NO

ADENOSINE: (if REGULAR). May repeat 1 time, if 1st dose ineffective
- ADULT: 12 mg RAPID IV/IO bolus followed by 20 mL NS flush;
- PEDIATRIC: 0.2 mg/kg RAPID IV/IO bolus (MAX single dose 12 mg) followed by 20 mL NS flush

CARDIZEM: (only if IRREGULAR rhythm)
ADULT: 0.25 mg/kg IV/IO slow bolus over 2 to 5 minutes, MAX single dose of 25 mg. May repeat after 15 minutes at 0.25 mg/kg IV/IO slow bolus over 2 to 5 minutes, MAX repeat dose of 25 mg.
PEDIATRIC: NOT allowed
Consider *SYNCHRONIZED CARDIOVERSION,* if unsuccessful

Synchronized Cardioversion, PRN if no conversion
- ADULT: Maximum joules
- PEDIATRIC: 2 joules/kg

Consider Pre-Cardioversion Sedation if time allows andhemodynamically stable:

MIDAZOLAM:
- ADULT: Up to 5 mg IV/IO/IM/IN; Max 10mg
- PEDIATRIC: 0.1 mg/kg IV/IO/IM/IN; MAX single dose 5 mg

OR

ATIVAN:
- ADULT: Up to 2 mg IV/IO/IM/IN over 1 to 2 minutes
- PEDIATRIC: 0.1 mg/kg IV/IO/IM/IN over 1 to 2 minutes

OR

DIAZEPAM: PRN every 10 minutes
- ADULT: 2.5 to 5 mg IV/IO/IM/IN

Consider MAGNESIUM: if polymorphic V-tach or Torsades with a pulse
- ADULT: 2 gm in 50 mL NS slow IV/IO bolus over 10 minutes. Not repeated
- PEDIATRIC: NOT Allowed

Consider *SYNCHRONIZED CARDIOVERSION,* if unsuccessful

Successful Cardioversion/Rate Control

YES

NO

AMIODARONE:
(regular monomorphic ONLY)
- ADULT: 150 mg infusion over 10 minutes IV/IO
- PEDIATRIC: NOT ALLOWED

LIDOCAINE:
(regular monomorphic ONLY)
ADULT: 1.5 mg/kg, repeat q5-10 at half original, MAX 3 mg/kg

General supportive care
Obtain post-conversion 12-lead

Special Considerations
- Consider contacting Medical Control for direction if conversion is unsuccessful.
- Chronic atrial fibrillation is rarely a cause of hemodynamic instability, especially if rate is < 150 bpm. First correct hypoxia and/or hypovolemia, before considering cardioversion.
- Sinus tachycardia rarely exceeds 150 bpm in adults; or 220 bpm in children < 8 years and does not require or respond to cardioversion, treat underlying causes.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

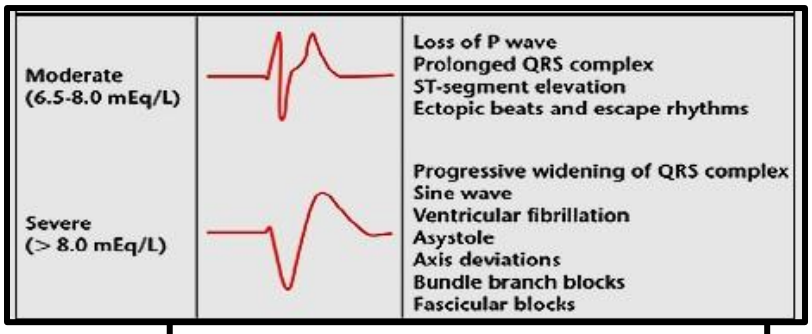
Hyperkalemia

Initial Assessment: Identify and treat underlying causes

Maintain patent airway and consider *OXYGEN*

Begin ECG monitoring, acquire VS & early 12-lead ECG

Strong suspicion of hyperkalemia (known kidney failure/ dialysis patient), documented K+ lab value of >6 mEq/L AND/ OR ECG demonstrates;



NO

General Supportive Care

Special Consideration

- **Suspect hyperkalemia in any patient with a new onset bradyarrhythmia or AV block, especially patient with known renal failure, hemodialysis, rhabdomyolysis, or a patient taking any combination of ACE inhibitors, potassium-sparing diuretics, or potassium supplements.**
- **Untreated, severe hyperkalemia can decompensate into asystole or ventricular fibrillation. Early recognition and rapid treatment are required to prevent cardiac arrest.**
- **Consider placing defib pads; If patient progresses to cardiac arrest, see *MEDICAL CARDIAC ARREST* Guideline**

YES

***ALBUTEROL NEB:* PRN x1**

- **ADULT: 10 mg (in 12 mL) repeat as needed; Consider early *CPAP*, if clinically indicated**
- **PEDIATRIC: NOT Allowed**

Establish Vascular Access

***CALCIUM CHLORIDE*: every 10 mins to a MAX of 3 doses**

- **ADULT: 1 Gram slow bolus over 2 to 5 minutes IV/IO**
- **PEDIATRIC: NOT Allowed**

***CALCIUM GLUCONATE:* every 10 mins to a MAX 3 doses**

- **ADULT: 3 Grams slow bolus over 2 to 5 minutes IV/IO**
- **PEDIATRIC: NOT Allowed**

***SODIUM BICARBONATE*: PRN until QRS shortens to <100 ms, if applicable**

- **ADULT: 100 mEq slow bolus over 2 to 5 minutes IV/IO of an 8.4% solution; In severe cases, mix 150 mEq (150 mL) in 1000 mL NS and administer at 200 mL/hr**
- **PEDIATRIC: NOT Allowed**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Cardiac Arrest (Medical)

General Electrotherapy Guidelines

1) For pediatrics, reference Pediatric Field Guide, Broselow Tape, Handtevy application or other approved resource.
2) If cardiac arrest patient has an implantable cardioverter defibrillator (ICD) or pacemaker: place pacer/defibrillator pads at least 1 inch from device. Bi-axillary or anterior/posterior pad placement may be used.

General Chest Compressions

ADULT > 19: Cover the patient's airway/face as soon as possible.

PEDIATRIC < 18: Compression depth should be 1/3 of anteroposterior chest diameter.

PREGNANCY:

a) Left-lateral tilt is used to improve maternal hemodynamics during cardiac arrest; the degree of tilt should be at a tilt ≥30° or manually displace the uterus.
b) Performed from either the patient's left side with the 2-handed technique or the patient's right side with the 1-handed technique.

General Airway Management

ADULT > 19:

a) **Passive Oxygenation**: Passive O_2 at 8 L via iGel or NRB/OPA/NPA and cover the patients face for 3 cycles.
   i. This can be done via, surgical mask, sheet, and/or other type of available barrier etc.
b) **Positive Pressure Ventilation (PPV)**: Initiate after 3 cycles (6 minutes of passive oxygenation unless suspected hypoxic arrest suspected (e.g. asphyxiation, status asthmaticus).
c) **Advanced Airway Preferences:** See ***AIRWAY MANAGEMENT GUIDELINE.***

PEDIATRIC < 18:

d) **Positive Pressure Ventilation**: If hypoxic arrest suspected (e.g. asphyxiation, status asthmaticus), begin PPV immediately.
e) **Advanced Airway**: Can be placed any time suspicion of primary respiratory etiology.
   i. Placement should not interrupt compressions.

Return of Spontaneous Circulation (ROSC)

a) See ***ROSC GUIDELINE***

General Environment

1) Ensure full recommended PPE prior to making contact and/or while performing high risk airway or resuscitation procedures.
2) Evaluate the scene for any evidence that may help identify a potential infectious disease.
3) CPR in a moving ambulance or on a cot is ineffective and is not recommended to transport patients to a facility without a pulse.
   a) In general, work cardiac arrest on scene either to ROSC, or the field pronouncement, see ***DEATH in the FIELD GUIDELINE***.
4) Family presence during resuscitation is preferred by most families, it is rarely disruptive, and may help in the grieving process for family members. Family presence during resuscitation is recommended, unless disruptive to resuscitation efforts.

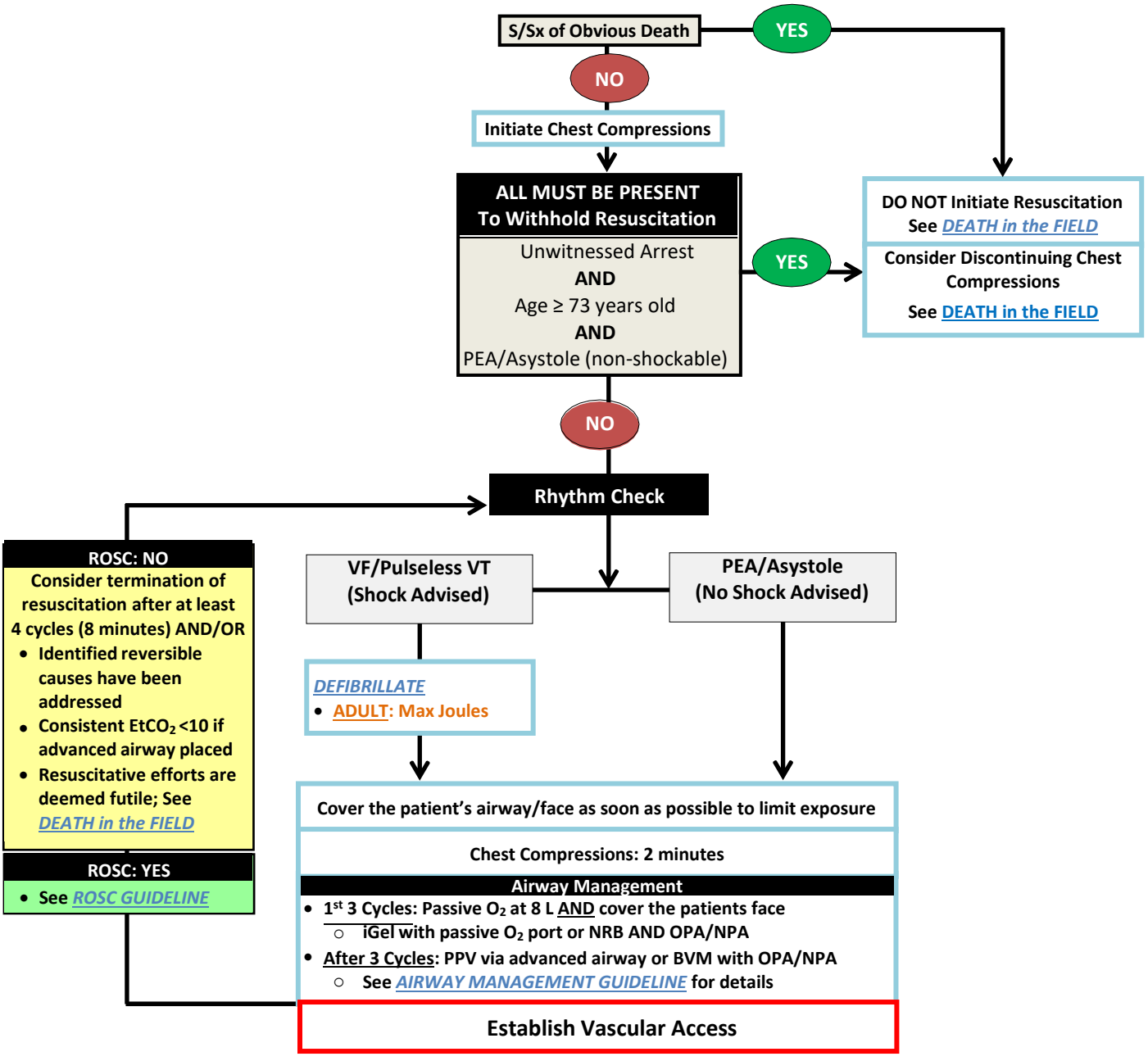
General Medication

1) In suspected hyperkalemic arrest, consider early vascular access and administration of ***CALCIUM*** and ***SODIUM BICARBONATE.***
2) Consider vascular access and administer ***MAGNESIUM*** for polymorphic VT/Torsade's De Pointes.
3) In **ADULTS:** the use of epinephrine, amiodarone or lidocaine are no longer recommended.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Cardiac Arrest (Medical)

ADULT > 19 Years Old: Cardiac Arrest Algorithm



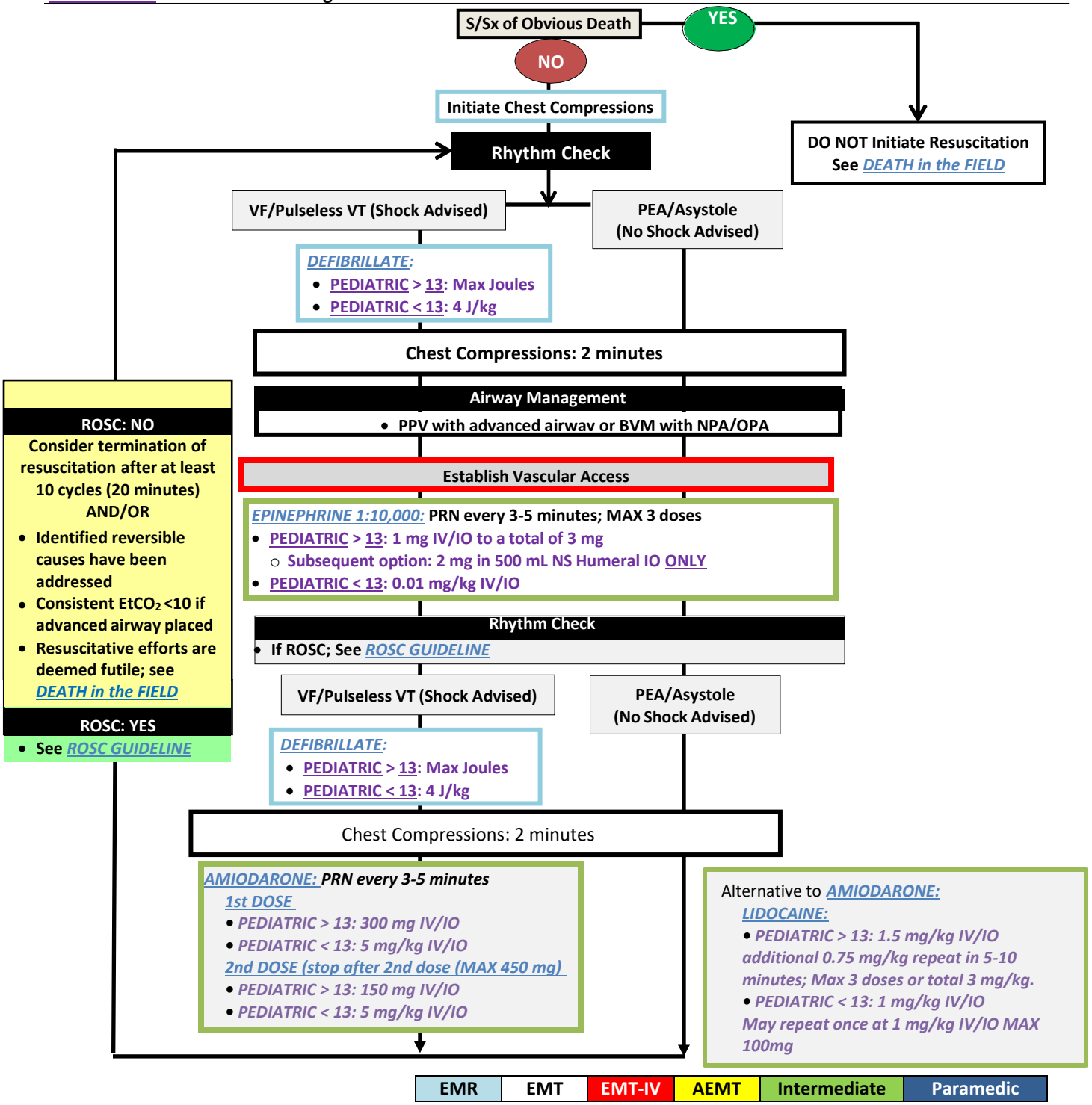
Medical Direction Note

Provider discretion, the timeframe to Termination of Resuscitation (TOR) can be extended or shortened

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Cardiac Arrest (Medical)

PEDIATRIC: <18: Cardiac Arrest Algorithm



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Medical Direction Note

Provider discretion, the timeframe to Termination of Resuscitation (TOR) can be extended or shortened

Cardiac Arrest (Respiratory)

ADULT > 19 Years Old: Cardiac Arrest Respiratory

S/Sx of Obvious Death — YES → DO NOT Initiate Resuscitation; See *DEATH in the FIELD*

NO → Initiate Chest Compressions

ALL MUST BE PRESENT To Withhold Resuscitation

Unwitnessed Arrest
AND
Age ≥ 73 years old
AND
PEA/Asystole (non-shockable)

YES → Consider Discontinuing Chest Compressions; See DEATH in the FIELD

NO → **Rhythm Check**

VF/Pulseless VT (Shock Advised)

DEFIBRILLATE
- ADULT: Max Joules

PEA/Asystole (No Shock Advised)

Cover the patient's airway/face as soon as possible to limit exposure

Chest Compressions: 2 minutes

Airway Management
- 1st 3 Cycles: Passive O_2 at 8 L AND cover the patients face
  - iGel with passive O_2 port or NRB AND OPA/NPA
- After 3 Cycles: PPV via advanced airway or BVM with OPA/NPA
  - See *AIRWAY MANAGEMENT GUIDELINE* for details

Establish Vascular Access

Is Anaphylaxis or Asthma Cause Present?

NO → ROSC: NO

ROSC: NO
Consider termination of resuscitation after at least 4 cycles (8 minutes) AND/OR
- Identified reversible causes have been addressed
- Consistent $EtCO_2$ <10 if advanced airway placed
- Resuscitative efforts are deemed futile; See *DEATH in the FIELD*

ROSC: YES
- See *ROSC GUIDELINE*

YES → *EPINEPHRINE 1:10,000:* PRN every 3-5 minutes; MAX 3 doses
- Adult: 1 mg IV/IO to a total of 3 mg

Consider EPINEPHRINE INFUSION instead of PRN
- ADULT :1 mg Epinephrine in a 1,000 mL NS bag, IV/IO infusion wide open to gravity
  - Continuously reassess BP until titrated effect

Consider Albuterol NEB:
- ADULT: 2.5 mg in 3 mL NS with BVM

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

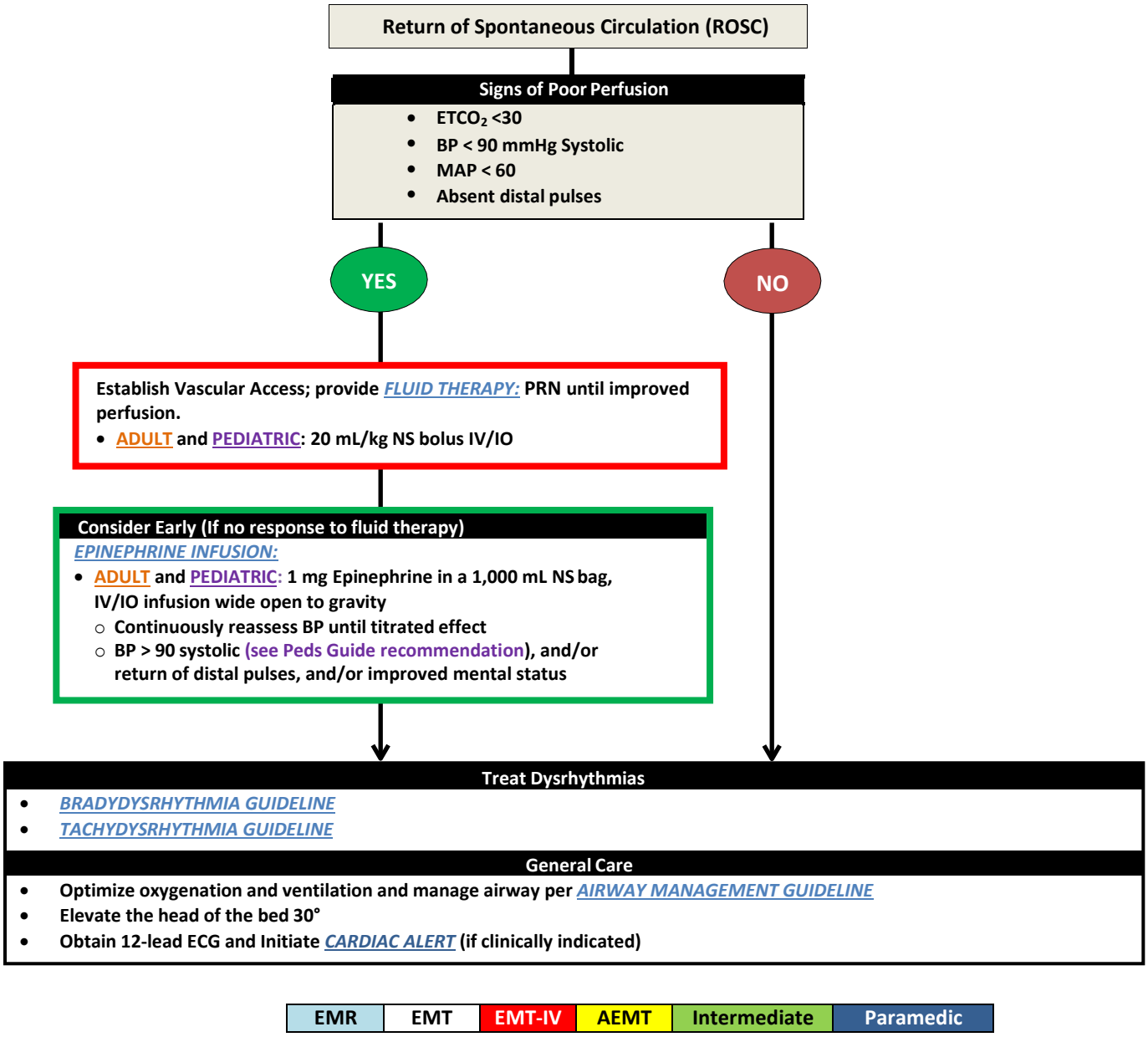
Medical Direction Note

Provider discretion, the timeframe to Termination of Resuscitation (TOR) can be extended or shortened

Return of Spontaneous Circulation (ROSC)

Description

1) The condition of post-resuscitation patients fluctuates rapidly and continuously, close monitoring is required.
2) Avoid rapid patient movement, assess perfusion status, and stabilize prior to packaging and transport.
   a) Initial End tidal CO_2 may be elevated immediately post-resuscitation but will usually normalize. The goal is 35 to 45 mmHg for both adults, adolescents, and pediatrics; avoid hyperventilation to achieve a normal $EtCO_2$.
   b) Titrate fluid resuscitation and pressor administration to maintain SBP of 90 to 100 mmHg or Mean Arterial Pressure (MAP) of 60 mmHg.



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Neonatal Resuscitation

History and Presentation

1) History of mother: age, due date, prenatal care, previous pregnancies and problems, high risk, medications, duration of labor, foul-smelling or stained amniotic fluid, possibility of multiples.
2) If baby is **NOT** delivered and head is **NOT** appearing at vaginal opening with contractions, transport rapidly and consider stopping the ambulance for delivery as clinically indicated.
3) If baby is not delivered, but head visible with contractions (crowning), delivery is imminent.

Special Considerations

1) The decision to progress beyond initial steps is based on an assessment of respirations (apnea, gasping, labored, or unlabored breathing) and heart rate (>/< 100 bpm).
2) Assist ventilations at a rate of 40-60 breaths per minute to maintain HR > 100 and use 2-person BVM when possible.
3) For CPR, 2 thumbs-encircling hands technique preferred.
   a) Allow full chest recoil.
   b) 3:1 ratio for compressions to ventilations, with 90 compressions and 30 breaths per minute, to achieve 120events per minute.
4) Coordinate with ventilations so chest compressions are **NOT** delivered simultaneously.
5) Consider, hypoglycemia, hypovolemia, and pneumothorax.
6) Suction is **ONLY** indicated when there is an obvious obstruction to spontaneous breathing or those requiring positive- pressure ventilation.
7) Neonatal resuscitation, unlike most other resuscitation situations, requires careful attention to temperature.
8) When needed to establish vascular access, immediate interosseous (IO) access is preferred, then later if needed obtain a peripheral IV access site.
   a) NO pressure infusion bag recommended for infant IO access, instead use manual pressure for administration of medications.

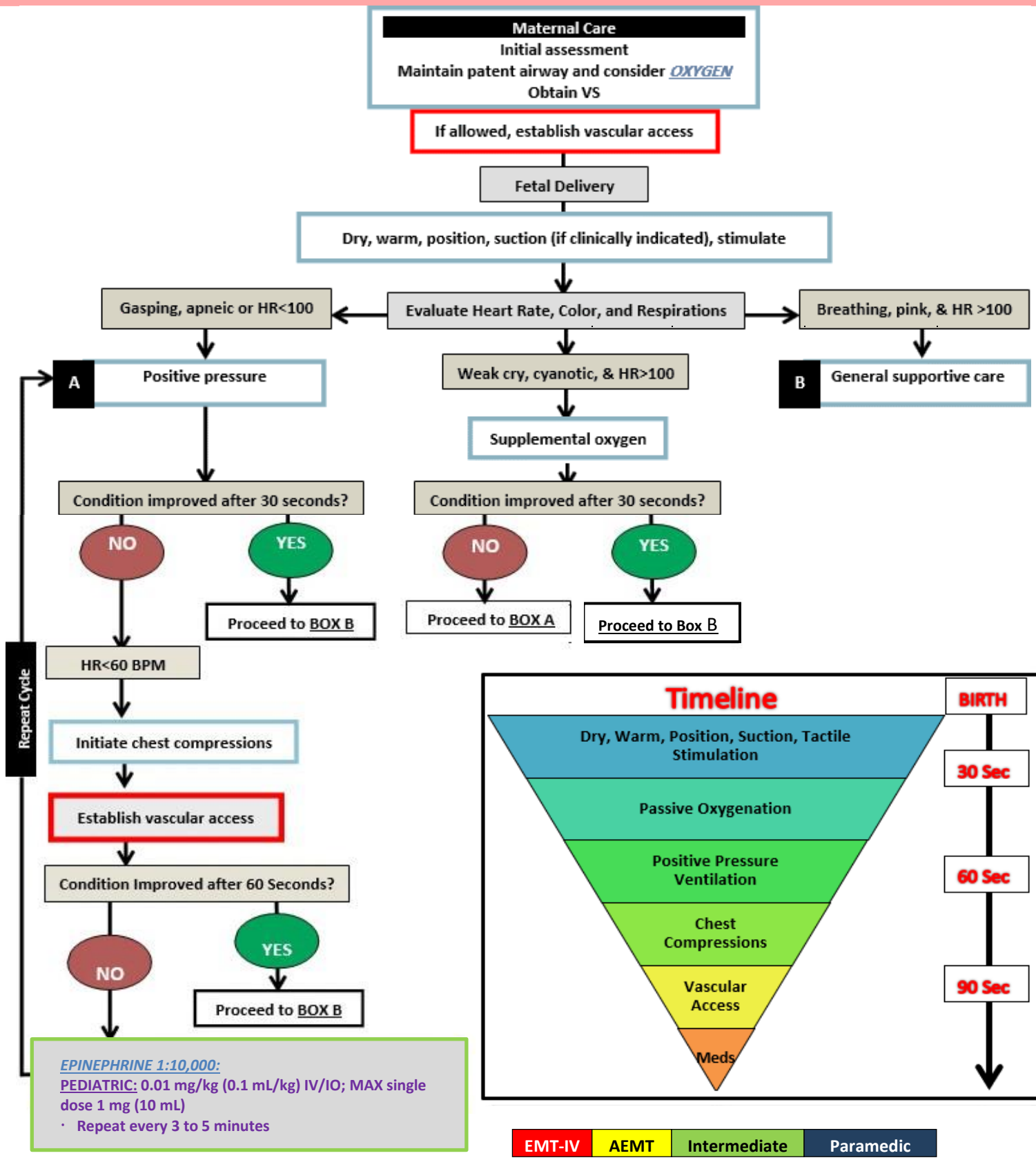
APGAR

1) Document APGAR score at 1 and 5 minutes
2) APGAR Scoring Chart

Indicator		0 Point	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	< 100 BPM	>100 BPM
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, blue extremities	Pink body and extremities
R	Respiration	Absent	Slow and irregular	Vigorous cry

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Neonatal Resuscitation



Ventricular Assist Devices

Description

1) A Ventricular Assist Device (VAD) is a mechanical device used to support circulation in a patient with significant ventricular dysfunction.
    a) The Left Ventricular Assist Device (LVAD) is typically used to support the left ventricle and provide additional cardiac output.
    b) This device can be placed short term to bridge patients until they can receive a heart transplant or long term for people who are not candidates.
    c) LVAD patients can be identified by an electric driveline cable that comes directly out of their abdomen and connects to an external control pack powered by two external batteries they will be wearing with a bag, harness, or vest. The patient still has underlying heart function and rhythm that can be assessed and treated as appropriate per guidelines.
    d) Typically, LVAD patients have no discernible pulse. Blood pressure measurement requires manual BP cuff and Doppler, therefore utilize other parameters for patient assessment (see below).

Key Points

- Unstable VAD patients should be transported to the nearest appropriate facility.
- VAD patient family members are excellent resources to assist with patient history and evaluation/repair of VAD alarms/faults.
- **It is vital to transport the patient's back-up batteries and emergency equipment with the patient.**
- Device specific information for EMS can be found at: https://www.mylvad.com/medical-professionals/ems

Initial assessment
Maintain patent airway and *OXYGENATION*
Acquire VS & early 12-lead EKG
- **LOC**
- **RR and work of breathing**

Establish Vascular Access

FLUID THERAPY: PRN until improved perfusion
- 20 mL/kg NS IV/IO

Is the Patient Stable?

YES → General supportive care

NO → **Is the VAD Operational and/or Patient Breathing?**
- Auscultate chest for "whirling" sounds
- Examine VAD control unit for alarms

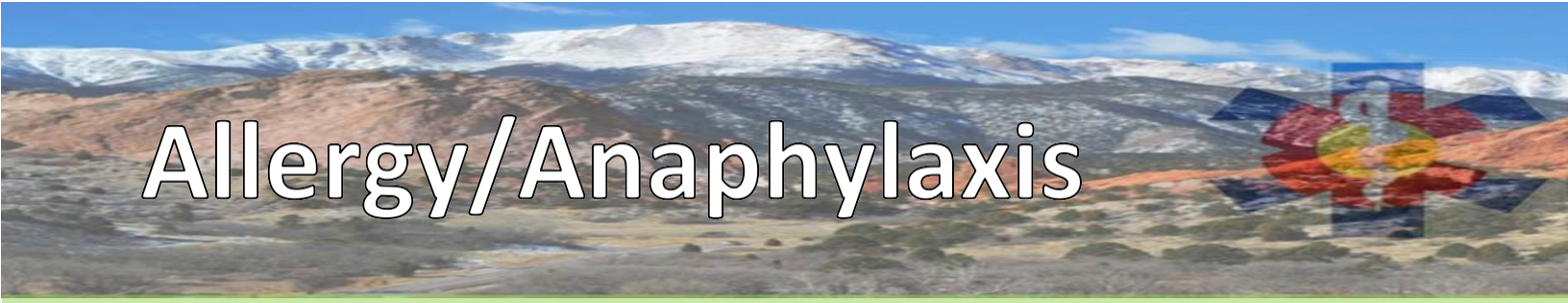
YES →
- Assess for shock and volume status
- Consider *EPINEPHRINE INFUSION* if fluid resuscitation unsuccessful
- Treat dysrhythmias per
    - *BRADYDYSRHYTHMIA* guideline
    - *TACHYDYSRHYTHMIA* guideline

NO →
- Initiate chest compressions
- Follow *MEDICAL CARDIAC ARREST* guideline
- Notify destination of VAD patient inbound

Special Considerations
- HR > 100 is hemodynamically unstable
- VAD patient family members are excellent resources to assist with patient history and evaluation/repair of VAD alarms/faults
- Common VAD Complications
    - CVA
    - TIA
    - Arrhythmias
    - Infections
    - Sepsis
    - Obstructions
    - Pump Failure

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Allergy/Anaphylaxis



Initial assessment
Maintain patent airway and consider *OXYGEN*
Acquire VS & early 12-lead ECG, if clinically indicated

Establish vascular access; Consider *IV FLUID* if S/Sx of poor perfusion

Localized Allergic Reaction

Assist pt. with PO *BENADRYL*, 50 mg MAX dose

IV/IO DIPHENHYDRAMIN: NOT Repeated
- Adult: 50 mg bolus over 2 minutes
- Pediatric: 2 mg/kg bolus over 2 minutes,NOT to exceed 50 mg

General supportive care

Moderate to Severe Allergic Reaction or Anaphylaxis

PATIENT'S ALBUTEROL MDI:
- ADULT: 2 to 4 sprays using a spacer, if available
- PEDIATRIC: 2 to 4 sprays, if available use spacer

ALBUTEROL NEB: PRN every 10 minutes
- ADULT and PEDIATRIC >2: 2.5 mg in 3 mL NS
- PEDIATRIC <2: 1.25 mg in 3 mL NS

Consider (severe cases)

CONTINOUS NEB:
- ADULT and PEDIATRIC>2: 7.5 mg of *ALBUTEROL* in 9 mL via neb

Dyspnea

YES

S/S of poor perfusion, multiple body systems involved

NO

YES

EPINEPHRINE 1:1,000: PRN every 3-5 minutes
- ADULT: 0.5 mg (0.5 mL) IM LATERAL THIGH
- PEDIATRIC: 0.01 mg/kg (0.01 mL/kg) IM LATERAL THIGH
Max single dose 0.5mg (0.5mL)

Consider CPAP (if dyspnea unresolved)
- ADULT: see *CPAP PROCEDURE*
- PEDIATRIC: see *CPAP PROCEDURE*

Condition Improved

YES

NO

General supportive care

Consider (In Severe Cases)
EPINEPHRINE 1:10,000: PRN every 3-5 minutes
- ADULT: 0.1 mg (1 mL) IV/IO
- PEDIATRIC: 0.01 mg/kg (0.1 mL/kg) IV/IO

Condition Improved

NO

YES

IV/IO DIPHENHYDRAMINE: NOT repeated
See BOX A for dosing

DEXAMETHASONE: NOT repeated
- ADULT: 10 mg IV/IO/IM
- PEDIATRIC: 0.5 mg/kg IV/IO/IM MAX of 10

OR

METHYLPREDNISOLONE: NOT repeated
- ADULT: 125 mg IV/IO/IM
- PEDIATRIC: 2 mg/kg IV/IO/IM MAX of 125

Consider
EPINEPHRINE INFUSION:
- ADULT and PEDIATRIC:
1 mg (1 mL) of 1:10,000 Epinephrine in a 1,000 ml NS bag, or 0.5 mg in 500 mL bag NS, infuse wide open to gravity in small increments to achieve a BP >90 systolic and/or return of distal pules, and/or improved mental status

General supportive care

Special Considerations
- EMR may use Epipen auto injector if available and if epinephrine IM is indicated.
- Consider *IV FLUID* to treat hypotension
- Consider early airway intervention. See *AIRWAY MANAGEMENT GUIDELINE*
- Lethal edema may be localized to the tongue; uvula or other parts of the upper airway and restrict air flow.
- Be cautious when administering epinephrine in patients >50 years of age, those with cardiac disease, and/or those with HR >150. 12-lead EKG SHOULD be completed

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Behavioral Emergency

Description

Behavioral/medical/traumatic emergencies can arise due to anxiety, mental illness, substance abuse or another medical conditions. Symptoms can range from mild to severe. Most behavioral emergencies are mild to moderate in nature and can be managed using verbal de-escalation and/or de-escalation with medication(s).

a) **Mild (RASS 0 to -2):** Behavior which includes irritability, verbal aggression, anxiety, and/or depression.

b) **Moderate (RASS -3 to -5):** Increased restless/irritable behavior that escalates to verbal and/or physical aggression toward self or others.

c) **Severe (RASS +1 to +4):** Behavior which includes poor impulse control, aggressive excitement, non-purposeful movements, and/or unrelenting violent/disruptive behavior **AND** has the potential to require restraint.

IMPROVED MONTGOMERY COUNTY RICHMOND AGITATION SEDATION SCALE (RASS)			
Score	**Term**	**Description**	**EMS Activity**
+4	**Combative**	Overly combative, violent, immediate danger to staff.	Unsafe to care for patient without maximal assistance, require law enforcement assistance.
+3	**Very Agitated**	Pulls or removes tube(s) or catheter(s), aggressive	Struggles aggressively and forcefully against care. Routine EMS care impossible.
+2	**Agitated**	Frequent non-purposeful movements, fights interventions	Resists EMS care, requires gentle physical redirection to allow for routine EMS care
+1	**Restless**	Anxious, but movements are not aggressive or vigorous	Verbally redirectable, follows commands, routine EMS care possible
0	**Alert Calm**	Calm behavior	
-1	**Drowsy**	Not fully alert but has sustained awakening and eye contact to voice (<10 seconds)	Awakens to voice
-2	**Light Sedation**	Briefly awakens to voice (<10 seconds)	Awakens to bumps/potholes in roadway during transport or application of oxygen via NC or NRB
-3	**Moderate Sedation**	Movement or eye opening to voice (no eye contact)	Eyes open to physical exam, venous tourniquet application and/or BP cuff
-4	**Deep Sedation**	No response to voice, but movement or eye contact to physical stimulation	Responds to insertion of NPA or IV start
-5	**Unarousable**	No response to voice or physical stimulation	No response to insertion of OPA/NPA or IV start
Remember to document the event/behavior in detail within the ePCR			

Indication for Restraint

Use restraints **ONLY** if attempts at verbal de-escalation are unsuccessful and when a justifiable behavioral/medical/traumatic emergency is present. This is defined as an underlying behavioral/medical/traumatic condition posing an immediate safety risk to the individual, EMS provider, and/or the public.

a. If restraining a patient will place EMS/Fire personnel in harm's way, providers are allowed to disengage the restraint process.

Restraint Considerations

a) **AVOID PRONE POSITIONING**: transition the patient from the prone position as soon as possible.

b) restrained patient may never be left unattended.

c) Continuous monitoring of vital signs and airway to prevent injury, aspiration, or harm.

d) Peace officers shall not use, direct, or unduly influence EMS providers with regards to medical care.

e) Thoroughly document restraint rationale and type utilized, re-evaluations, all persons involved including peace officer, any injury to the patient or provider, as well as patient condition upon hospital transfer of care.

f) If handcuffs are placed by a peace officer, the officer **MUST** accompany EMS during transport in the ambulance or the patient must be transitioned to soft restraints prior to leaving the scene.

g) Be aware of potential complications from preexisting medical conditions with the application of restraints such as obesity, ACS, diabetes etc.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Behavioral Emergency

Scene Assessment
EMS Provider(s) in harm's way?

NO

Initial assessment
Acquire VS (if possible)
Attempt de-escalation techniques
Respect personal space

YES

Disengage Patient Contact

Medical Emergency
Trauma, Endocrine, Infection, and/or hypoxia
Treat per Specific Guideline

Suspected Cause

Behavioral Emergency
Anxiety/Psych: See below
Suicidal: Use the Assessment Tool

Suicidal Ideation Assessment Tool	
1	Wish to be dead, nonspecific active suicidal thoughts without a plan or intent to act
2	Active suicidal ideation with specific plan and intent
3	Preparatory acts (plan, telling friends, writing letters, giving away belongings etc.)
4	Actual, aborted, or interrupted attempt

Lower Risk	Higher Risk
May leave in place with handout, see *REFUSAL GUIDELINE*	High consideration of transport

Benzodiazepines

MIDAZOLAM: **PRN every 10 minutes**
- ADULT: Up to 5 mg IV/IO/IN/IM
- PEDIATRIC: 0.1 mg/kg IV/IO/IN/IM,MAX single dose of 5 mg

OR

LORAZEPAM: **PRN every 10 minutes**
- ADULT: 2 mg IV/IO/IN/IM over 1 to 2mins
- PEDIATRIC: 0.1 mg/kg IV/IO/IM/IN over 1 to 2 minutes, MAX single dose of1 mg

OR

DIAZEPAM: **PRN every 10 minutes**
- ADULT: Up to 5 mg IV/IO/IM
- PEDIATRIC: 0.25 mg/kg IV/IO/IM/INMAX single dose of 5 mg

Antipsychotics

DROPERIDOL: PRN every 10 minutes to a Max dose of 20 mgs
- ADULT: 5 mg IV/IO or 10mg IM
- PEDIATRIC: <13: NOT ALLOWED

OR

HALOPERIDOL: PRN q 3-5 minutes
- ADULT: 5 – 10 mg IM ONLY; Max dose20 mgs
- PEDIATRIC: <13: NOT ALLOWED

Mild (0-2)

Moderate (+1+2)

Severe (+3 to +4)

Atypical Antipsychotic

Olanzapine: **for mild only.**
- ADULT: 10mg ODT ages 18-65. Not Repeated.

General Supportive Care

Maintain patent airway and *OXYGENATION*
Early 12-lead EKG if clinically indicated
Monitor VS closely such as EtCO2, RR, O2 Sat etc.
If hyperthermia suspected, see *HEAT RELATED EMERGENCY*

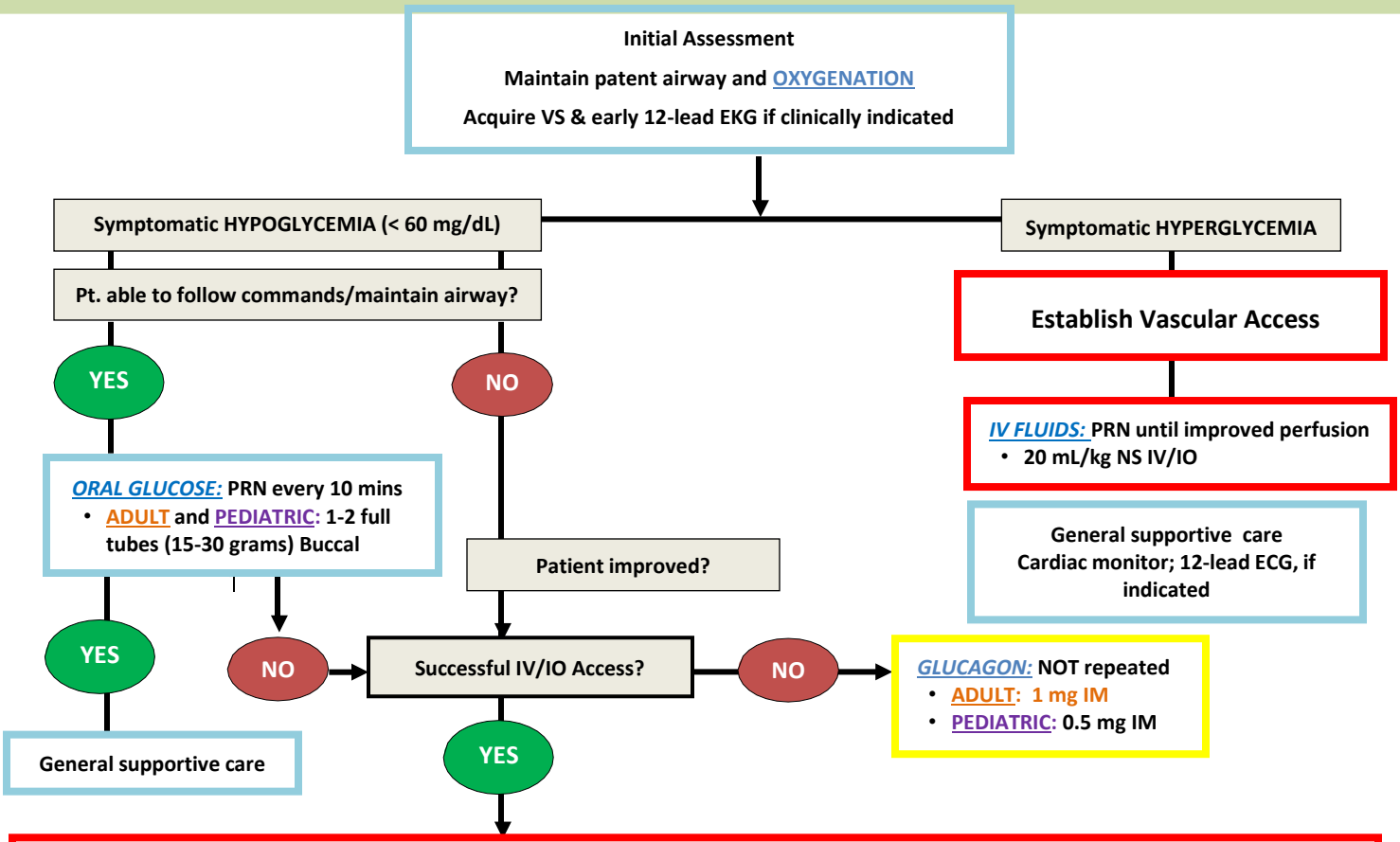
Establish Vascular Access

Apply physical Restraints, if indicated
Reassess motor, sensory, and circulation

If physical restraints are ineffective to allow medical care, reassess the need for chemical intervention

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Diabetic Emergency



DEXTROSE 10% SOLUTION IV:

- **ADULT:** 25 grams (250 mL of a 10% solution) IV/IO, slowly over 10 minutes or until patient condition improves
- **PEDIATRIC <12:** 10 mL/kg of a 10% solution IV/IO, slowly over 10 minutes or until patient condition improves
  - To make 10% dextrose: Add 25 grams of dextrose 50% solution to 250 mL (or 50 grams in 500 mL) of normal saline
  - Discard 40 mL of liquid from one amp of dextrose 50% solution, then draw 40 mL of NS or sterile water into the amp. Roll the syringe between the palms to mix solution

Special Considerations

- DO NOT let alcohol confuse the clinical picture. Alcoholics frequently develop hypoglycemia.
- Hyperglycemia may aggravate cerebral edema in a patient with a cerebral vascular accident. A BGL should always be determined prior to administration of glucose.
- Hyperglycemia is treated with fluids. These patients are volume depleted; glucose will begin to clear with adequate hydration
- If hypoglycemic patients have returned to baseline and wish to refuse care, make certain that the patient eats complex carbohydrates andthat there is someone to observe them for repeat hypoglycemic episodes. See *REFUSAL GUIDELINE*
- If symptoms do not resolve after treatment, consider other causes
- A sugary juice mixture or similar item can be substituted for *ORAL GLUCOSE*

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Epistaxis

If suspected trauma, evaluate for possible septal hematoma

Initial assessment
Maintain patent airway and consider *OXYGEN*
Acquire VS & early 12-lead EKG if clinically indicated

Establish vascular access

ADULT | **PEDIATRIC**

Bleeding from one or both nares?

YES / **NO** → **General Supportive Care** ← **NO** / **YES**

IV THERAPY; If needed, consider
- **20 mL/kg NS IV/IO**

IV THERAPY; If needed, consider
- **20 mL/kg NS IV/IO**

NEOSYNEPHRINE
- **For patients experiencing an active nosebleed and able to follow commands**
  a) First have patient blow nose to expel clots.
  b) Administer 2 sprays to each nostril with patient gently sniffing (if possible) until patient can taste the Neosynephrine.
  c) Apply digital pressure to the soft nasal portion or apply commercial nose clip for 20 minutes; repeat as needed

General Supportive Care

TXA EPCSAR and NETCO ONLY
- ADULT ONLY: **250 mg Topical or IN, repeat PRN**
- **Have the patient clear the nostrils (blow nose)**
- **Place TXA on onto a 2x2 gauze pad or cotton ball o Insert TXA soaked pad** d into affected nostril(s)
- Apply nose clamps
- Let the receiving hospital know if TXA was used to control the nose bleed

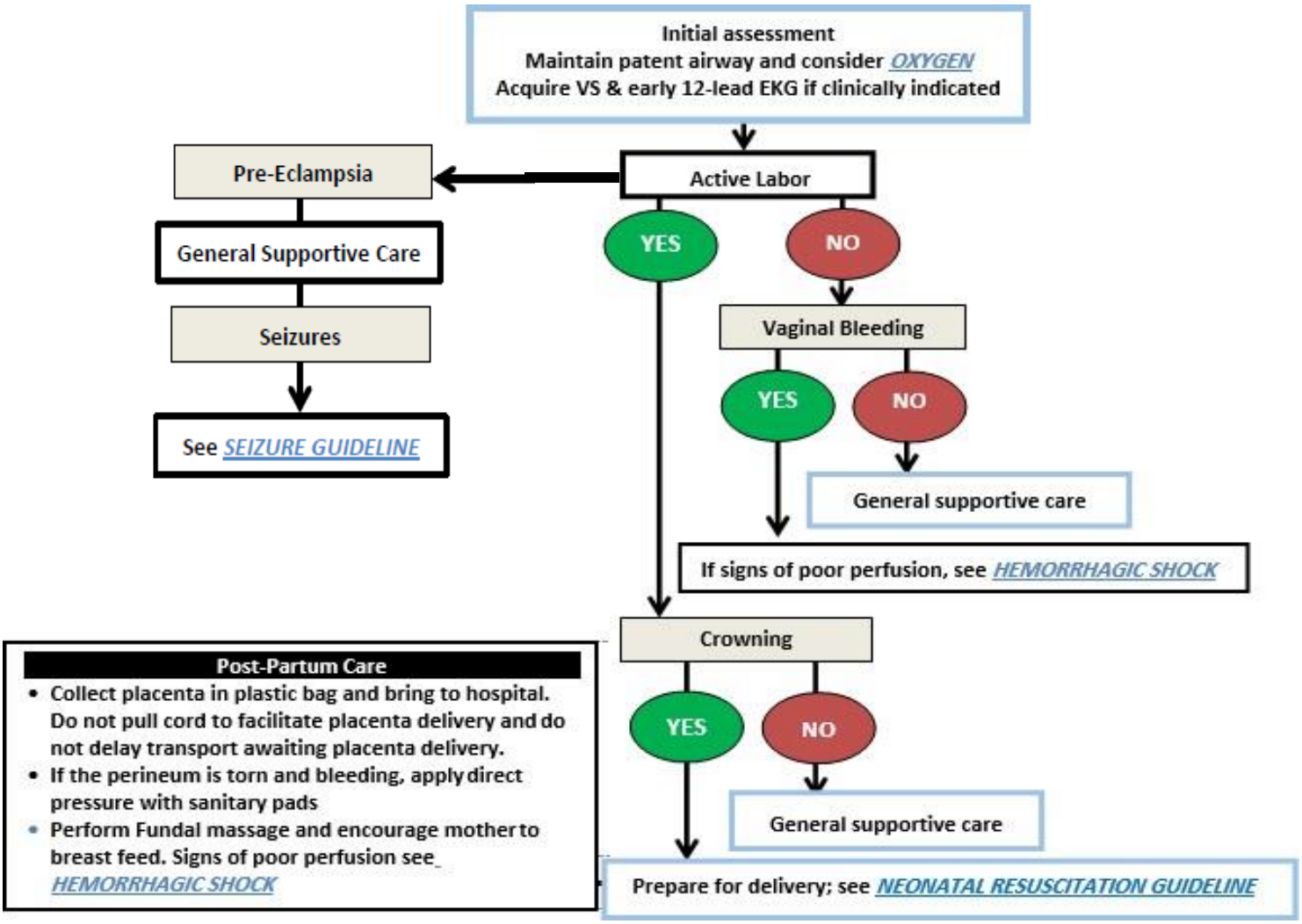
EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Special Considerations
- **Do not remove clamp prior to ED arrival**
- **There is no clear association between hypertension and nose bleeds; complete a thorough medical and trauma assessment.**
- **Often nose bleeds are associated with patients taking anticoagulants or antiplatelet medications; try to attain a medication list for the receiving facility.**

OB/GYN Emergency

Receiving Facility Capability Check Availability with EMResource						
Condition	PMC	SFMC	MC	MN	GV	CH
Pregnancy < 20 Weeks	A/P	A/P	A/P	A/P	A	N
Pregnancy > 20 Weeks	X	A/P	A/P	A/P	X	N
Breech	A/P	A/P	A/P	A/P	A/P	N

A=Adult, P=Pediatric X=Does not accept



Post-Partum Care

- Collect placenta in plastic bag and bring to hospital. Do not pull cord to facilitate placenta delivery and do not delay transport awaiting placenta delivery.
- If the perineum is torn and bleeding, apply direct pressure with sanitary pads
- Perform Fundal massage and encourage mother to breast feed. Signs of poor perfusion see HEMORRHAGIC SHOCK

Special Considerations

- Supine hypotension occurs after 20 weeks in some women, due to compression of the Inferior Vena Cava by the gravid uterus. The left lateral recumbent position is optimum for avoiding this
- Patient with prolapsed cord should be placed in left lateral recumbent position in Trendelenburg. The knee-chest position is generally described as the preferred position. If adequate restraints are available to comfortably and safely restrain, knee-chest may be preferred
- Breech presentation should be placed in the knee to chest position
- Treat *PAIN,* and *NAUSEA/VOMITING* per corresponding guideline
- Any pregnant patient involved in an MVC should be seen immediately by a physician for evaluation and fetal monitoring.
- Consider transport to the closest emergency department for any one of the following conditions;
  - Abnormal presentation
  - Severe vaginal bleeding, especially 3rd trimester bleeding (6-8 months); Suspect placental abruption or placenta previa
  - Seizures; Suspect Eclampsia/Toxemia if SBP > 140, DBP > 90, peripheral edema
    - Transport position of comfort
    - Treat with Magnesium Sulfate per *SEIZURE GUIDELINE*
  - Cardiac arrest with gestation ≥23 weeks

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

OB–Complicated Delivery

Receiving Facility Capability Check Availability with EMResource						
Condition	PMC	SFMC	MC	MN	GV	CH
Pregnancy < 20 Weeks	A/P	A/P	A/P	A/P	A	N
Pregnancy > 20 Weeks	X	A/P	A/P	A/P	X	N
Breech	A/P	A/P	A/P	A/P	A/P	N

A=Adult, P=Pediatric X=Does not accept

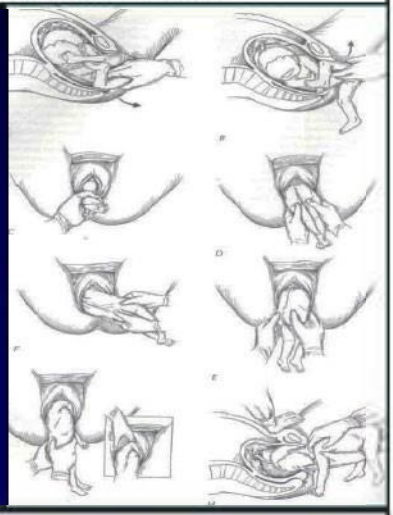
Initial assessment
Maintain patent airway and *OXYGENATION*
Acquire VS & early 12-lead EKG if clinically indicated

Type of Complication

Breech

- Never attempt to pull infant from vagina by legs
- IF legs are delivered gently elevate trunk and legs to aid delivery of head
- Head should deliver in 30 seconds. If not, reach 2 fingers into vagina to locate infant's mouth. Press vaginal wall away from baby's mouth to access an airway
- Apply gentle abdominal pressure to uterine fundus

Deliver the leg
Deliver the other leg
Grasp ankles, deliver to the umbillicus
Keep sacrum anterior, deliver to the clavicles
Rotate 90° deliver right arm
Rotate 180° to deliver the left arm
Keep fingers over maxillary process and deliver the head keeping body parallel



Prepare for delivery, see *NEONATAL RESUSCITATION GUIDELINE*

General supportive care
Rapid Transport to closest appropriate facility

Cord Presentation

Wrapped around the neck?

YES

Nuchal Cord
- Gently maneuver and loosen the cord off the neck
- If not possible, consider clamping and cutting the cord in place

Prepare for delivery, see *NEONATAL RESUSCITATION GUIDELINE*

NO

Prolapsed Cord
- Elevate the presenting part
- Consider knee chest position
- Manually insert 2 fingers into the vagina and push the presenting part upwards to alleviate pressure
- Keep cord warm and moist

General supportive care
Rapid Transport to closest appropriate facility

Special

- These techniques may not be feasible in all situations, or does every OB complication be expected or well managed in the field. This guideline should be considered "best advice" for rare, difficult scenarios. In every case, initiate immediate transport to definite care
- Breech presentation occurs in 3–4% of term deliveries and is more common preterm
- Shoulder Dystocia: Be sure to support the head and facilitate delivery by placing mother with buttocks just off the end of bed, flex her thighs upward and apply gentle open hand pressure above the pubic bone
- Treat seizures per SEIZURE GUIDELINE
- Treat pain per PAIN MANAGEMENT GUIDELINE
- Treat nausea/vomiting per NAUSEA VOMITING GUIDELINE

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Poisoning & Overdose

1) Although there are some nuances to each individual poison and/or overdose, the general treatment is predominantly the same and includes: scene safety, maintaining airway patency, treating for shock, when clinically indicated, and transport to the closest appropriate facility.
   a) The prehospital provider is not expected to know every substance in an overdose or poisoning but rather the general classification or toxidrome (see below).
2) Consider contacting **Poison Control** at **1-800-222-1222**
   a) Poison Control may assist in allowing a patient to stay at home for nontoxic ingestions/exposures as well as assist in the management of toxic ingestions.
   b) A release of care (refusal) **MUST** be completed if the patient is not transported

Special Considerations

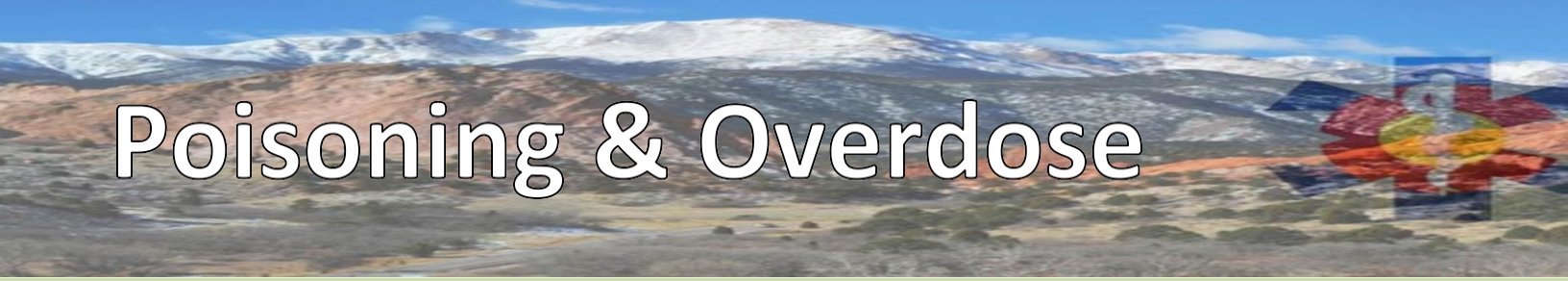
1) Symptoms differ, but certain common syndromes may suggest a specific toxidrome
   a) Different patients poisoned with the same substance may present with very different symptoms
   b) Patients who have multiple substances are less likely to have symptoms characteristic of a single substance
   c) Consider treating a suspected antihistamine overdose the same as a TCA overdose
2) There are few specific "antidotes." Product labels and home kits can be misleading and dangerous
3) Do not neutralize acids with alkalis. Do not neutralize alkalis with acids. These "treatments" cause heat-releasing chemical reactions that can further injure the GI track
4) A commonly missed external contamination is gasoline. Be sure that gasoline spilled on trauma patients is washed off promptly and clothing removed to prevent irritant burns
5) Inhalation poisoning is particularly dangerous to rescuers. Recognize an environment with continuing contamination, don proper PPE, and extricate rapidly or avoid altogether
6) Treat seizures per ***SEIZURE***
7) Treat nausea and vomiting per the ***NAUSEA VOMITING***
8) If the patient is presenting with withdrawal symptoms, treat per ***BEHAVIORAL EMERGENCY***
9) **DO NOT** rely on patient history of ingestion, especially in suicide attempts
10) If applicable, consider ***HAZMAT and DECON GUIDLINE***

Specific Toxidrome Information

Toxidrome Findings								
Toxidrome	**Mental Status**	**Pulse**	**RR**	**BP**	**Pupil**	**Skin**	**Temp**	**Specific Medication**
Opiate	**Depressed**	↓	↓	↓	**Pinpoint**	**Cool**	↓	**Narcan**
Sedative-hypnotic	**Depressed**	↓	↓	↓	**Normal**	**Normal**	**Normal**	**NA**
Sympathomimetic	**Agitated**	↑	**Normal**	↑	**Dilated**	**Diaphoretic**	↑	**Benzodiazepine**
Cholinergic	**Agitated**	↑↓	**Normal**	↑↓	**Dilated**	**Diaphoretic**	**Normal**	**Atropine**
Anticholinergic	**Agitated delirium**	↑	↑↓	↑↓	**Dilated**	**Dry**	↑	**Benzodiazepine**
Withdrawal Syndromes								
Opioids	**Agitated**	↑	↑	↑	**Dilated**	**Normal to wet**	↑	**Opioid**
Sedative-hypnotic	**Normal**	↑	**Normal**	↑	**Dilated**	**Wet**	**Normal**	**Benzodiazepine**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Poisoning & Overdose



Initial Assessment
Maintain patent airway and OXYGENATION
Acquire VS & early 12-lead EKG if clinically indicated
Identify substance

Establish Vascular Access. Consider FLUID THERAPY

Signs of poor perfusion

YES → Specific Substance Identified

NO → General Supportive Care

Specific Substance Identified:

- Beta Blocker
- Calcium Channel Blocker
- Antihistamine, Tricyclic, or other Na+ Channel Blocker w/ QRS > 100

Beta Blocker

GLUCAGON: PRN x1, if available
- ADULT: MAX available dose up to 5 mg IV/IO
- PEDIATRIC: 0.1 mg/kg IV/IO/IM

CALCIUM CHLORIDE: every 10 mins to a MAX of3 doses
- ADULT: 1 Gram slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: 20 mg/kg slow bolus over 2 to 5 minutes IV/IO, MAX 1 Gram

CALCIUM GLUCONATE: every 10 mins to a MAX3 doses
- ADULT: 3 Grams slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: 60 mg/kg, slow bolus over 2 to 5 minutes IV/IO. MAX 3 Grams

Calcium Channel Blocker

GLUCAGON: PRN x1, if available
- ADULT: MAX available dose up to 5 mg IV/IO
- PEDIATRIC: 0.1 mg/kg IV/IO/IM

CALCIUM CHLORIDE: every 10 mins to a MAXof 3 doses
- ADULT: 1 Gram slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: 20 mg/kg slow bolus over 2 to 5 minutes IV/IO, MAX 1 Gram

CALCIUM GLUCONATE: every 10 mins to aMAX 3 doses
- ADULT: 3 Grams slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: 60 mg/kg, slow bolus over 2 to 5 minutes IV/IO. MAX 3 Grams

Antihistamine, Tricyclic, or other Na+ Channel Blocker w/ QRS > 100

SODIUM BICARBONATE: PRN until seizures stop or QRS shortens to < 100 ms (if applicable)
- ADULT and PEDIATRIC >2: 100 mEq bolus IV/IO of an 8.4% solution
- In severe cases consider drip; Mix 150 mEq (150 mL) in 1,000 mL NS and administer at 200 mL/hr

Consider

EPINEPHRINE INFUSION:
- ADULT and PEDIATRIC:
  1 mg (1 mL) of Epinephrine in a 1,000 ml NS bag or 0.5 mg of Epinephrine in a 500 ml NS bag infuse wide open to gravity in small increments to achieve a BP >90 systolic and/or return of distal pules, and/or improved mental status

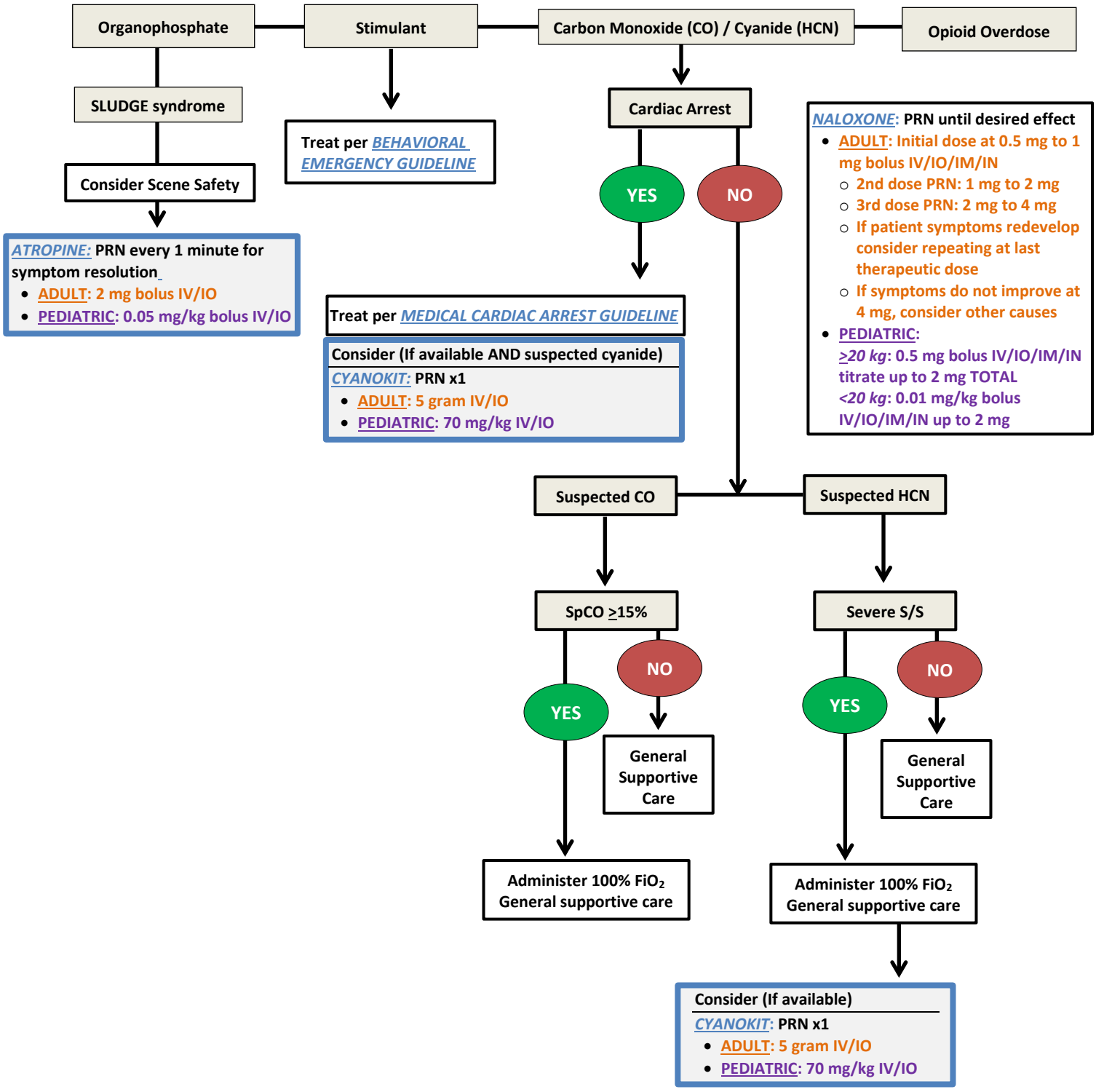
Cardiac Arrest

NO → General Supportive Care
Be prepared to manage patient's airway. See *AIRWAY MANAGEMENT GUIDELINE*

YES → See *MEDICAL CARDIAC ARREST* Guideline

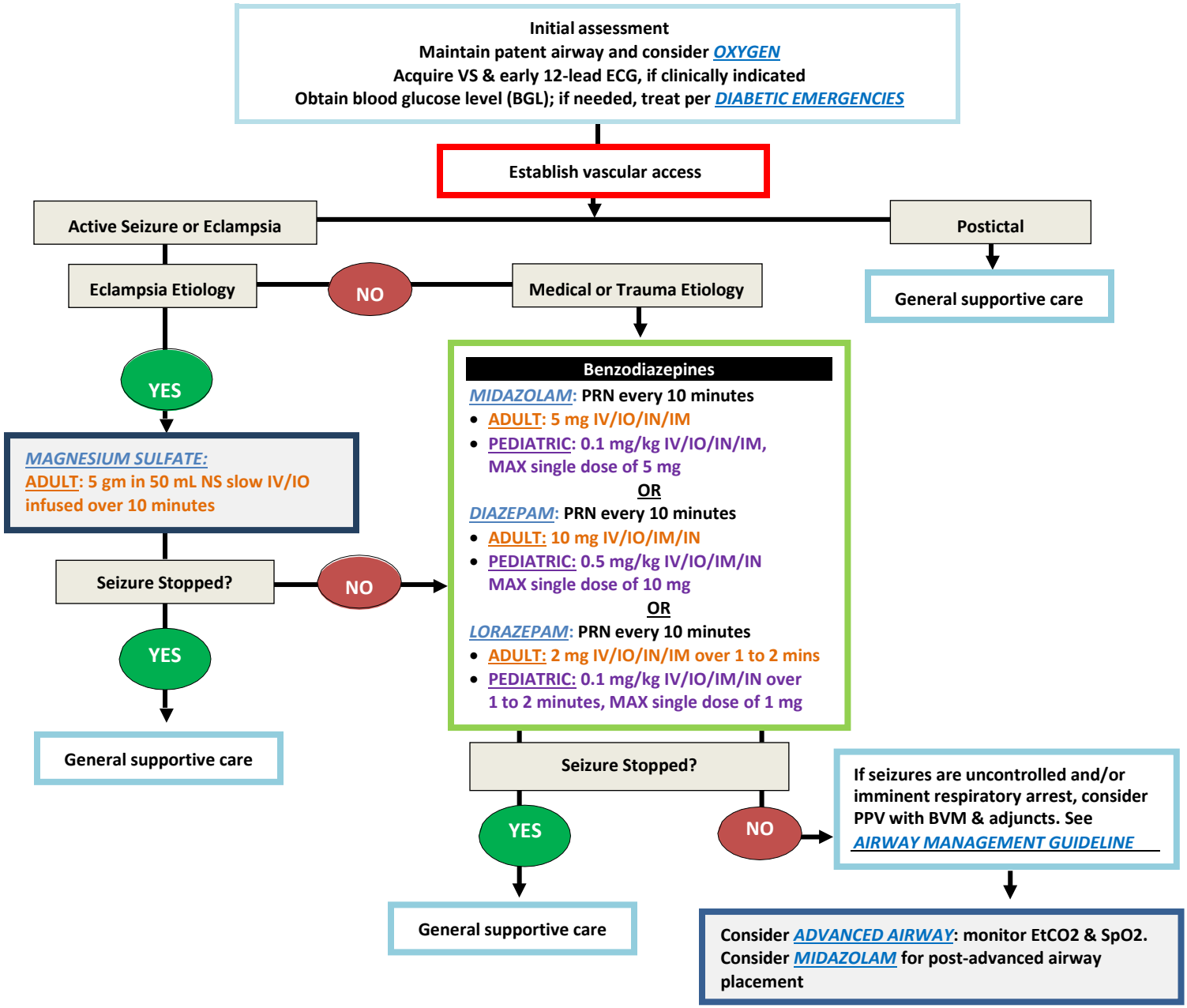
EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Poisoning & Overdose



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Seizures



Special Considerations

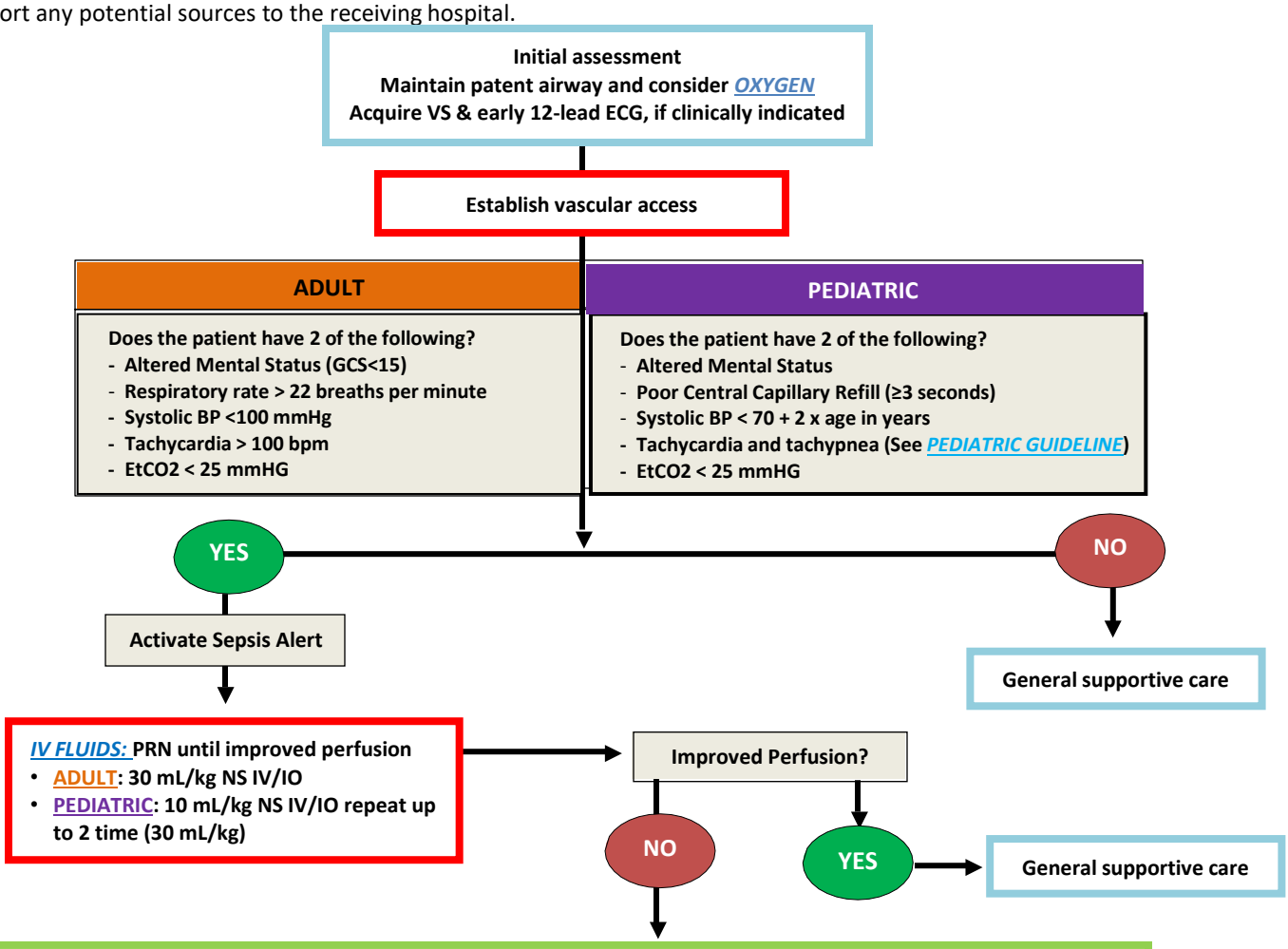
- Assess possibility of occult trauma and substance abuse
- Be prepared to assist ventilations, especially if versed is used
- In patients over the age of 50, seizures may be due to dysrhythmias or stroke. Of these, dysrhythmia is the most important to recognize in the field
- Consider nonconvulsive status epileptics in the patient with a prolonged postictal state that is not improving. Manage this state with continued benzodiazepine administration
- Pregnant patients DO NOT need to be actively seizing to administer, if there was witnessed seizure activity prior to arrival the patient SHOULD receive *MAGNESIUM SULFATE*
- Post-Partum seizures can occur up to 6 weeks after delivery and should be administered magnesium sulfate

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Sepsis/Infection

Pediatric Blood Pressure Chart		
Age	Weight	Systolic BP
Neonate	3-5 kg	67-84
4 Months	6-7 kg	65-105
6 Months	8-9 kg	65-105
1 Year	10-11 kg	70-110
2 Years	12-14 kg	75-110
3-4 Years	15-18 kg	75-110
5-6 Years	19-22 kg	90-115
7-9 Years	23-28 kg	90-115
10-13 Years	29-36 kg	95-120

1) These patients should be transported to a comprehensive facility capable of facilitating early "surviving sepsis guidelines".
2) Administration of effective intravenous antimicrobials within the first hour of recognition of septic shock and severe sepsis without septic shock is the goal of therapy.
3) Providers **SHOULD** evaluate during transport for potential source of infection (urine, lung exam, full skin exam) and report any potential sources to the receiving hospital.



If SBP remains <90 in adults (or < 70 + 2 x age in years in pediatrics) after fluid administration, Consider:

EPINEPHRINE INFUSION:

ADULT and PEDIATRIC: 1 mg Epi in a 1,000 mL NS or 0.5 mg in 500 mL NS, IV/IO infusion wide open to gravity

- **Administer to desired hemodynamic effect with goal of SBP > 90, and/or return of distal pulses, and/or improved mental status. Continuously reassess BP until titrated to effect**

OR

***PUSH-DOSE EPINEPHRINE*:**

ADULT and PEDIATRIC: Slow IV/IO push 0.3 mL of 10 mcg/mL concentration every 1-5 minutes.

- **Administer to desired hemodynamic effect with goal of SBP > 90, and/or return of distal pulses, and/or improved mental status. Continuously reassess BP until titrated to effect**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Suspected Stroke

Stroke Screening

1) Utilize the **BE-FAST** stroke screening in conjunction with a neurological assessment
2) If there are any positive findings during the exam, consider a stroke alert.
   - **Balance: Is the person experiencing a sudden loss of balance or coordination?**
   - **Eyes: Is the person having a sudden change in vision or trouble seeing, or abnormal pupils?**
   - **Face: Does one side of the face droop?**
   - **Arms: Does one arm drift?**
   - **Speech: Is their speech slurred or strange?**
   - **Time: What time did symptoms begin? When was patient last known "normal"?**

MSTU Request Criteria

1) +Neurological deficit
   - Onset ≤ 12 hours
2) 18 years and above
3) No obvious signs or recent trauma
4) No reported pregnancy

If available, request MSTU anytime last known normal ≤ 12 hours

Initial assessment
Maintain patent airway and *OXYGENATION*
Acquire VS & early 12-lead EKG if clinically indicated
Perform BE-FAST, neuro exam AND BGL evaluation.

Establish IV Access (consider two 18-gauge IVs)

Stroke Center Facilities

1) **Facilities that provide TPA**
   - Grandview
   - Memorial Central
   - Memorial North
   - Penrose Main
   - St. Francis
2) **Facilities that provide TPA & intracranial intervention Rx**
   - Memorial Central
   - Penrose Main

Last Known Normal < 4 hours

Activate Stroke Alert
OR contact MSTU Team, if appropriate

Transport to closest facility with TPA

General Supportive Care

Last Known Normal ≥ 4 to 24 hours OR Unknown Timeframe

Activate Stroke Alert

Transport to closest facility with Intracranial Intervention

General Supportive Care

Last Known Normal > 24 hours

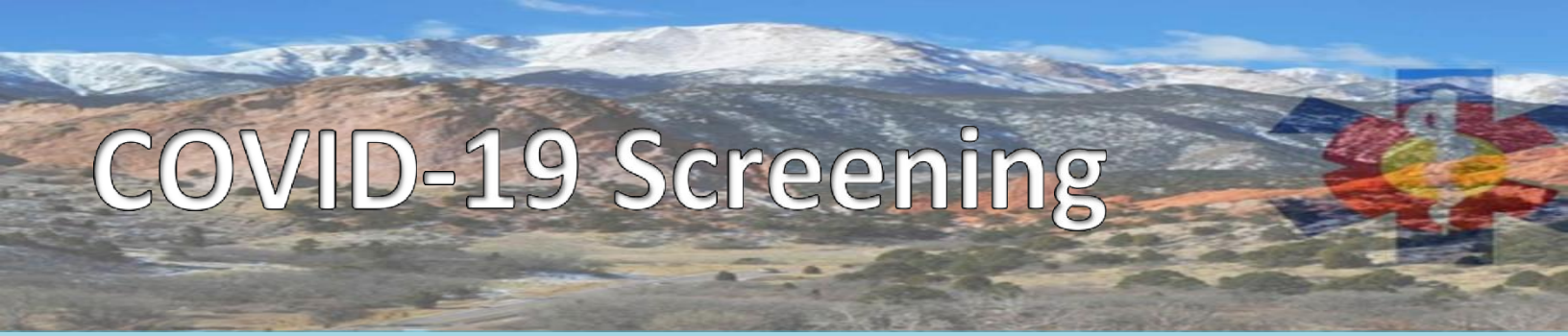
Transport to closest appropriate facility

General Supportive Care

Special Considerations

- **Be mindful of airway compromise, see *AIRWAY MANAGEMENT GUIDELINE***
- **If possible, elevate the head of the bed 30° during transport**
- **If possible, continually monitor ECG**
- **If possible, establish two 18G or larger IV access sites**
- **Not all neurologic deficits are caused by stroke. Look for treatable medical conditions such as hypoglycemia, hyperglycemia, hypothermia, hypoxia, hypotension, encephalopathy, infection, seizure, and/or hyperthermia**
  - **Treat hypoglycemia per *DIABETIC EMERGENCY GUIDELINE***
  - **Treat seizures per *SEIZURE GUIDELINE***
  - **Treat infection per *SEPSIS/INFECTION GUIDELINE***
  - **Treat hyperthermia per *HEAT EMERGENCIES GUIDELINE***
- **There is no substantial evidence for treating acute hypertension due to acute stroke, therefore hypertension should only be monitored in the prehospital setting; avoid excessive fluid administration**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic



Description

a. This guideline helps prehospital providers evaluate, screen for, and decide whether or not to transport a suspected or known Novel Coronavirus 19 (COVID 19) Patient.

Dispatch should utilize the Emerging Infectious Disease (EID) Surveillance Tool with the "Breathing Problem" and "Sick Person" EMD protocols and notify responding agencies if a patient has a positive screen

NO — **POSITIVE Screening Questions** — **YES**

Do NOT solely rely on EMD to identify a potential exposure patient:
- **EMD may be constrained by time and caller information**
- **Obtain your own history and assess for clinical signs and symptoms**
- **Limit the number of providers to those necessary for care (2 in/2 Out)**

- **One provider enters in full PPE and assesses the need for additional resources**
- **If the patient can self-apply a mask, give him/her one from a distance. Otherwise, place a mask on the patient.**
- **When possible, avoid Aerosol Generating Procedures (AGPs)**

Box 1 – Does the patient have or complain of:
- **Fever, chills, severe fatigue, loss of taste/smell, S/Sx of respiratory illness (e.g. cough, congestion, shortness of breath, sore throat), headache, muscle/body aches, nausea, vomiting or diarrhea.**

Box 2 – Any person in the last 14 days:
- **Who has had close contact with a confirmed COVID-19 patient**
- **With a history of travel**
- **Who has been hospitalized**
- **Who lives in a residential facility/nursing home**
- **With close contact with a healthcare provider who has had DIRECT contact with pts with S/S of respiratory illness or clinical specimens**

AND/OR

Any person:
- **With high risk for severe illness (age≥65, compromised immune system, diabetes, cancer, and/or heart/lung/kidney disease)**
- **Who is under investigation for respiratory illness by Public Health officials**

DOES THE PATIENT MEET AT LEAST 1 CRITERIA FROM BOTH BOX 1 AND BOX 2? — **NO** — **Exit to Appropriate Guideline**

YES

Patient:
- **Place surgical mask on the patient, if they not already wearing one**
  - **If unable or unwilling to wear a mask, have the patient cover their mouth and nose when coughing**
- **Use NRB mask, if oxygen is needed**

Prehospital providers utilize contact, droplet, and airborne precautions
- **Eye protection (goggles or face shield)**
- **N95 Mask (or higher) or PAPR (any provider in the ambulance cab)**
- **Gloves and gowns**

NON-TRANSPORT Criteria:
- **RR >8 or <22**
- **O2 Saturation >88%**
- **HR <110 (or normal for age)**
- **SBP between 100-180 (or normal for age)**
- **GCS of 15**
- **EtCO2 between 30-55 mmhg**

Risk Factors/ TRANSPORT Criteria:
- **Provider discretion**
- **Age >55**
- **CP other than with mild coughing**
- **Syncope**
- **Significant respiratory distress**
- **Diaphoresis**
- **Inability to care for themselves/not safe to leave at home**

Notify the receiving facility as soon as possible to allow for room and equipment preparation. Remain in the ambulance bay until escorted to a room by facility staff.

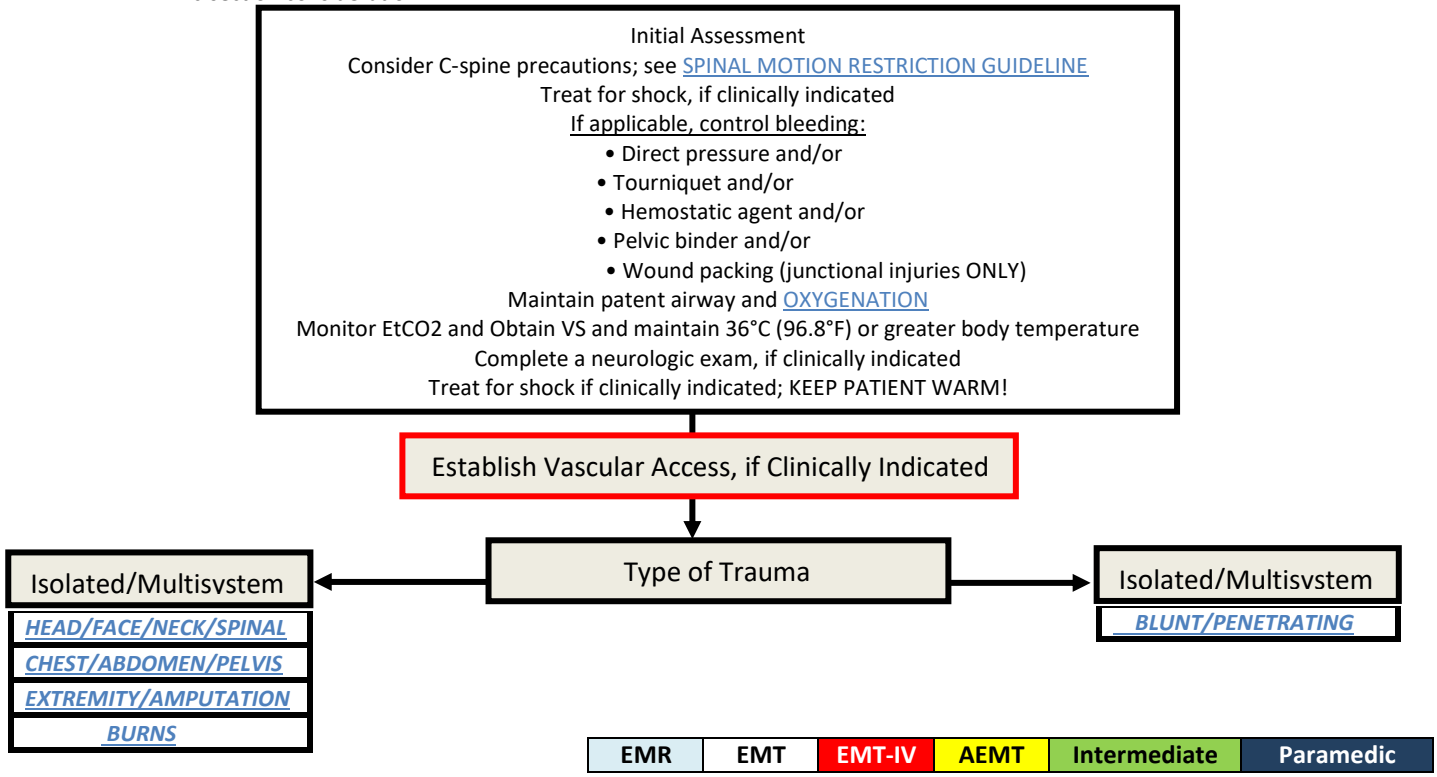
General Trauma Care

Description

1) Traumatic injuries require prompt care and transportation
2) Any chest or abdominal injuries, and all head injuries that result in a change or loss of consciousness, **SHOULD** receive an emergency department evaluation unless refused by a decisional patient or guardian, see ***PATIENT REFUSALGUIDELINE***
3) Always have a high index of suspicion for injury based on mechanism of injury; evaluate trauma patient in conjunction with their pertinent medical history
4) All trauma treatment guidelines cover both adult and pediatric injuries
5) For pediatrics, reference a ***GENERAL PEDIATRIC GUIDELINE***, Pediatric Field Guide, Broselow Tape, Handtevy Guide or approved resource

Special Considerations

1) $EtCO_2$ **SHOULD** be utilized in any major trauma to help identify early signs of hypoperfusion
   a) **MUST** be used (if available) in all severe TBI patient to avoid hyper-or-hypoventilation
2) Certain trauma situations call for assessment and treatment that goes beyond the standard treatment given for the patient's presenting complaints and injury
3) Prompt recognition of compensated shock/injuries, and rapid transport to the closest appropriate facility will most likely improve outcomes
   a) Scene times in traumatic injuries should be **10 minutes or less,** if possible
   b) All invasive treatments should be performed en route
   c) Early Trauma Activation notification to an appropriate receiving facility will allow time to prepare for appropriate in-hospital personnel and equipment
4) Consider potential medical causes of trauma or if trauma was possibly caused aggravation of underlying medical issues
5) Trauma in pregnancies can complicate assessment and treatment. Patients with any thoracic, abdominal, or pelvic complaint/injury may require prolonged fetal monitoring in the facility; this is true even if asymptomatic or seemingly minor mechanism. Encourage transport of all patients
   a) Avoid supine position, place in left lateral recumbent >30°
   b) Interpret VS with caution due to increased heart rate, decreased blood pressure, and increased blood volume
   c) Traumatic cardiac arrest with suspected gestation >23 weeks indicates rapid transport to closest appropriate facility for peri-mortem c-section consideration



Burn Injuries

Description

a. Monitor airway closely with any suspected airway or inhalation burns. Edema may become severe but **NOT** usually in the 1st hour. Advanced airway placement **SHOULD** be performed for any concerns of worsening airway
b. Consider carbon monoxide/cyanide poisoning if victim was in a confined space, see *POISIONING OVERDOSE GUIDELINE*
c. Circumferential burns to extremities and/or trunk are dangerous due to potential vascular compromise secondary to soft tissue swelling
d. Burn patients are prone to hypothermia. **DO NOT** cool burns that involve ≥10% body surface area (BSA)
e. **DO NOT** overlook the possibility of multi-system trauma or child abuse with burn injuries
f. The patient's palm represents 1% of their BSA, use the "rule-of-9's" as a reference
g. If shock present or the patient is unconscious, consider underlying causes
h. Use appropriate personal protective equipment when treating patients with chemical burn
i. If stable, consider pain management, see *PAIN MANAGEMENT GUIDELINE*

Stop the burning process
Remove constrictive clothing, diapers, and/or jewelry

Thermal

Cover with dry sterile dressing

Burn Percentage
- **ADULT: ≥ 2nd burn ≥15% BSA**
- **PEDIATRIC or ELDERLY: 2nd burn ≥10% BSA**
- **All Ages: 3rd Degree burn ≥2%**

YES

Establish vascular access; Consider *IV FLUID*
- **Age ≥14: 500 mL/hr NS or LR**
- **5 to 13 years: 250 mL/hr NS or LR**
- **Age <5: 125 mL/hr NS or LR**

If inhalation burn AND respiratory compromise present, be prepared to ventilate using basic airway adjuncts and BVM while monitoring EtCO2 and SpO_2. See *AIRWAY MANAGEMENT GUIDELINE*

NO

General supportive care

No Airway Compromise

General supportive care; KEEP THE PATIENT WARM

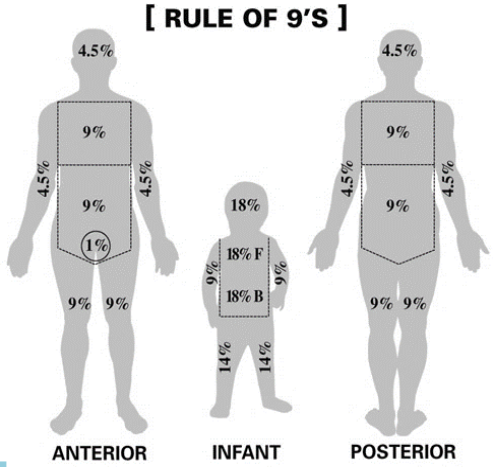
Electrical

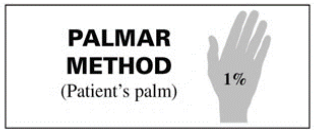
Consider spinal injury 2^0 to muscle spasm & contractions. Check for entrance and exit wounds.

Establish vascular access; Consider *IV FLUID*

12-Lead ECG Monitoring

[RULE OF 9'S]





Chemical

Decontaminate
- **Consult Emergency Response Guidebook FIRST**
- **Brush off any dry chemicals or powder and, if appropriate, continuously flush area with water or NS for 15 minutes prior to transport**

Eye Movement

YES

Consider *TOPICAL OPHTHALMIC ANESTHETIC*

Irrigate w/ NS

Consider vascular access and *IV FLUID*

NO

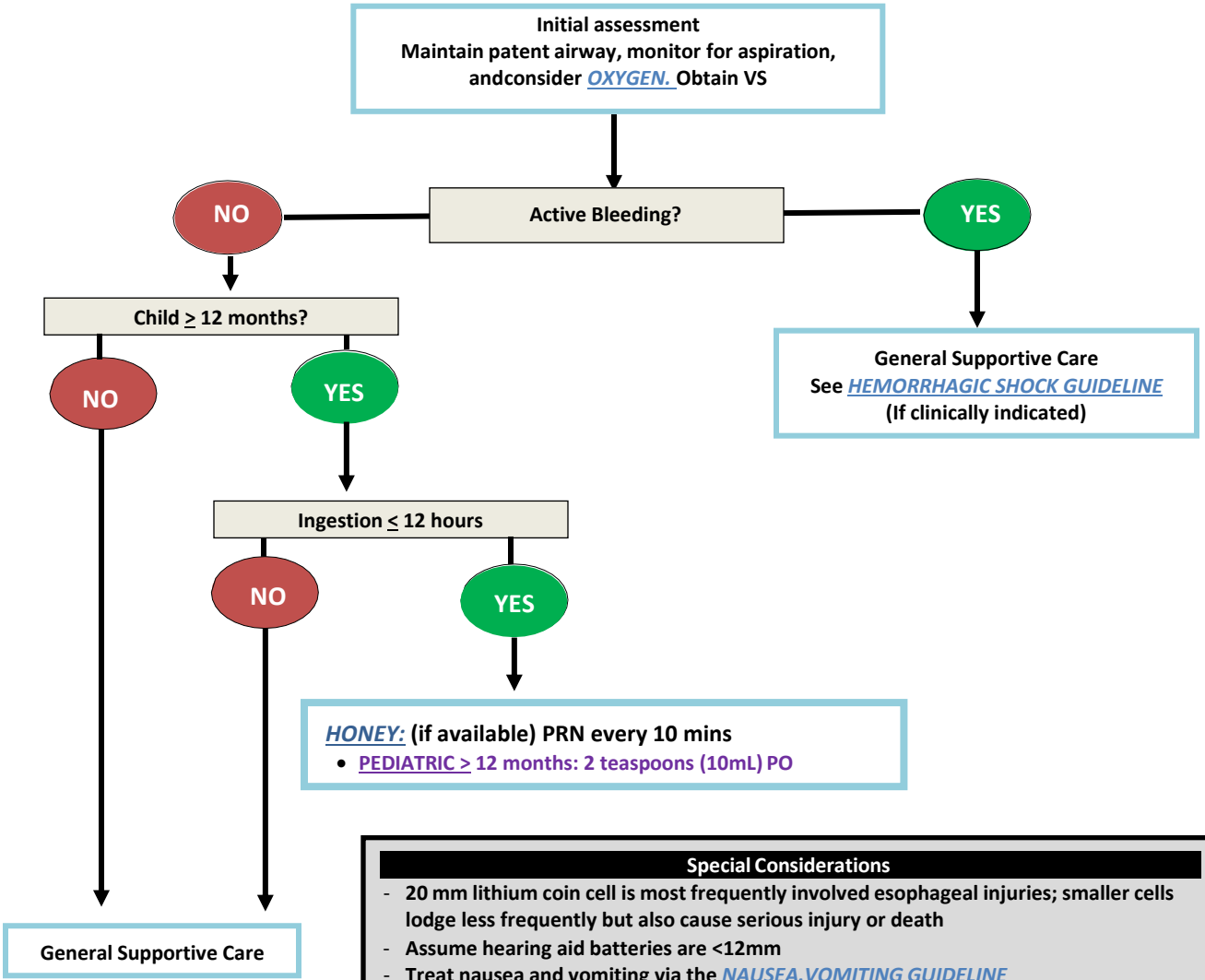
General Supportive Care

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Button Battery Ingestion

Description

a. There is a very rapid onset of tissue injury and injury continues for days to weeks after removal.
b. The orientation of the battery within the esophagus may be helpful in predicting the anatomic direction of tissue necrosis and thus the extra- esophageal structures at highest risk of injury.
c. When using honey, utilize **commercially-produced honey** rather than specialized or artisanal honey.
d. Be sure to notify the receiving facility as soon as possible.



Special Considerations

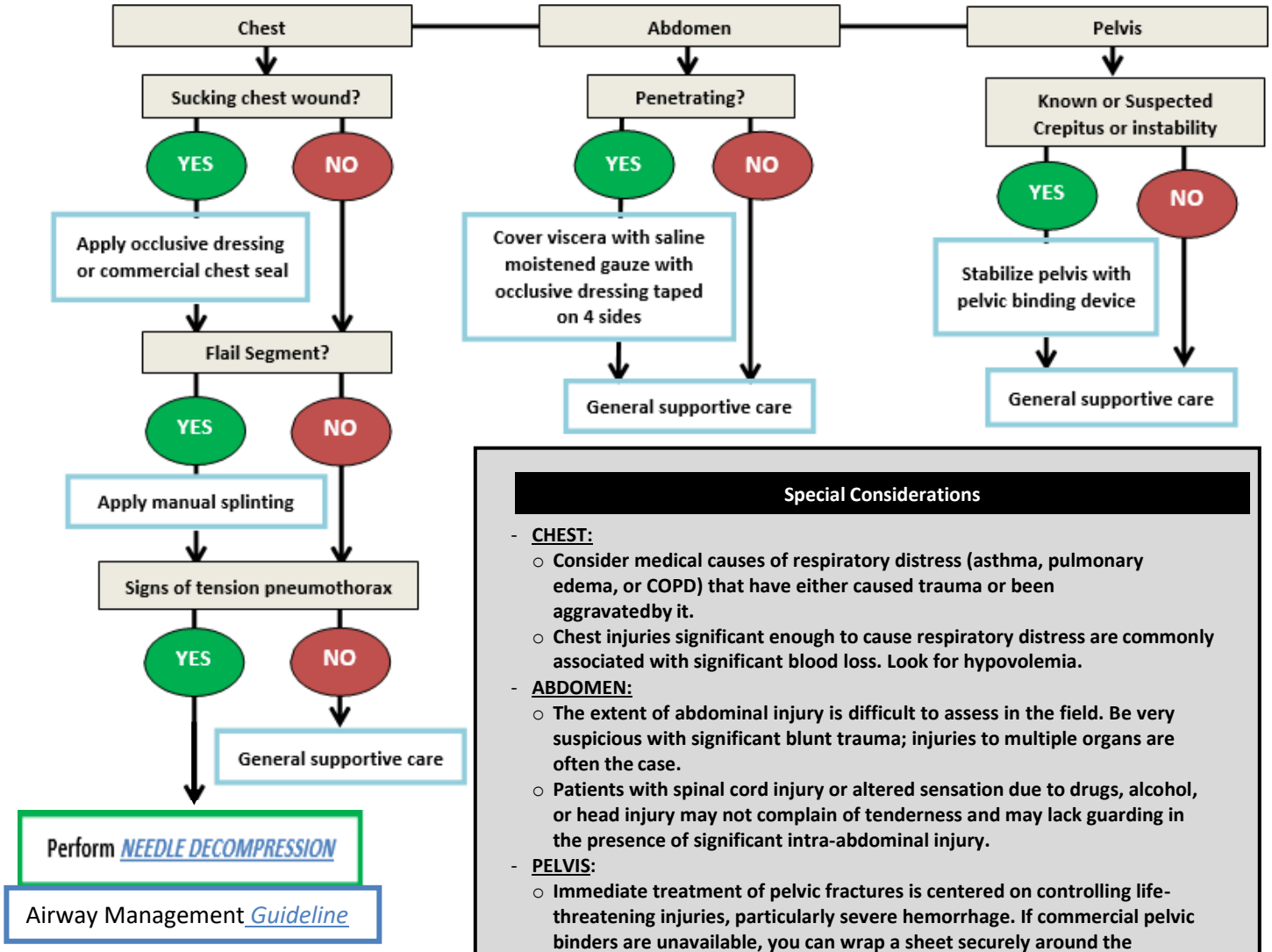
- 20 mm lithium coin cell is most frequently involved esophageal injuries; smaller cells lodge less frequently but also cause serious injury or death
- Assume hearing aid batteries are <12mm
- Treat nausea and vomiting via the *NAUSEA.VOMITING GUIDELINE*
- Treat pain via the *PAIN MANAGEMENT GUIDELINE*
- Transport to most appropriate facility: Children's Hospital
- Monitor airway carefully. See *AIRWAY MANAGEMENT GUIDELINE*

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Chest, Abdomen, & Pelvis Injuries

Description

1) Although there are some nuances to each individual injury, the general treatment is the predominantly the same and includes: controlling all major bleeding, maintaining airway patency, considering spinal motion restriction, treating for shock when clinically indicated, and expedited transport to the closest appropriate facility.
2) If the injured patient is stable, consider pain management, see ***PAIN MANAGEMENT.***



Special Considerations

- **CHEST:**
  - **Consider medical causes of respiratory distress (asthma, pulmonary edema, or COPD) that have either caused trauma or been aggravatedby it.**
  - **Chest injuries significant enough to cause respiratory distress are commonly associated with significant blood loss. Look for hypovolemia.**
- **ABDOMEN:**
  - **The extent of abdominal injury is difficult to assess in the field. Be very suspicious with significant blunt trauma; injuries to multiple organs are often the case.**
  - **Patients with spinal cord injury or altered sensation due to drugs, alcohol, or head injury may not complain of tenderness and may lack guarding in the presence of significant intra-abdominal injury.**
- **PELVIS:**
  - **Immediate treatment of pelvic fractures is centered on controlling life-threatening injuries, particularly severe hemorrhage. If commercial pelvic binders are unavailable, you can wrap a sheet securely around the patient's pelvis.**
  - **When a pelvic binder is applied, correct placement returns the pelvis to anatomical position. Follow manufacturer recommendations for placement; DO NOT OVER-TIGHTEN OR PLACE TOO HIGH on the hips.**
- **HYPOTENSION:**
  - **If signs of poor perfusion due to suspected bleeding, see *HEMORRHAGIC SHOCK***

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Crush Injuries

Description

a. *IV FLUID* therapy and medication administration **is** preferred **PRIOR TO** extrication whenever possible
b. Large volume resuscitation prior to removal of the crush object and extrication is critical to preventing secondary renal failure, cardiac dysrhythmias, and death
c. Consider pain management, see *PAIN MANAGEMENT GUIDELINE*
d. If suspected major bleeding, see *HEMORRHAGIC SHOCK GUIDELINE*

Crush Syndrome

IV FLUID: PRN **until improved perfusion**
- **20 mL/kg NS IV/IO**

Consider early CPAP
1. ADULT: see *CPAP PROCEDURE*
2. PEDIATRIC: NOT allowed

ALBUTEROL: **PRN x1**
- ADULT: 10 mg (in 12 mL) via neb, MAX dose of 20 mg
- PEDIATRIC: NOT allowed

CALCIUM CHLORIDE: **PRN every 10 minutes to a MAX of 3 doses**
- ADULT: 1 gram slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: NOT allowed

OR

CALCIUM GLUCONATE: **PRN every 10 minutes to a MAX of 3 doses**
- ADULT: 3 grams slow bolus over 2 to 5 minutes IV/IO
- PEDIATRIC: NOT allowed

SODIUM BICARBONATE:
- ADULT: 100 mEq bolus IV/IO of an 8.4% solution
  In severe cases, consider drip; Mix 150 mEq (150 mL) in 1000 mL NS and administer at 200 mL/hr (may mix in D_5W if NS not available)
- PEDIATRIC: NOT allowed

General Supportive Care

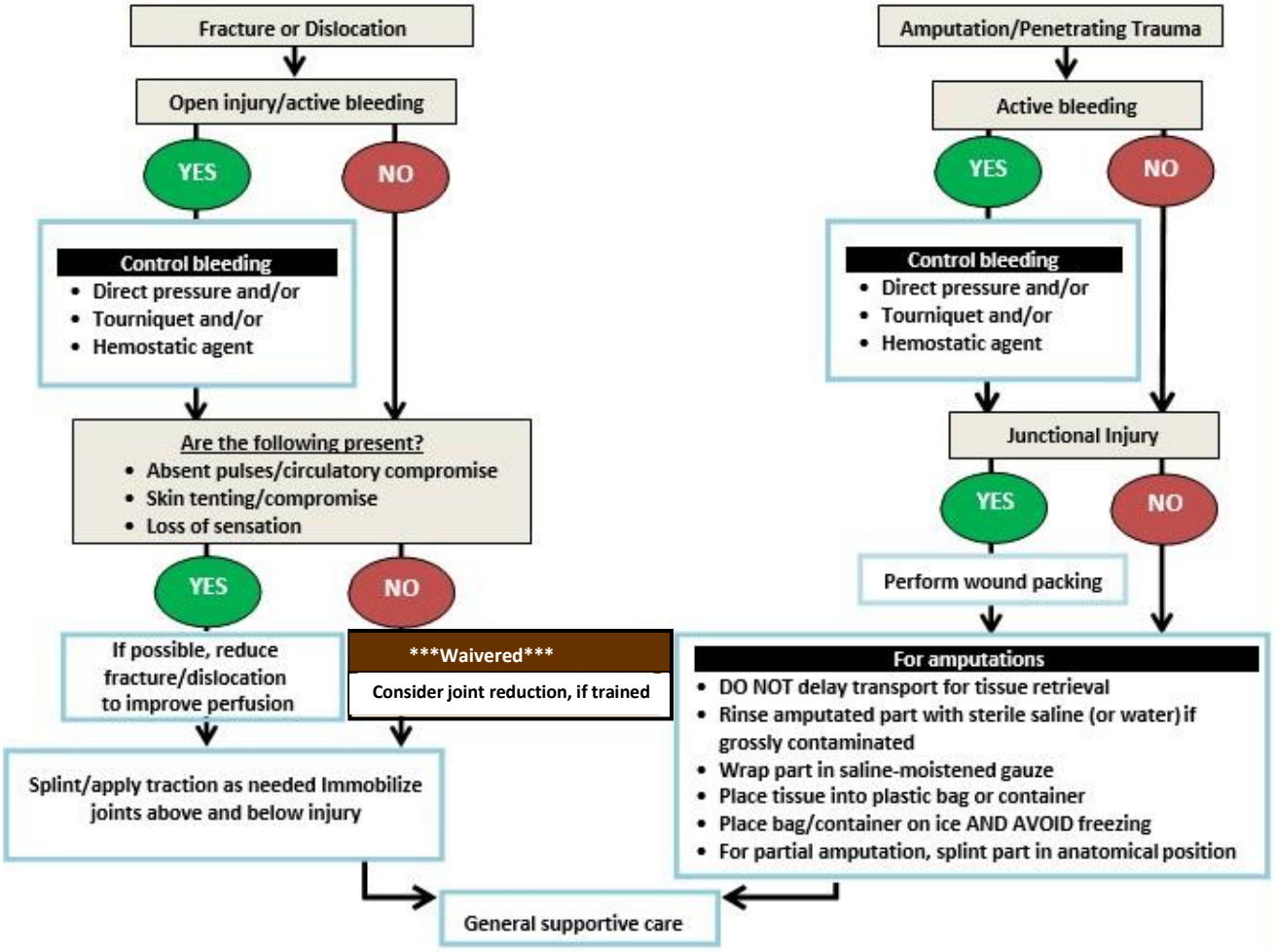
Special Considerations
- Crush syndrome may cause profound hyperkalemia resulting in dysrhythmias. Monitor ECG, if possible.
- Crush syndrome is usually seen with compression of 4-to-6 hours but may occur in as little as 20 minutes.
- If possible monitor patient for signs of compartment syndrome (pain, pallor, paresthesia, pulselessness).
- Monitor IV fluid administration. Crush injury victims can 3rd space > 12 ltrs fluid in the first 48 hrs.
- Do not overlook treatment of additional injuries, airway compromise, hypothermia/ hyperthermia.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Extremity/Amputation Injuries

Description

1) Although there are some nuances to each individual injury, the general treatment is predominantly the same and includes controlling major bleeding, maintaining airway patency, considering cervical spine precautions, pain management, treatment for shock, when clinically indicated, and expedited transport to the closest appropriate facility.
2) For signs of poor perfusion due to suspected bleeding, see ***HEMORRHAGIC SHOCK.***
3) If injured patient is stable, consider pain management, see ***PAIN MANAGEMENT.***
4) Peripheral neurovascular status **SHOULD** be documented on all extremity injuries before and after treatment procedures.
5) Document approximate time of injury.
6) **DO NOT** allow severely angulated, open, bloody fractures to distract you from life-threatening injuries.
7) If waivered, reduction locations **WITHOUT** neurovascular compromise are limited to the **shoulder, patella, and digits**.
8) Reduction of the ankle is **ONLY** allowed in the setting of neurovascular compromise (i.e. absent pulse, loss of sensation, blanching skin, mottled appearance.).
   a) If attempt to relocate injury is unsuccessful after 2 attempts, splint in position found and transport.
9) Reduction of **OPEN** dislocations is **NOT ALLOWED.**
10) Consider ***ANCEF*** with suspected open extremity fracture or amputation proximal to the hand or foot.



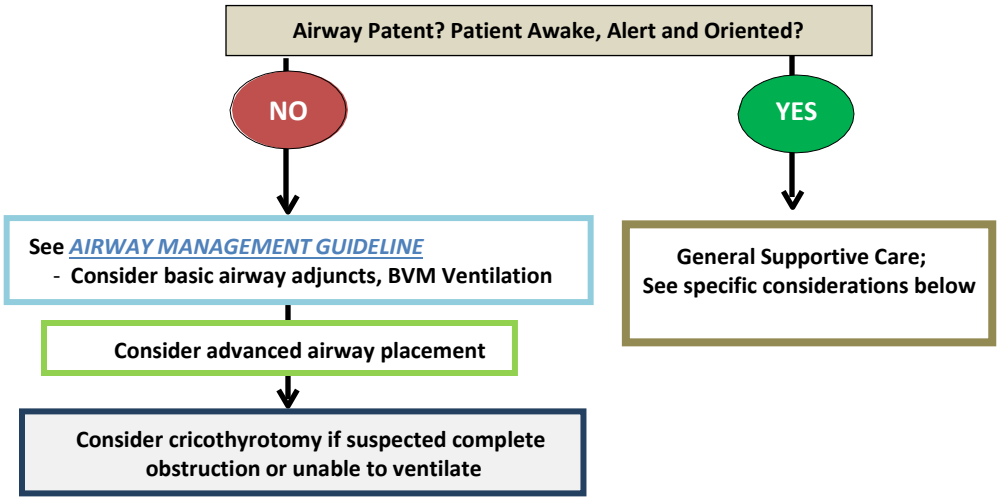
EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Face, Neck, & Spine Injuries

Description

a. Although there are some nuances to each individual injury, the general treatment is predominantly the same and includes: controlling all major bleeding, maintaining airway patency, considering cervical spine precautions, treating for shock, when clinically indicated, and rapid transport to the closest appropriate facility.

b. If injured patient is stable, consider pain management, see ***PAIN MANAGEMENT GUIDELINE***



Special Considerations

- **HEAD and FACE INJURIES:**
- Treat seizures per ***SEIZURE***
- Treat agitation per ***BEHAVIORAL EMERGENCY***
- Obtain BGL value
- Cover/protect both eyes as clinically indicated
- Do not try to block drainage from ears or nose
- Save avulsed teeth in saline-soaked gauze, do not scrub clean
- See ***TRAUMATIC BRAIN INJURIES***

- **NECK and SPINAL INJURIES:**
  - Consider occlusive dressing for penetrating neck wounds
  - If hypotension is unresponsive to simple measures, it is likely due to other injuries. Neurologic deficits make these other injurieshard to evaluate. Cord injury above the level of T-8 removes tenderness, rigidity, and guarding as clues to abdominal injury.
  - Spinal Motion Restriction (SMR) NOT indicated for penetrating trauma.

- **HYPOTENSION:**
  - If signs of poor perfusion due to suspected bleeding, see ***HEMORRHAGIC SHOCK***
  - If signs of poor perfusion unresponsive to fluid therapy and HIGH suspicion of neurogenic shock, consider ***EPINEPHRINE INFUSION***

- **ATHLETIC EQUIPMENT:**
  - DO NOT remove helmet or shoulder pads prior to EMS transport for short transports unless they are interfering with themanagement of acute life-threatening injuries.
    - Consider removing equipment for long transports
    - The helmet and pads should be considered one unit. Therefore, if one is removed, then the other should be removed as well to assure neutral spinal alignment.
  - All athletic equipment is NOT the same and athletic trainers on scene should be familiar with equipment

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Hemorrhagic Shock

If applicable, control bleeding

Detect any sources of bleeding with a blood sweep. Control bleeding with:

- Direct pressure and/or
- Tourniquet and/or
- Wound packing - kerlex or hemostatic gauze (3 mins. direct pressure for hemostatic gauze, 10 mins. direct pressure for kerlex) and/or
- Pelvic binder

Pediatric Blood Pressure Chart		
Age	Weight	Systolic BP
Neonate	3-5 kg	67-84
4 Months	6-7 kg	65-105
6 Months	8-9 kg	65-105
1 Year	10-11 kg	70-110
2 Years	12-14 kg	75-110
3-4 Years	15-18 kg	75-110
5-6 Years	19-22 kg	90-115
7-9 Years	23-28 kg	90-115
10-13 Years	29-36 kg	95-120

Establish Vascular Access

Signs and symptoms of AMS and/or poor perfusion

YES

Manage Heat Loss

Apply Blanket/Space Blanket

FLUID THERAPY: PRN until restoration of distal pules, improved mental status and/or permissive hypotension levels reached (Adult 80 to 100 systolic or > Peds Guide recommendation)

- 10 mL/kg NS IV/IO

EPCSAR and NETCO: Suspected Shock < 3 Hours AND NO Contraindications for TXA Found

YES

TRANEXAMIC ACID: NOT REPEATED EPCSAR and NETCO only

- ADULT: Mix 2 Grams TXA in 50 mL NS and infused over 10 minutes IV/IO
- PEDIATRIC < 13 years old: NOT

NO

General Supportive Care

NO

General supportive care
Keep the patient WARM!
Reassess every time the patient is moved

Special Considerations

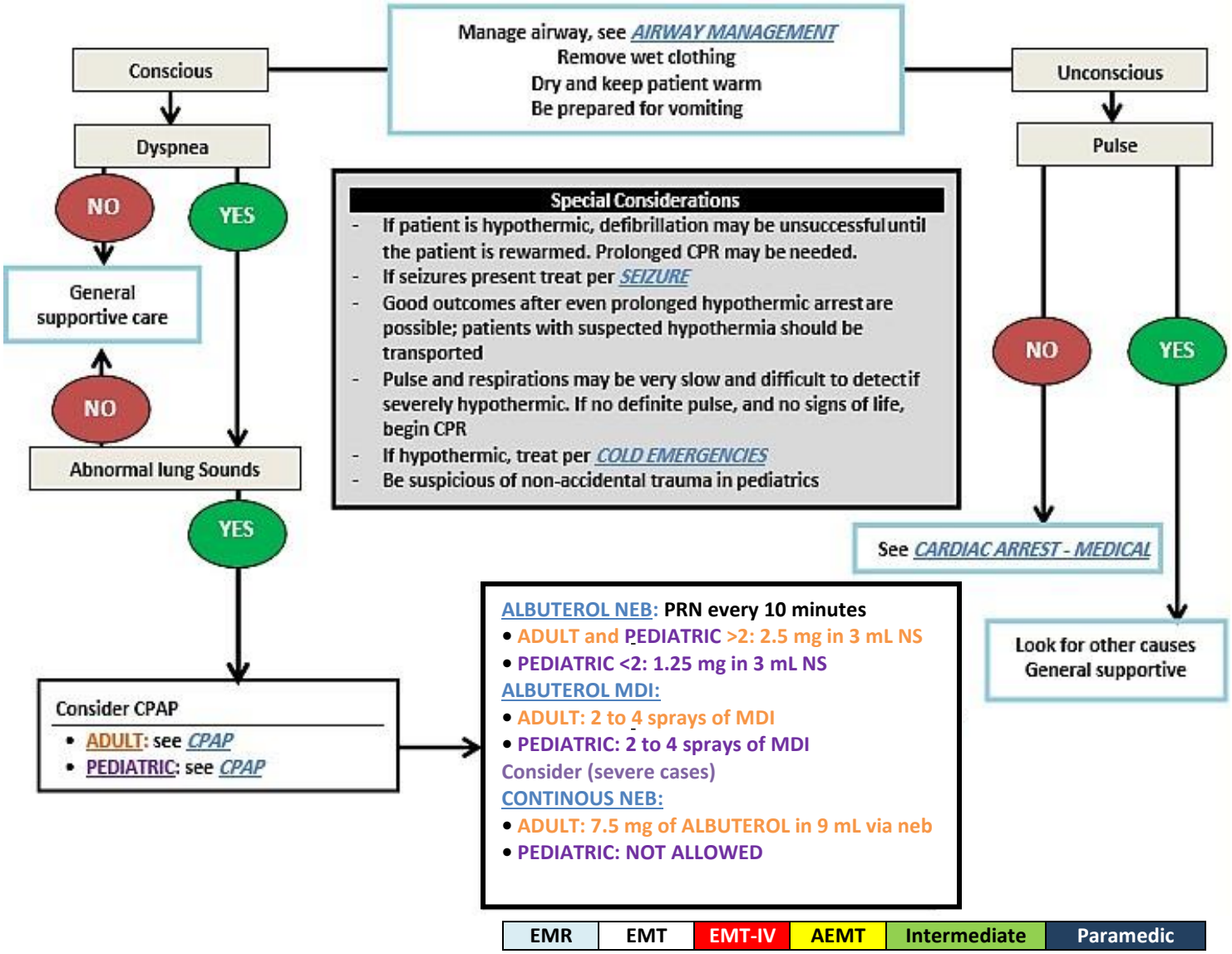
- These patients should be transported to a designated trauma center (see *DESTINATION GUIDELINE*)
- Poor perfusion in the trauma patient includes the "fatal five"
  1. Tachycardia
  2. Altered mental status
  3. Respiratory compromise
  4. Decreased or absent peripheral pulses
  5. Delayed capillary refill (> 2 seconds)
- Be mindful of the "Triad of Death" which includes
  1. Hypothermia
  2. Coagulopathy
  3. Acidosis
- If patient meets *TRAUMA ACTIVATION CRITERIA*, interventions SHOULD beperformed en route to the hospital to minimize scene time
- Make sure to maintain the blood pressure between 80 and 100 mmHg systolic (permissive hypotension)

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Submersion Injuries

Description

1) Drowning refers to submersion injuries.
2) Predisposing factors for drowning include alcohol abuse, drug intoxication, barotrauma and syncope secondary to a medical condition (MI, Seizures, Diabetes, Cerebrovascular accident, Arrhythmias, etc.).
   a) Spinal motion restrictions **SHOULD** be used when a suspected or known traumatic event preceded the drowning.
   b) Closed head injury SHOULD be suspected in any near drowning victim who is unconscious or demonstrates changing mental status.
3) Consider aeromedical evaluation to an ECMO or bypass capable center for cold water cardiac arrests.
4) Barotrauma is associated with SCUBA diving, with the worst cases being air embolism or Bends, and can occur within 3 hours of surfacing. Any SCUBA diver who is a near-drowning victim and exhibits AMS and/or dyspnea with clear lung sounds **SHOULD** be assumed to have barotrauma.
5) **ALL** submersions should be transported. Even if patients initially appear fine, they can deteriorate.
   a) Monitor closely, pulmonary edema often occurs due to aspiration, hypoxia, and other factors. It may not be evident for several hours after near-drowning.
   b) If patient refuses transport, verify carefully that the patient is fully aware of the risk of future decompensation and document thoroughly.

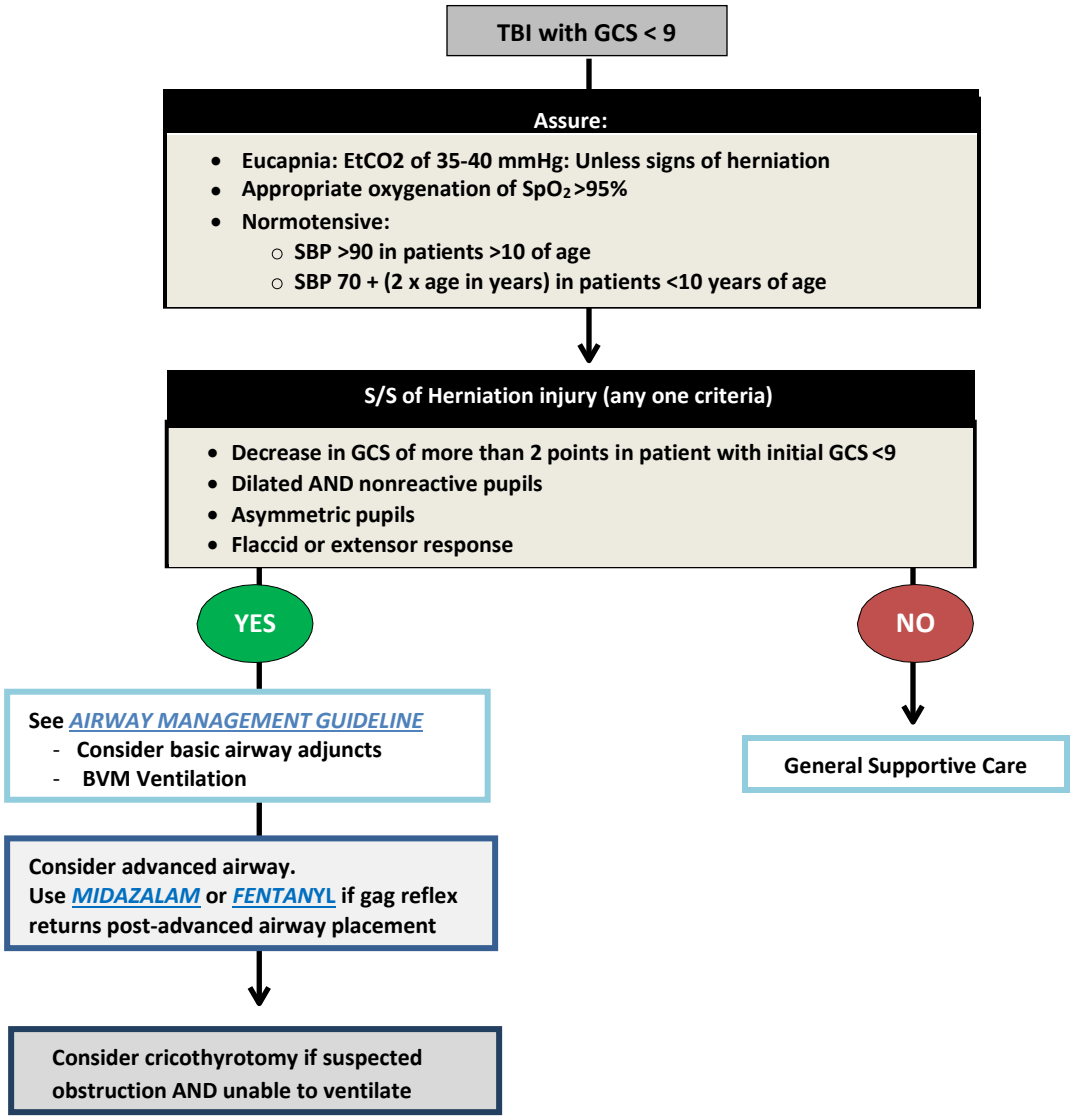


EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Traumatic Head Injury (TBI)

Description

a) In the setting of a traumatic brain injury, obtain BGL, elevate head of bed 30°, if possible and ensure c-collar is properly fitted and not too tight, to avoid obstructing vascular drainage from the head into the jugular veins
b) Treat seizures per ***SEIZURE***
c) Treat agitation per ***BEHAVIORAL EMERGENCY***
d) Consider using an **I-Gel** for airway management for severe TBI. See ***AIRWAY MANAGEMENT GUIDELINE***

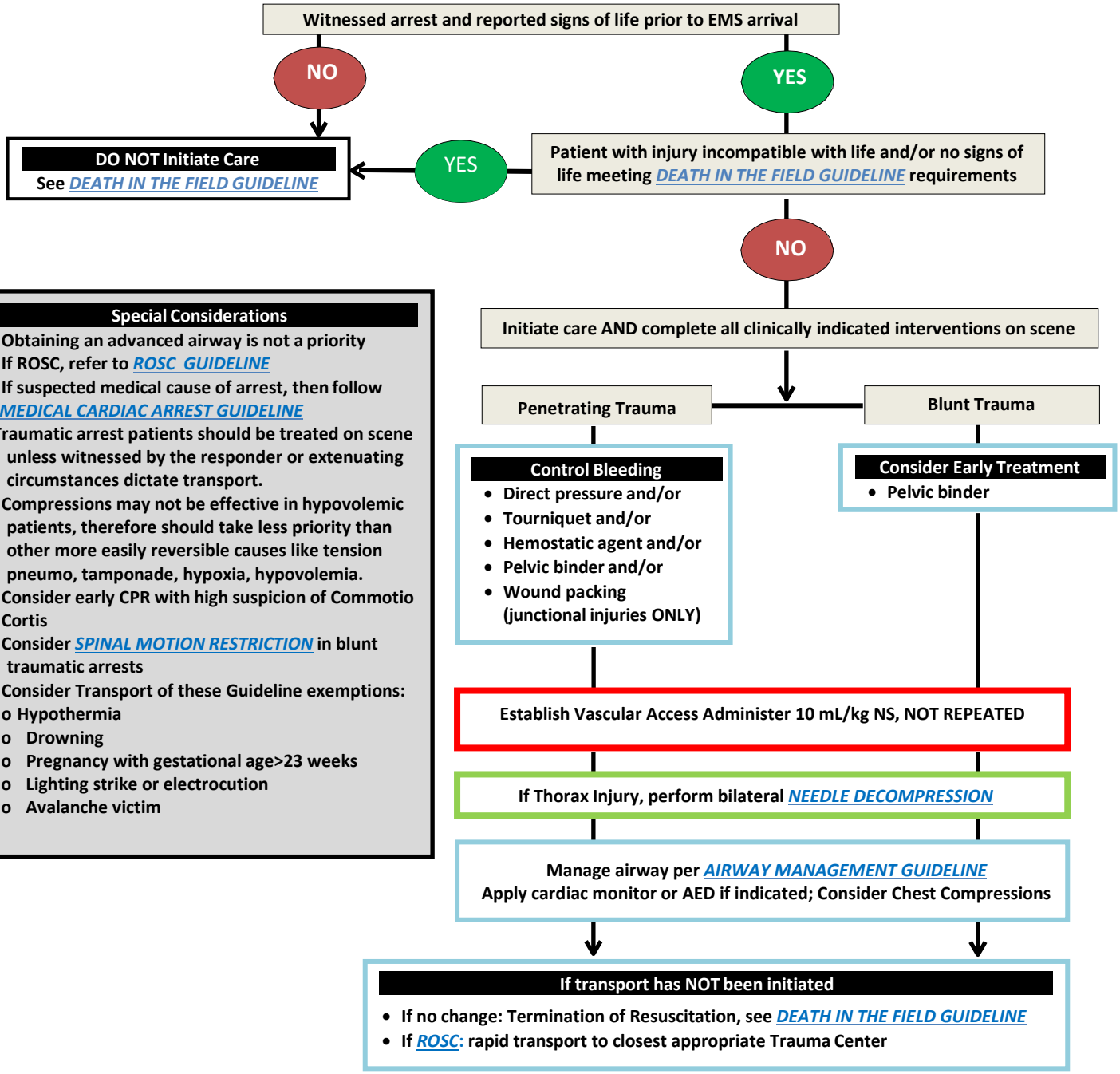


Traumatic Cardiac Arrest

Description

Treatment of traumatic cardiac arrest.

- If ROSC is NOT achieved, consider Termination of Resuscitation

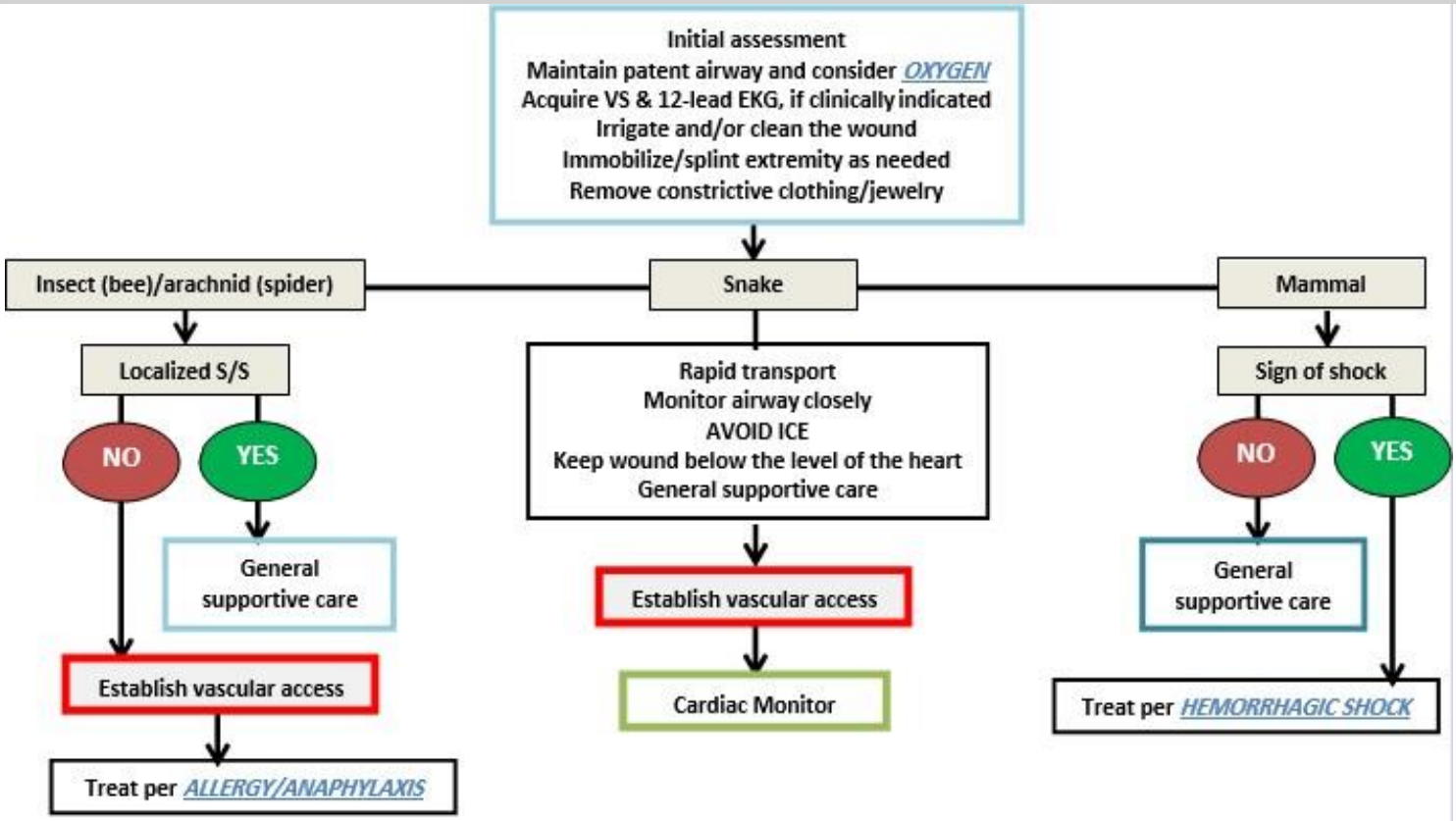


Special Considerations

- Obtaining an advanced airway is not a priority
- If ROSC, refer to *ROSC GUIDELINE*
- If suspected medical cause of arrest, then follow *MEDICAL CARDIAC ARREST GUIDELINE*
- Traumatic arrest patients should be treated on scene unless witnessed by the responder or extenuating circumstances dictate transport.
- Compressions may not be effective in hypovolemic patients, therefore should take less priority than other more easily reversible causes like tension pneumo, tamponade, hypoxia, hypovolemia.
- Consider early CPR with high suspicion of Commotio Cortis
- Consider *SPINAL MOTION RESTRICTION* in blunt traumatic arrests
- Consider Transport of these Guideline exemptions:
  - o Hypothermia
  - o Drowning
  - o Pregnancy with gestational age>23 weeks
  - o Lighting strike or electrocution
  - o Avalanche victim

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Bites and Stings



Special Considerations

- Consider contacting the US Poison Control Center for guidance. 1-800-222-1222
- If stable, consider pain management, see *PAIN MANAGEMENT GUIDELINE*
- **INSECT (bee)/ARACHNID (spider):**
  - Remove stinger mechanism by scraping with a straight edge and do not squeeze venom sac
  - If possible, try to bring the spider for identification and determine if there is a prior history of allergy to bite/sting
  - Black Widow spider bites have minimal pain initially but may develop muscular pain and severe abdominal pain
  - Brown Recluse spider bites are painless to minimally painful. Little reaction is noted initially but tissue necrosis at the site of the bite may develop over the next few days
- **SNAKE:**
  - Venomous snakes in this area are generally of the pit viper family, i.e., rattlesnake, copperhead, etc.
  - A "dry bite" without envenomation occurs in a significant percentage of cases (50% in coral snake, 25% from pit viper).
  - Mark a spot above and below the bite, note the time and repeat the measurement every 10 to 15 minutes during transport
  - Contact closest facility regarding available anti-venom
  - DO NOT apply tourniquets
- **MAMMAL:**
  - Human bites have a very high risk of infection due to oral bacteria
  - Carnivore bites are much more likely to become infected and some may have risk of Rabies exposure
  - Cat and/or dog bites may rapidly progress to infection due to a specific bacteria
  - Anyone bitten by or in close contact with a bat should be evaluated for consideration of rabies vaccinations

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Cold Emergencies

Initial assessment
Maintain patent airway and *OXYGENATION*
Obtain VS and 12-lead EKG, if clinically indicated
Obtain blood glucose level
Obtain patient temperature, if possible
Remove wet clothing, dry and insulate the patient, if applicable

Frost Bite

Rewarm extremity
- Warm ambient air and/or
- Warm pack (wrapped in towel)

If applicable, loosely wrap/splint the injury and elevate above the heart

Consider pain management
See *PAIN MANAGEMENT GUIDELINE*

General supportive care

Moderate to Severe Hypothermia

Pulse Present (Assess for 60 seconds

NO

Treat per CARDIAC ARREST GUIDELINE **(With Below Modifications)**
· VF/VT: Defibrillate x1 time as needed and withhold repeat defibrillation attempts and medication administration until the patient is ≥30°C.
· Obvious death: Asystole or a rigid/frozen chest wall that is not compressible, consider TOR, See DEATH in the FIELD
· EtCO2: NOT a reliable guide for resuscitation in severe hypothermia

YES

Initiate warming measures
- Warm ambient air and/or
- Apply warm pack to groin, armpit, AND neck
- Use care in moving and transporting the patient

Cardiac Monitor

Establish Vascular Access

FLUID THERAPY: PRN until improved perfusion
- 20 mL/kg NS IV/IO, warm if available

General Supportive Care
· Treat bradycardia passively
· Transcutaneous pacing and/or epi pressor can be ineffective or harmful, withhold treatment

Special Considerations

- FROSTBITE:
o Thawing is extremely painful and should be deferred until controlled conditions, preferably in the facility. Careful monitoring, pain medication, prolonged re-warming, and sterile handling are required.
o DO NOT directly apply heat packs or begin the rewarming process if there is risk of refreezing

- HYPOTHERMIA:
o Shivering does not occur below 90 °F (32°C). Below this the patient may not feel cold, and occasionally will even undress and appear vasodilated.
o The hypothermic myocardium is very sensitive to movement and sudden movements may precipitate ventricular fibrillation with temperature less than 88°F (30°C).

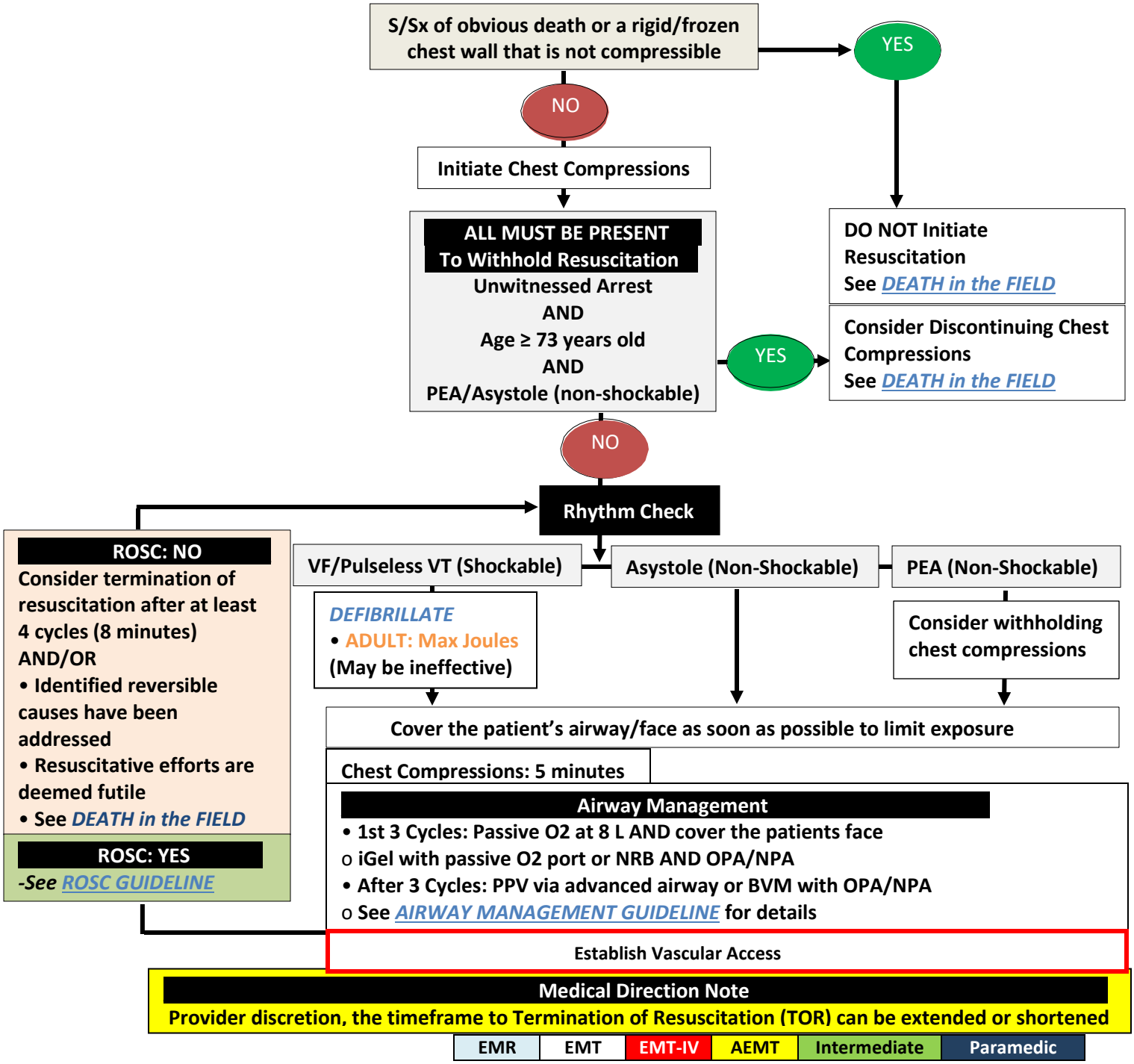
EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Cold Emergencies

Hypothermia Cardiac Arrest Algorithm

Special Considerations:

- No studies have identified effective pharmacological therapy for humans in the setting of hypothermic cardiac arrest
  a) If there is a specific indication for medication administration, administer the medication(s)
- Apparent rigor mortis is **NOT** a contraindication to starting chest compressions in the hypothermic patient
- $EtCO_2$ is NOT a reliable guide for resuscitation in severe hypothermia
  a) Case series have demonstrated a significant discrepancy between ETCO2 and PaCO2
- BLS Termination of Resuscitation criteria **DOES NOT** apply in this patient population



Heat Emergencies

Initial assessment
Maintain patent airway and consider *OXYGEN*
Obtain VS and 12-lead EKG, if clinically indicated
Obtain blood glucose level
Obtain patient temperature, if possible
Remove from heat source, if applicable

Heat Cramps

General supportive

Hyperthermia/or Heat Stroke

Initiate cooling measures
- Remove clothing and/or
- Cool ambient air and/or
- Apply ice pack to groin, armpit AND neck

Establish vascular access

IV SOLUTIONS: PRN until improved perfusion
- 20 mL/kg NS IV/IO

Cardiac Monitor

Severe shivering?

NO

General Supportive Care

YES

Discontinue Cooling Measures

FENTANYL: PRN every 10 minutes
- ADULT: 50 to 100 mcg bolus IV/IO administered over 1 to 2 minutes or IM/IN.
- PEDIATRIC: 1 mcg/kg IV/IO over 1 to 2 minutes or IN/IM.

Special Considerations

- Extremes of age are more prone to heat emergencies
- If suspected Excited Delirium treat per *BEHAVIORAL EMERGENCY*
- Treat hypoglycemia per *DIABETIC EMERGENCY*
- Treat seizures per *SEIZURE*
- Treat nausea or vomiting per *NAUSEA/VOMITING*
- If the temperature is unable to be measured, treat the patient based on the suspected temperature

- HEAT CRAMPS:
  - Heat Cramps consist of benign muscle cramping due to dehydration and usually is not associated with an elevated temperature
  - Signs and symptoms include normal or slightly elevated body, temperature, warm, moist skin, generalized weakness, and/or diffuse muscle cramping

- HEAT EXHAUSTION:
  - Heat Exhaustion consists of dehydration and salt depletion
  - Signs and symptoms include elevated body temperature cool, diaphoretic skin, generalized weakness, anxiety, headache, tachypnea, and/or possible syncope

- HEAT STROKE:
  - Heat Stroke is present with a patient who demonstrates altered mental status or seizure, temporal temp >103°F
  - Signs and symptoms include hot, dry skin w. cessation of sweating, hypotension, altered mental status, seizure and/or coma

- OTHER CAUSES:
  - Neuroleptic malignant syndrome (NMS) or Serotonin Syndrome: patients taking antipsychotic medications
  - Sympathomimetic overdose: cocaine, methamphetamine
  - Anticholinergic toxidrome: overdose; common with ODs on psych meds, OTC cold medications, Benadryl, Jimson weed, etc.
  - Infection: fever (sepsis)
  - Thyrotoxic Storm: enlarged thyroid (goiter)

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

High Altitude Emergencies

Description

a. Acute exacerbations of chronic medical illness at altitude are more common than altitude illness

b. Although there are some nuances to each individual sickness, the general treatment is predominantly the same and includes: maintaining airway patency, considering an antiemetic, descent to lower altitude, and if needed, transport to the closest appropriate facility

   a) The mainstay of treatment is descent from altitude. Even a loss of 2,000-3,000 feet makes enough difference in the O_2 content of air that symptoms may be relieved or stop progressing.

   b) Oxygen administration can also relieve symptoms and may allow more time for orderly evacuation

c. Recognition of the problem is the most critical part of treating high altitude emergencies and usually is out of proportion to those being experienced by the rest of the party. Healthy individuals are at a high risk for the following:

Acute Mountain Sickness (AMS):

   a) This is the most common type of altitude sickness encountered and can begin to appear at around 6,500 ft. above sea level, although most people will tolerate up to 8000 ft. without difficulty

   b) Altitude illness should **NOT** be suspected below 6,500 ft

   c) Symptoms often manifest themselves and generally subside in one to two days, but they occasionally develop into the more serious conditions

   d) AMS is a diagnosis of exclusion; **ALL** other possible causes of symptoms should be evaluated

   e) Symptoms include headache, insomnia, anorexia, nausea, and fatigue

High Altitude Cerebral Edema (HACE):

   f) This is rare at elevations in Colorado; always consider alternative cause of altered mental status

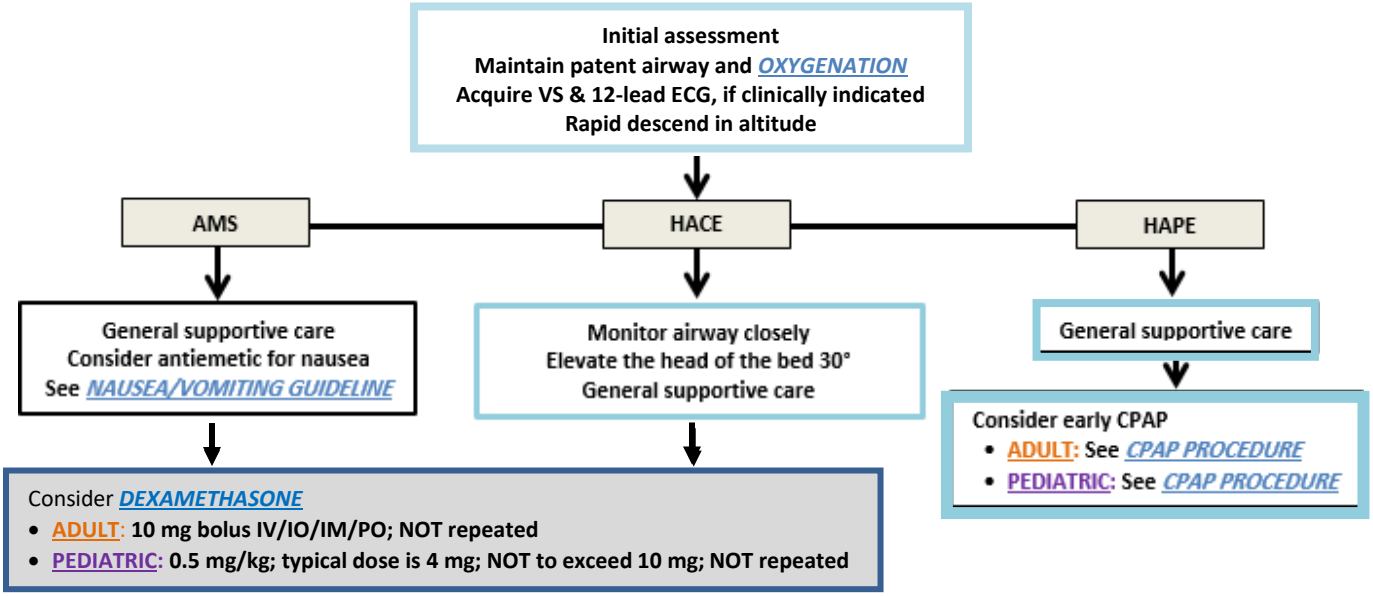
   g) Symptoms include ataxia, confusion; headache, neurological deficits, seizures, and coma

   h) Cerebral edema may present with confusion and stroke-like symptoms, including focal neuro deficits

High Altitude Pulmonary Edema (HAPE):

   i) The most effective and reliable treatment is immediate descent and administration of supplemental oxygen as well as CPAP.

   j) Symptoms include dyspnea, cough, headache, nausea, and/or fever



EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Medication Overview

Description

a) For a list of the Medical Director-approved medications and routes of administration allowed for each certification level, see the Scope of Practice ***QUICK REFERENCE GUIDE***. See Appendix A.

b) All care, assessment, and performance of procedures associated with the administration of medications, shall be provided in accordance with the practitioner's scope of practice, defined by the most recent version of the ***COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT 6CCR 1015-3, CHAPTER 2.***

Special Considerations

1) The appropriate process for safe medication administration includes:
   a) **C**losed loop communication
   b) Double-checking with another prehospital provider on scene to verify appropriateness of medication, including route
2) For pediatrics, reference Pediatric Field Guide, Broselow tape, Handtevy application or other approved apps
3) There are several types of errors that can occur when administering medications; these are related to the prehospital providers misuse, underuse, and/or overuse of a medication
   a) EMS agencies should work to establish a system of **Just Culture**; this is an approach to work-place safety that assumes humans, despite their best intentions to do the right thing, will make mistakes
   d) Self-reporting of medication and/or procedure errors will be reviewed through the EMS Agency's CQA/CQI process. The provider reporting the mistake should be treated with respect and the focus of any investigation should be on identifying a root cause and preventing future errors
4) Medications that are on back order or considered to be on a "shortage" will be dealt with on a case by case basis, including potential alternatives and/or use of the medication past its expiration date See ***MEDICATION EXPIRATION GUIDELINE***
5) The prehospital provider can lower the recommended dose of any medication at any time, as long as it is justified in the patient care report
   a) Potential reasons include but are not limited to liver or kidney failure, age, weight, and/or potential interactions with other medications
6) Specialized prescription medications to address an acute medical crisis may be administered after obtaining verbal orders from Medical Control by an EMS provider at the EMT level or higher
7) An EMT-IV and higher-level provider may, under the supervision and authorization of the medical director, administer medications and classes of medications which exceed those listed in Appendices B and D of the Chapter Two Rules under the **DIRECT VISUAL SUPERVISION** of a paramedic WHEN the following conditions have been established:
   a) The patient MUST be in cardiac arrest or in extremis (defined as imminent death)
   b) At no time can the EMT provider administer controlled substances, even if delegated by the Paramedic

Example of How Medication Tab Reads:

Waivered Medication	
Provider Level	**One Dose Only**
EMR	**SO**
EMT	**SO**
EMT-IV	**SO**
AEMT	**SO**
Intermediate	**SO**
Paramedic	**SO**

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Acetaminophen (Tylenol®)

Provider Level	One Dose Only
EMR	SO
EMT	SO
EMT-IV	SO
AEMT	SO
Intermediate	SO
Paramedic	SO

Description

a) Acts on hypothalamus to produce antipyresis
b) May work peripherally to block pain impulse generation; may also inhibit prostaglandin synthesis in CNS

Onset & Duration

1) Onset: 30-60 minutes
2) Duration: Up to 4 hours

Indications

1) Mild to moderate pain
2) Fever

Contraindications

1) Hypersensitivity to acetaminophen
2) Hepatic Impairment/failure
3) Suspected suicide attempt using acetaminophen

Adverse Reactions

1) Angioedema
2) Stevens-Johnson syndrome
3) Oliguria
4) Pulmonary edema; use with caution in patients with CHF

Dosage & Administration

1) **ADULT**: Adult: 500 – 1000 mg PO; PRN every 6 hours.
2) **PEDIATRIC > 6 months**: 15 mg/kg PO; PRN every 6 hours. MAX 1000 mgs.

Special Considerations

a). Consider other medications that the patient is taking and if Acetaminophen is part of that medication and the dose they have received in the day. (MAX daily dose Adult 4,000 mg, Pediatric 60 mg/kg)
b). Chronic alcoholic is at a higher risk for developing hepatotoxicity from Acetaminophen

Adenosine (Adenocard)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) Adenosine transiently blocks conduction through the AV node thereby terminating reentrant tachycardias involving the AV node. It is the drug of choice for AV nodal reentrant tachycardia (AVNRT, often referred to as PSVT). It will not terminate dysrhythmias that do not involve the AV node as a reentrant limb (e.g. atrial fibrillation)

Onset & Duration

1) Onset: Immediate
2) Duration: 10 seconds

Indications

1) Narrow complex supraventricular tachyarrhythmia

Contraindications

1) Patients with second- or third-degree A–V block or sick sinus syndrome; underlying blocks or conduction defects can be associated with prolonged sinus arrest when using adenosine
2) Any irregular tachycardia. Specifically, never administer to an irregular wide-complex tachycardia, which may be lethal

Adverse Reactions

1) Chest, jaw or throat pain and shortness of breath
2) Flushing lightheadedness, and palpitations

Dosage & Administration

1) **ADULT**: 12 mg rapid bolus IV/IO, combined with a 20 mL NS flush. May repeat once at 12 mg rapid bolus IV/IO
2) **PEDIATRIC:** 0.2 mg/kg rapid bolus IV/IO (max of 12 mg), combined with a 20 mL NS flush. May repeat once at 0.2 mg/kg (max of 12 mg) rapid bolus IV/IO

Special Considerations

1) Carbamazepine (Tegretol®) may potentiate the AV-nodal blocking effect of adenosine
2) Continuous EKG monitoring and a 12-lead EKG should be performed and documented before and after administration
3) Transient asystole and AV blocks are common at the time of administration
4) Adenosine is not effective in atrial flutter or atrial fibrillation
5) Adenosine is safe in patients with a history of Wolff-Parkinson-White syndrome, if the rhythm is regular and QRS complex is narrow
   a) Never administer adenosine to patients with Wolff-Parkinson-White syndrome associated with atrial fibrillation, instead move to direct ***CARDIOVERSION***
6) May precipitate bronchospasm in patients with reactive airway disease
7) May not be effective in heart transplant patients, consider ½ the initial dose to avoid potential

Albuterol Sulfate

Provider Level	Bronchospasm First dose	Bronchospasm Repeat doses or continous neb	Duo-Neb (Albuterol & ***ATROVENT***)	HyperK+/Crush Injury
EMR	SO – MDI only	SO – MDI only	NO	NO
EMT	SO	SO	NO	NO
EMT-IV	SO	SO	NO	NO
AEMT	SO	SO	VO	NO
Intermediate	SO	SO	VO	NO
Paramedic	SO	SO	SO	SO

Description

a) Albuterol is a selective ß-2 adrenergic receptor agonist. It is a bronchodilator and positive chronotrope. Because of its ß agonist properties, it causes potassium to move across cell membranes and into cells and makes albuterol an effective temporary treatment for unstable patients with hyperkalemia

Onset & Duration

1) Onset: 5 to 15 minutes
2) Duration: 3 to 4 hours

Indications

1) Bronchospasm
2) Unstable patients with known or suspected hyperkalemia with ECG changes (i.e. peaked T waves, QRS widening)
3) Submersion injury

Contraindications

1) Severe tachycardia (Relative contraindication)

Adverse Reactions

1) Tachycardia, palpitations, tremors, anxiety, dysrhythmias

Dosage & Administration

1) MDI – Use with spacer, if available
   a) **ADULT:** 2 to 4 puffs of MDI q 10 minutes PRN
   b) **PEDIATRIC:** 2 to 4 puffs of MDI q 10 minutes PRN
2) **Single Dose Nebulizer**
   a) **ADULT & PEDIATRIC >2:** Albuterol sulfate solution 0.083% (2.5 mg in 3 mL) by nebulizer, repeat as needed q10 minutes.
   b) **PEDIATRIC <2**: 1.25 mg (half of one premixed dose) in 3 mL NS. Repeat as needed every 10 minutes
3) **Continuous Nebulizer**
   a) **ADULT and PEDIATRIC >2:** In more severe cases, place 3 premixed containers of albuterol (2.5 mg/3mL) for a total dose of 7.5 mg in 9 mL, into an oxygen-powered nebulizer and run a continuous neb at 6-8 lpm
   b) **PEDIATRIC <2**: Only to be considered if patient has no fever and a strong history of asthma in their immediate family and/or previous diagnosis of asthma
4) **Hyperkalemia, Crush Injury**
   a) **ADULT:** Continuous nebulizer 10 mg to a **MAX** dose of 20 mg
   b) **PEDIATRIC:** Continuous nebulizer 10 mg to a **MAX** dose of 20 mg

Special Considerations

1) ß-blockers may antagonize albuterol
2) Consider in-line nebulized albuterol for patients requiring endotracheal intubation, supraglottic airways, or CPAP due to severe respiratory distress or respiratory failure
3) In more severe cases: If within scope, combine albuterol and ***ATROVENT:*** administer Duo-neb 2 times and resume with continuous albuterol neb as needed

Amiodarone

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) Amiodarone has multiple effects with a quick onset. It is a complex, wide–spectrum medication which is typically categorized as a Class III antiarrhythmic due to its lengthening of the effective refractory period by prolongation of the action potential duration. However, it also demonstrates strong sodium channel antagonism, some calcium and potassium channel inhibition, and noncompetitive blockade of alpha and beta–adrenergic receptors

Onset & Duration

1) Onset: Within minutes
2) Duration: Serum concentrations drop to 10% within 30 to 45 minutes and half-life of up to 50 days

Indications

1) Pulseless arrest in patients **≤18** with shock-refractory or recurrent VF/VT
2) Regular Wide Complex tachycardia (WCT) refractory to cardioversion

Contraindications

1) 2nd or 3rd degree AV block
2) Cardiogenic shock
3) Ventricular escape beats or accelerated idioventricular rhythms
4) Irregular wide complex tachycardia of unknown origin

Adverse Reactions

1) Hypotension
2) Bradycardia

Dosage & Administration

1) VF/VT Cardiac Arrest
   a) **PEDIATRIC: >13 to ≤18:** 300 mg IV/IO bolus
      i. May give additional 150 mg IV/IO bolus, after 3 to 5 minutes if recurrent VF/VT.
      ii. **MAX** dose 450 mg
   b) **PEDIATRIC <13:** 5 mg/kg IV/IO bolus;
      i. Repeat every 3 to 5 minutes up to a **MAX** of 15 mg/kg
2) Refractory WCT with a pulse
      i. **Adults:** Mix 150 mg in a 50 mL NS for ease of delivery. 1. NOT repeated
      ii. **Pediatrics**: **NOT ALLOWED**

Special Considerations

1) Amiodarone causes prolongation of the QT interval and may induce Torsade de Pointes. This effect may be exacerbated by other medications that cause QT prolongation (i.e., procainamide, etc.)
2) Consider continuous 12-lead ECG monitoring, when possible

Ancef (Cefazolin)

Waivered Medication		
Provider Level	**1st Dose**	**Repeat Doses**
EMR	**NO**	**NO**
EMT	**NO**	**NO**
EMT-IV	**NO**	**NO**
AEMT	**NO**	**NO**
Intermediate	**NO**	**NO**
Paramedic	**SO**	**NO**

Description

a) Cefazolin is a first-generation cephalosporin and binds to and inactivates penicillin-binding proteins (PBP) located on the inner membrane of the bacterial cell wall. Inactivation of PBP's interferes with the cross-linkage of peptidoglycan chains necessary for bacterial cell wall strength and rigidity. This results in the weakening of the bacterial cell wall and causes cell lysis.

Onset & Duration

1) Onset: Approximately 1-2 hours
2) Duration: Approximately 8 hours

Indications

1) Suspected open extremity fracture (indicated by visible bone, deformity with a break in overlying/adjacent skin)
2) Amputation proximal to the hand or foot
3) Suspected open nasal bone fractures

Contraindications

1) Known cephalosporin allergy
2) Age < 1 years old

Adverse Reactions

1) Nausea, vomiting, diarrhea
2) Itching, skin rash, anaphylaxis

Dosage & Administration

a) **ADULT**: 1 gram in 50 mL NS or D5W over 10 minutes IV/IO, **NOT** repeated
b) **PEDIATRIC ≥ 1**: 30 mg/kg in 50 mL NS or D5W over 10 minutes IV/IO, **NOT** repeated
c) **PEDIATRIC < 1: NOT ALLOWED**

Special Considerations

1) Be alert for hypersensitivity reaction
2) IV incompatible with Amiodarone
3) Seizures may occur if appropriately high doses are administered to patients with impaired renal function
4) Known penicillin allergy is not considered a contraindication

Aspirin

Provider Level	1st Dose	Repeat Doses
EMR	SO	NO
EMT	SO	NO
EMT-IV	SO	NO
AEMT	SO	NO
Intermediate	SO	NO
Paramedic	SO	NO

Description

b) Aspirin (Acetylsalicylic Acid) inhibits platelet aggregation and blood clotting and is indicated for treatment of acute coronary syndrome in which platelet aggregation is a major component of the pathophysiology

c) It is also an analgesic and antipyretic

Onset & Duration

3) Onset: 5 to 30 minutes

4) Duration: 3 to 6 hours

Indications

1) Symptoms secondary to suspected acute coronary syndrome

Contraindications

1) Patients who have experienced signs of severe allergic reaction or anaphylaxis with the use of aspirin

Adverse Reactions

3) Rash, gastrointestinal ulcerations, abdominal pain, upset stomach, heartburn, drowsiness, headache, cramping, nausea, gastritis, and bleeding.

Dosage & Administration

a) **ADULT**: 2 to 4 chewable tablets (162 to 324 mg) to a total dose 324 mg PO, **NOT** repeated

b) **PEDIATRIC: NOT** Allowed

Special Considerations

5) Patients with suspected acute coronary syndrome taking warfarin (Coumadin), clopidogrel (Plavix) or other oral anticoagulants may still be given aspirin

Atropine Sulfate

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) Atropine is an endogenous antimuscarinic, anticholinergic substance. It is the prototypical anticholinergic medication with the following effects:
   i. Increased heart rate and AV node conduction
   ii. Decreased GI motility and Urinary retention
   iii. Pupillary dilation (mydriasis)
   iv. Decreased sweat, tear and saliva production

Onset & Duration

1) Onset: Immediate
2) Duration: 4 hours

Indications

1) As an antidote for certain insecticide exposures (i.e., organophosphates) or suspected nerve gas with symptoms of excess cholinergic stimulation
2) Extreme salivation post-ketamine administration

Contraindications

1) None in the emergency setting

Adverse Reactions

1) Anticholinergic toxidrome in overdose

Dosage & Administration

1) Extreme salivation post ***KETAMINE*** administration
   a) **ADULT**: 0.5 mg bolus IV/IO; **NOT** repeated
   b) **PEDIATRIC:** 0.02 mg/kg bolus IV/IO with **MAX** single dose of 0.5 mg; **NOT** repeated
2) Organophosphate poisoning
   a) **ADULT**: 2 mg bolus IV/IO, repeat every minute as needed for ***SLUDGE-M*** symptom resolution
   b) **PEDIATRIC:** 0.05 mg/kg bolus IV/IO, repeat every minute as needed for ***SLUDGE-M*** symptom resolution

Special Considerations

1) Maybe ineffective in patients with a heart transplant
2) Contact receiving facility early if suspected chemical exposure

(Atrovent) Ipratropium Bromide

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	VO	VO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) An anticholinergic agent which inhibits interaction of acetylcholine at parasympathetic receptor sites on the bronchial smooth muscle

Onset & Duration

1) Onset: Within 3 minutes
2) Duration: 6 hours

Indications

1) Adjunct bronchodilator for asthma, chronic bronchitis, and emphysema which is not being adequately controlled by a beta-adrenergic agent such as ***ALBUTEROL***
2) Allergy/Anaphylaxis

Contraindications

1) Patients with history of hypersensitivity to the drug

Adverse Reactions

1) Anticholinergic symptoms

Dosage & Administration

1) **Adult**: 0.5 mg; given in combination with ***ALBUTEROL*** via nebulizer. Repeat as needed every 15 minutes
2) **Pediatric:** 0.5 mg; given in combination with ***ALBUTEROL*** via nebulizer. Repeat as needed every 15 minutes

Special Considerations

1) Not to be administered alone. Should be combined with ***ALBUTEROL*** in the same nebulizer treatment
2) It is safe to administer to patients with known or suspected peanut and soy allergy in the nebulized form

Calcium

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Description

a) Calcium is a cardioprotective agent in the setting of severe hyperkalemia:
   i. Causes increased contractility
   ii. May increase ventricular automaticity
   iii. Decreases heart rate
   iv. Produces effects similar to, and intensifies the effects of, digitalis

Onset & Duration

1) Calcium Chloride 10%
   a) Onset: 5 to 15 minutes
   b) Duration: Dose dependent up to 4 hours
2) Calcium Gluconate 10%
   a) Onset: Immediate
   b) Duration: 30 minutes to 2 hours

Indications

1) Hyperkalemia
2) Severe crush injuries
3) Adult pulseless arrest associated with any of the following clinical conditions:
   a) Known hyperkalemia
   b) Renal failure with or without hemodialysis history
   c) Calcium channel blocker toxicity with hypotension and bradycardia
   d) Calcium is not indicated for routine treatment of pulseless arrest, other than the causes listed here
4) Hydrofluoric Acid burns (calcium gluconate)
5) Calcium channel with hypotension and bradycardia
6) Beta blocker overdose with hypotension and bradycardia REFRACTORY to ***GLUCAGON*** AND a vasopressor

Contraindications

1) Known hypercalcemia
2) Not indicated for routine treatment of pulseless arrest
3) In the setting of digoxin toxicity, calcium may worsen cardiovascular function

Adverse Reactions

1) Extravasation will cause necrosis of tissue
2) Rapid injection of calcium gluconate may cause vasodilatation, decreased blood pressure, bradycardia, cardiac arrhythmias, syncope, and cardiac arrest. Administer slowly (no faster than 2 mL/min) and stop if patient complains of distress
3) Avoid combining or administering with epinephrine or sodium bicarb within the same vascular access line (incompatible), it will precipitate if mixed with sodium calcium
4) Multiple vascular access sites preferred, but if not available, flush catheter thoroughly before administering one medication after another

Calcium

Dosage & Administration

1) **Calcium Chloride 10%**
   a) **ADULT:**
      i. Hyperkalemia or Calcium Channel/Beta Blocker Overdose: 1 Gram slow bolus over 2 to 5 minutes IV/IO.
         a) May repeat dose every 10 minutes for total of 3 doses
      ii. Severe Crush Injury and/or Cardiac Arrest from Suspected Hyperkalemia: 1 Gram rapid bolus IV/IO
   b) **PEDIATRIC:**
      i. Calcium Channel/Beta Blocker Overdose: 20 mg/kg slow bolus over 2 to 5 minutes IV/IO, **MAX** 3 Grams
         a) May repeat every 10 minutes for total of 3 doses
      ii. Severe Crush Injury and/or Cardiac Arrest from Suspected Hyperkalemia:
         a) **NOT ALLOWED**

2) **Calcium Gluconate 10%**
   a) **ADULT**:
      i. Hyperkalemia or Calcium Channel/Beta Blocker Overdose: 3 Grams slow bolus over 2 to 5 minutes IV/IO
         a) May repeat dose every 10 minutes for total of three (3) doses
      ii. Severe Crush Injury and/or Cardiac Arrest from Suspected Hyperkalemia: 3 Grams rapid bolus IV/IO
      iii. Hydrofluoric burn: Commercially prepared or mixed with water soluble lubricant. Apply topically to affected area
         a) First line treatment in hydrofluoric acid burns
   b) **PEDIATRIC:**
      i. Calcium Channel/Beta Blocker Overdose: 60 mg/kg, **NOT** to exceed 1 Gram slow bolus over 2 to 5 minutes IV/IO.
         a) May repeat every 10 minutes for total of 3 doses
      ii. Severe Crush Injury and/or Cardiac Arrest from Suspected Hyperkalemia:
         a) **NOT** Allowed
      iii. Hydrofluoric burn: Commercially prepared or mixed with water soluble lubricant. Apply topically to affected area. First line treatment in hydrofluoric acid burns

Special Considerations

1) Calcium chloride contains three times the amount of elemental calcium in the same volume as calcium gluconate
2) Monitor vascular access patency closely, make sure to flush after every medication administration with a bolus of normal saline

Dexamethasone (Decadron)

Provider Level	1ST Dose	Repeat Dose
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	NO
Paramedic	SO	NO

Description

It is a synthetic steroid that suppresses acute and chronic inflammation and may alter the immune response. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity

Onset & Duration

1) Onset: Within 5 to 10 minutes
2) Duration: Up to 72 hours

Indications

1) Moderate to severe allergic reaction or anaphylaxis
2) Severe asthma
3) COPD Exacerbation
4) Suspected Croup (with stridor at rest ONLY)
5) Suspected Addisonian crisis (cardiovascular collapse in patient at risk for adrenal insufficiency)
6) Acute Mountain Sickness and HACE

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Gastrointestinal bleeding (in oral doses only)
2) Hypertension
3) Hyperglycemia

Dosage & Administration

1) **ADULT**: 10 mg bolus IV/IO/IM/PO; **NOT** repeated
2) **PEDIATRIC:** 0.5 mg/kg; typical dose is 4 mg; **NOT** to exceed 10 mg; **NOT** repeated

Special Considerations

1) It is not considered a first line drug; do not delay transport to administer this drug
2) If administering orally, consider mixing with juice or water

Dextrose (Intravenous)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	SO	SO
AEMT	SO	SO
Intermediate	SO	SO
Paramedic	SO	SO

Description

a) Glucose is the body's basic fuel and is required for cellular metabolism
b) Glucose is distributed in the tissues and provides a prompt increase in circulating blood sugar
c) Glucose use is regulated by insulin, which stimulates storage of excess glucose from the bloodstream, and by glucagon, which mobilizes stored glucose into the bloodstream

Onset & Duration

1) Onset: 1 minute
2) Duration: Varies on degree of hypoglycemia

Indications

1) Any clinical condition of concern for hypoglycemia and blood glucose reading less than 60 mg/dL

Contraindications

1) Intracranial or intraspinal hemorrhage with blood glucose reading ≥ 60 mg/dL (relative)
2) Severe traumatic brain injuries with blood glucose reading ≥ 60 mg/dL

Adverse Reactions

1) Dextrose is generally free of side effects for most patients and should be used whenever a question of hypoglycemia exists
2) **Extravasation** of medication into surrounding tissue may cause severe necrosis; if extravasation does occur, immediately stop administration, and apply a cold compress

Dosage & Administration

1) **ADULT:** 25 grams (250 mL of a 10% solution) IV/IO, slowly over 10 minutes or until patient condition improves
   a) To make 10% dextrose: Add 25 grams of dextrose 50% solution to 250 mL (or 50 grams in 500 mL) of normal saline
   b) You can also discard 40 mL of liquid from one amp of dextrose 50% solution, then draw 40 mL of NS or sterile water into the amp. Roll the syringe between the palms to mix solution
2) **PEDIATRIC <13:** 10 mL/kg of a 10% solution IV/IO, slowly over 10 minutes or until patient condition improves

Special Considerations

1) If newborn is exhibiting signs of hypoglycemia (BGL < 40 mg/dL), consider breastfeeding as the initial treatment
2) Effects of dextrose can be delayed in those with poor circulation or patients who have been hypoglycemic for an extended period
3) If IV access is not readily attainable in the setting profound hypoglycemia, consider IO insertion
4) Monitor IV/IO-line patency closely, make sure to flush after each bolus administration with normal saline
5) If patient not being transported, make sure they eat complex carbohydrates prior to release of care
6) Repeat BGL monitoring every 15-30 minutes, as needed

Diazepam (Valium)

Condition	Seizures/Spasm/Anxiety/Sedation	
Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) It is a benzodiazepine central nervous system depressant that produces sedation

Onset & Duration

1) Onset: 1 to 5 minutes
2) Duration: Up to 3 hours

Indications

1) Seizures
2) Pain due to muscle spasms
3) Sedation of the severely anxious, agitated, and/or combative patients (second line to ***MIDAZOLAM***)

Contraindications

1) Known hypersensitivity
2) Procedural sedation

Adverse Reactions

1) Drowsiness, fatigue
2) Respiratory depression, including apnea
3) Hypotension and volume-related tachycardia

Dosage & Administration

1) Comfort Measures: (anxiety, behavioral sedation, pain due to spasm)
   a) **ADULT:** up to 5 mg IM/IV/IO repeat as needed every 10 minutes; MAX dose of 10 mg
   b) **PEDIATRIC:** Up to 0.25 mg/kg IM/IV/IO repeat as needed every 10 minutes; **MAX** single dose of 5 mg, **MAX** total dose of 5 mg
2) Active seizures
   a) **ADULT**: 10 mg IM/IV/IO; may repeat as needed every 5 minutes
   b) **PEDIATRIC:** 0.5 mg/kg IM/IV/IO, **MAX** single dose of 5 mg, may repeat as needed every 10 minutes

Special Considerations

1) Strongly consider ½ typical dosing in elderly patients or when combining with opioids
2) Use caution in patients considered hypotensive
3) Extreme care must be used in the elderly, very ill patients and to those with limited pulmonary reserve because of the possibility that apnea

Diltiazem (Cardizem)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Description

a) Diltiazem is a calcium channel blocker used in the treatment of certain types of tachyarrhythmias. It relaxes the smooth muscles in the walls of arteries, causing systemic vasodilatation. Its' negative dromotropic properties at both the SA and AV node, coupled with its moderately negative inotropic effects make diltiazem a favorable medication for heart rate control with less severe side effects than those commonly demonstrated by other medications of this class.

Onset & Duration

1) Onset: 2 to 5 minutes
2) Duration: Less than 8 hours

Indications

1) Reentrant narrow complex supraventricular tachydysrhythmias
2) Atrial fibrillation or atrial flutter with a rapid ventricular response

Contraindications

1) Patients with sick sinus syndrome or AV heart block in the absence of a functioning artificial pacemaker
2) Any wide QRS tachycardia resulting from a poisoning or drug overdose, ventricular tachycardia, or Wolf–Parkinson– White (WPW) syndrome associated with either atrial flutter or atrial fibrillation
3) Hypotension (<100 systolic)

Adverse Reactions

1) Transient drops in blood pressure are expected.
2) Patients with preexisting nodal disease can develop sinus arrest, increased AV block, complete heart block, and asystole
3) The administration of diltiazem to the patient in ventricular tachycardia may result in ventricular fibrillation and death

Dosage & Administration

1) **ADULT**: 0.25 mg/kg IV/IO slow bolus over 2 to 5 minutes, **MAX** dose of 25 mg
   a) May repeat after 15 minutes at 25 mg IV/IO slow bolus over 2 to 5 minutes, **MAX** repeat dose of 25 mg
2) **PEDIATRIC: NOT** allowed

Special Considerations

1) Monitor patient closely in those patients who are taking oral beta–blockers
2) Should be used with great caution in patients prone to diminished cardiovascular preload

Diphenhydramine (Benadryl)

Provider Level	Assist with PO Admin	IV/IO Admin
EMR	SO	NO
EMT	SO	NO
EMT-IV	SO	NO
AEMT	SO	VO
Intermediate	SO	VO
Paramedic	SO	SO

Description

a) Diphenhydramine is an antihistamine which blocks the action of histamines released from cells during an allergic reaction. It has direct CNS effects, which can be as a stimulant, or more commonly as a depressant, depending on the individual

b) Diphenhydramine also has an anticholinergic and antiparkinsonian effect which is used to treat acute dystonic reactions to antipsychotic or antiemetic medications (e.g. Haldol®, Thorazine®, Reglan®, Compazine®, Inapsine®)

Onset & Duration

1) Onset: Within 1 minute (IV/IO), 15 minutes (PO)
2) Duration: 6 to 12 hours (IV/IO/PO)

Indications

1) General allergic reaction
2) Anaphylaxis
3) Dystonic reactions or akathisia (agitation or restlessness)

Contraindications

1) None in the emergency setting

Adverse Reactions

1) Drowsiness
2) Dilated pupils
3) Dry mouth and throat
4) Flushing

Dosage & Administration

1) **ADULT**: 50 mg bolus IV/IO over 2 minutes or IM/PO
   a) **NOT** repeated
2) **PEDIATRIC > 2 years old:** 2 mg/kg bolus IV/IO over 2 minutes or IM/PO
   a) **NOT** to exceed 50 mg
   b) **NOT** repeated

Special Considerations

1) May potentiate the effects of alcohol or other depressants
2) MAO inhibitors may prolong and intensify anticholinergic effects of antihistamines
3) In high doses (overdose), prolonged QT, and seizures may occur

Droperidol (Inapsine)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	VO

Description

a) Dopamine receptor blockade in brain, predominantly dopamine-2 receptor. When reuptake is prevented, a strong antidopaminergic, anti-serotonergic response occurs. Droperidol reduces motor activity, anxiety, and causes sedation; also possesses adrenergic-blocking, ant-fibrillatory, antihistaminic, and anticonvulsive properties

Onset & Duration

1) Onset: Within 10 minutes after IV administration. IM within 20 minutes
2) Duration: 4 to 6 hours

Indications

1) Sedation of severe agitation
2) Nausea/Vomiting

Contraindications

1) Hypersensitivity to drug
2) Parkinson's Disease
3) Depressed mental status
4) Known or suspected prolonged QT interval
   a) QTc interval > 460 msec in females or > 450 msec in males

Adverse Reactions

1) QT prolongation
2) Extrapyramidal symptoms, hyperkinesia, tremors, dystonia
3) Drowsiness

Dosage & Administration

1) Extreme Agitation:
   a) **ADULT:**
      i. 5mg IV/IO or 10mg IM. PRN every 10 minutes to a MAX total of 20 mg
   b) **PEDIATRIC: NOT** Allowed
2) Nausea/Vomiting: PRN every 10 minutes up to 2 total doses
   a) **Adult:** 2.5 mg IM or SLOW IV/IO
   b) **Pediatric (2 to 12 years old):** 0.01 mg/kg IM or slow IV/IO; **MAX** single dose of 1.25 mg

Special Considerations

1) Use caution in elderly patients with dementia-related psychosis
2) Utilize caution if combined with other medications that may prolong the QTI (ondansetron).

Epinephrine 1:1000

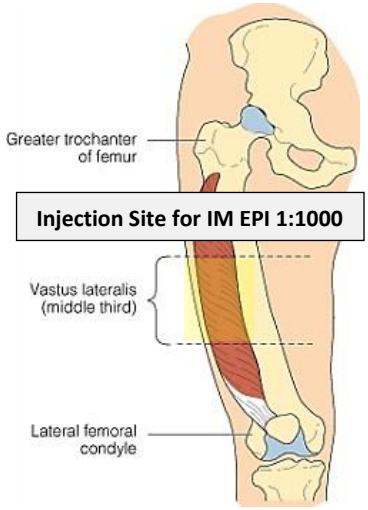
	EPI Auto Injector	Epinephrine (1:1,000) IM		Epinephrine (1:1,000) Nebulized	
Provider Level	**All doses**	**1st Dose**	**Repeat Doses**	**1st Dose**	**Repeat Doses**
EMR	**SO**	**NO**	**NO**	**NO**	**NO**
EMT	**SO**	**SO**	**SO**	**NO**	**NO**
EMT-IV	**SO**	**SO**	**SO**	**NO**	**NO**
AEMT	**SO**	**SO**	**SO**	**NO**	**NO**
Intermediate	**SO**	**SO**	**SO**	**VO**	**NO**
Paramedic	**SO**	**SO**	**SO**	**SO**	**NO**

Description

a) Catecholamine with alpha (α) and beta (β) effects

Onset & Duration

1) Onset: Immediate (within seconds)
2) Duration: 3 to 5 minutes



Indications

1) Anaphylaxisis/ Severe Allergic Reaction
2) Severe Asthma (Intermediate & Paramedic ONLY)
3) Croup with resting stridor **ONLY**

Contraindications

1) Hypovolemic and/or hemorrhagic shock

Adverse Reactions

1) Angina pectoris or myocardial infarction
2) Anxiety, tremors, palpitation, and headache

Dosage & Administration

INDICATION	CONCENTRATION AND ROUTE	ADULT DOSE	PEDIATRIC DOSE
Severe Allergic Reaction/ Anaphylaxis	Epi 1:1,000 IM	0.5 mg (0.5 mL) Repeat as needed every 5 minutes	0.01 mg/kg (0.01 mL/kg) **MAX** dose 0.5 mg (0.5 mL) Repeat as needed every 5 minutes
Severe Asthma **(Intermediate & Paramedic ONLY)**	Epi 1:1,000 IM	0.5 mg (0.5 mL) Repeat as needed every 5 minutes	0.01 mg/kg (0.01 mL/kg) **MAX** dose 0.5 mg (0.5 mL) Repeat as needed every 5 minutes
Croup	Epi 1:1,000 Nebulized (may be diluted with 2-3mL NS)	5 mg (5 mL) Repeat as needed after 30 minutes	0.5 mg/kg (0.5 mL Epi/kg) **MAX** 5 mg (5 mL) Repeat as needed after 30 minutes

Special Considerations

1) Patients with known or previous cardiac disease/illness should be reassessed often for signs of cardiac compromise.
2) **DO NOT** administer into the deltoid muscle; Administer in **LATERAL THIGH ONLY**

Epi 1:10,000 IV/IO - Anaphylaxis, Asthma, Brady			Pulseless Arrest IV/IO		IV Infusion	Push-Dose
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses	Drip	Bolus
EMR	NO	NO	NO	NO	NO	NO
EMT	NO	NO	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO	NO	NO
AEMT	NO	NO	NO	NO	NO	NO
Intermediate	VO	VO	SO	SO	VO	VO
Paramedic	SO	SO	SO	SO	SO	SO

Description

a. Catecholamine with alpha (α) and beta (β) effects

Onset & Duration

1) Onset: Immediate
2) Duration: 3 to 5 minutes

Indications

1) Cardiac Arrest (Medical)
   a) **PEDIATRIC**: ≤ 18 years old
2) Bradycardia with inadequate perfusion
3) Respiratory Cardiac Arrest
4) Uncompensated Shock (non-traumatic)
5) Anaphylaxis/Allergic Reaction/Severe Asthma
6) Pre-advanced airway hypoperfusion (systolic BP<90, EtCO2<30, MAP<60 etc)

Contraindications

1) Hypovolemic and/or hemorrhagic shock

Adverse Reactions

1) Angina Pectoris or Myocardial Infarction
2) Anxiety, Tremors, Palpitation, and Headache

Dosage & Administration

INDICATION	CONCENTRATION AND ROUTE	DOSE	
Respiratory Cardiac Arrest ≥ 13 years old	Epi 1:10,000 IV/IO	1 mg • Repeat every 3 to 5 minutes; **MAX** 3 doses for the entire arrest **OR** • 2 mg in 500 mL NS bag wide open on a pressure infusion pump (***BP cuff at 300 mmHG***) ***humeral head IO*** site **ONLY** - This can be either 1:1,000 or 1:10,000 concentration.	
Cardiac Arrest < 13 years old	Epi 1:10,000 IV/IO	0.01 mg/kg (0.1 mL/kg) • **MAX** single dose 1 mg (10 mL) Repeat every 3 to 5 minutes; **MAX** 3 doses for the entire arrest	
INDICATION	**CONCENTRATION AND ROUTE**	**ADULT DOSE**	**PEDIATRIC DOSE**
Anaphylaxis /Severe Allergic Reaction	Epi 1:10,000 slow IV/IO	0.1 mg (1 mL) Repeat as needed 5 minutes	0.01 mg/kg (0.1 mL/kg) Repeat as needed 5 minutes
Bradycardia w/ S/S of shock	Epi 1:10,000 IV/IO	N/A	0.01 mg/kg (0.1 mL/kg) Repeat every 3 to 5 minutes
Epi Infusion - Pre-advanced airway hypoperfusion - Severe Anaphylaxis/Asthma - Septic Shock - Cardiogenic Shock - Neurogenic Shock - ROSC	Inject 1 mg epinephrine (either concentration) into 1000 mL NS or 0.5 mg in 500 mL NS • 1.0 mcg/mL concentration: • Attach to a macro-drip (15gtt) set	IV/IO infusion wide open to gravity. - Titrate to desired hemodynamic effect with goal BP of ≥ 90 systolic, and/or return of distal pulses, and/or improved mental status	IV/IO infusion wide open to gravity. - Titrate to desired hemodynamic effect *See* ***PEDS GUIDE*** recommendation, and/or return of distal pulses, and/or improved mental status

Epinephrine 1:10,000

INDICATION	CONCENTRATION AND ROUTE	ADULT DOSE	PEDIATRIC DOSE
"Push Dose" or "Bolus Dose" Epinephrine - Bradydysrhythmias - Septic Shock	To make draw 9 mLs of normal saline and 1 mL 1:10,000 epi into a 10 mL syringe; roll the syringe vigorously between the palms to mix. You now have a 10 mcg/mL concentration; this concentration is then administered slow IV/IO push.	Slow IV/IO push 0.3 mL of 10 mcg/mL concentration every 1-5 minutes. - Administer to desired hemodynamic effect with goal of BP> 90 systolic, and/or return of distal pulses, and/or improved mental status	Slow IV/IO push 0.3 mL of 10 mcg/mL concentration every 1-5 minutes. - Administer to desired hemodynamic effect with goal of BP of > 70 + 2 x age in years, and/or return of distal pulses, and/or improved mental status

Special Considerations

1) Bradycardias in the setting of an acute MI are common and may be beneficial. **DO NOT** treat unless there are signs of poor perfusion (systolic BP<90, E_tCO_2<30, MAP<60 etc)
2) Pediatric bradycardias are most commonly secondary to hypoxia. Correct the ventilation first
3) Patient's over 40 years of age or with previous cardiac disease/illness should be reassessed often for signs of cardiac compromise
4) If administering 2 mg of epi in a 500 mL bag during cardiac arrest and ROSC is achieved, TKO and titrate to a BP of > 90 systolic
5) Avoid combining or administering with sodium bicarb or calcium within the same vascular access line (incompatible), it will precipitate if mixed with epinephrine
6) Multiple vascular access sites preferred, but if not available, flush catheter thoroughly before administering one medication after another
7) Reasoning for humeral head IO site: ONLY in OHCA is to achieve correct flow rate of epi

Fentanyl (Sublimaze)

Condition	Pain Mgmt./Shivering		Post-Advanced Airway	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	NO	NO	NO	NO
Intermediate	VO	VO	NO	NO
Paramedic	SO	SO	SO	SO

Description

a. A potent, synthetic-opioid analgesic agent
b. Depresses the central nervous system and sensitivity to pain

Onset & Duration

1) Onset: 60 to 90 seconds
2) Duration: 30 to 60 minutes

Indications

1) An analgesic used the reduction of moderate to severe pain
2) Treatment for shivering in the heat stroke/hyperthermic patients after rapid cooling
3) Post-advanced airway placement with return of gag reflex

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Respiratory depression
2) Bradycardia (rare)
3) Chest wall rigidity has been reported with rapid administration of fentanyl

Dosage & Administration

1) Pain Reduction and Post-cooling Shivering
   a. **ADULT:** 50 to 100 mcg bolus IV/IO administered over 1 to 2 minutes; IM/IN
      i. Repeat every 10 minutes as needed
   b. **PEDIATRIC:** 1 mcg/kg bolus IV/IO administered over 1 to 2 minutes; IM/IN
      i. Repeat every 10 minutes as needed
2) Post-Advanced Airway Placement
   a) **ADULT >13:** 100 mcg IV/IO
      i. Repeat every 10 minutes as needed
   b) **PEDIATRIC < 12:** **NOT** allowed

Special Considerations

1) Use caution in patients with hemodynamic instability, respiratory depression, or shock
2) Watch for synergistic effects when given with other CNS depressing medications
3) May cause nausea and vomiting, administer slowly, and consider an antiemetic
4) Strongly consider ½ typical dosing in elderly patients or when combining with benzodiazepines

Glucagon

Condition	Hypoglycemia		Beta/Calcium Channel Blocker Overdose	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	SO	NO	VO	VO
Intermediate	SO	NO	VO	VO
Paramedic	SO	NO	SO	SO

Description

a. A naturally occurring hormone within the human body that works opposite from insulin and increases concentration of glucose in the bloodstream. Glucagon also causes smooth muscle relaxation and increases myocardial contractility

Onset & Duration

1) Onset:
   a) Within 20 minutes for hypoglycemia
   b) Within 5 minutes for beta/calcium blocker overdose
2) Duration:
   a) Varies depending on route administered; 15 minutes IV, 1 to 2 hours IM

Indications

1) Hypoglycemic patient in which oral dextrose is contraindicated and an IV cannot be established
2) Calcium channel and/or beta blocker overdose with hypotension and bradycardia

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Nausea and/or vomiting

Dosage & Administration

1) Hypoglycemia
   a) **ADULT**: 1 mg IM, **NOT** repeated
   b) **PEDIATRIC:** 0.5 mg IM, **NOT** repeated
2) Calcium Channel / Beta Blocker OD
   a) **ADULT**: **MAX** available dose up to 5 mg IV/IO, repeat x1 if symptoms do not resolve (if available)
   b) **PEDIATRIC:** 0.1 mg/kg IV/IO, repeat once if symptoms do not resolve (if available)

Special Considerations

1) Glucagon will not be effective in reversing hypoglycemia in a patient with no liver glycogen store due to conditions such as alcoholism or malnutrition

Haloperidol (Haldol)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	VO

Description

1) It blocks the effects of dopamine and increases its turnover rate; however, the precise mechanism of action is unknown

Onset & Duration

1) Onset: Within 5 minutes
2) Duration: 4 to 6 hours

Indications

1) Sedation of a severely agitated and/or combative patient.
2) Used for management of manifestations of psychotic disorders and for the treatment of agitated states in acute and chronic psychoses
3) Gastroparesis/Cyclic Vomiting Syndrome

Contraindications

1) Parkinson's disease
2) Suspected myocardial infarction
3) Hypotension

Adverse Reactions

1) Constipation, dry mouth, salivary hypersecretion
2) Tachycardia
3) Extrapyramidal disorder, hyperkinesia, tremors, dystonia

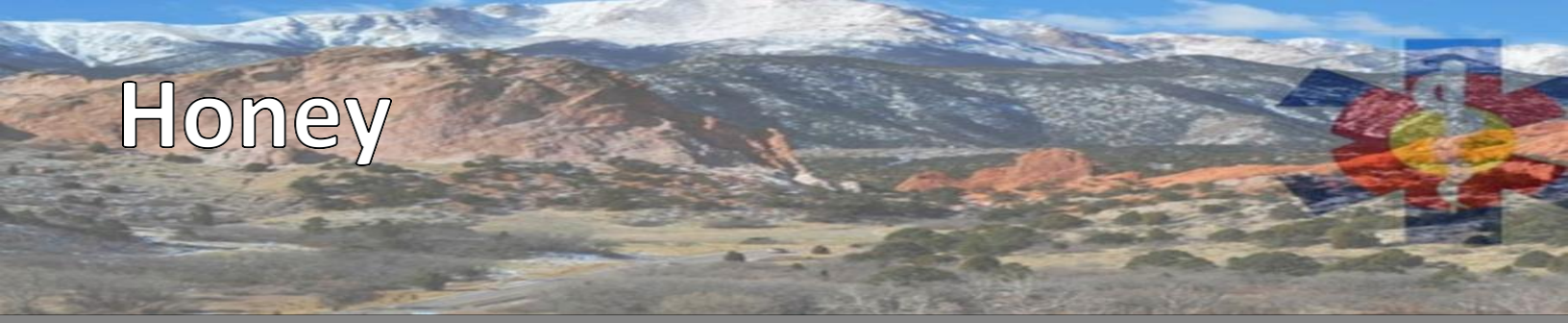
Dosage & Administration

1) **ADULT:** Severely agitated and/or Combative
   a. 5 to 10 mg IM
      Gastroparesis/Cyclic Vomiting Syndrome
   b. 5mg IV/IM

2) **PEDIATRIC:** **NOT** Allowed

Special Considerations

1) Since QT-prolongation has been observed during HALDOL treatment, caution is advised when prescribing to a patient with known QT-prolongation conditions (long QT-syndrome, hypokalemia, electrolyte imbalance) or to patients receiving medications known to prolong the QT-interval or known to cause electrolyte imbalance



Honey

Provider Level	1st Dose	Repeat Dose
EMR	SO	SO
EMT	SO	SO
EMT-IV	SO	SO
AEMT	SO	SO
Intermediate-99	SO	SO
Paramedic	SO	SO

Description

a) The goal is to create a barrier between the mucus membranes and the battery, specifically the esophagus. Honey will coat the stomach allowing the battery that has been ingested to slow down damage to the upper and lower Gastrointestinal system. Beyond coating the affected area and the battery to slow the overall leak of battery acid and help, neutralize the tissue pH. This decreases the burning process of the soft tissues and slows the adhering process of the battery

Onset & Duration

1) Onset: Immediate
2) Duration: 10 to 15 min

Indications

1) Suspected ***BUTTON BATTERY INGESTION*** ≤ 12 hours

Contraindications

1) Inability to swallow or protect airway
2) Age <12 months

Adverse Reactions

1) None noted

Dosage & Administration

1) **Adult and Pediatric > 12 months:** 10 mL (2 teaspoons) PO every 10 minutes, no max dose

Special Considerations

1) Utilize commercial honey rather than specialized or artisanal honey
2) Button/Coin Batteries have a very high mortality rate, administer and transport immediately to appropriate facility
3) Do not induce vomiting

Hydromorphone (Dilaudid)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Description

a) Opioid analgesics with desired effects of analgesia, euphoria, and sedation. Depresses the central nervous system and sensitivity to pain. Decreases venous return and produces mild peripheral vasodilation

Onset & Duration

1) Onset: 3 to 5 minutes
2) Duration: 2 to 4 hours

Indications

1) An analgesic used for the reduction of moderate to severe pain

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Respiratory Depression
2) Bradycardia (rare)

Dosage & Administration

1) **ADULT**: 0.5 mg bolus IV/IO administered over 1 to 2 minutes or IM/IN.
    i. May repeat every 10 minutes as needed
    ii. IV route is preferred IO/IN/IM are acceptable alternatives when IV access is not readily available
2) **PEDIATRIC: NOT** Allowed

Special Considerations

1) Use caution in patients with hemodynamic instability, respiratory depression, or shock
2) Watch for synergistic effects when given with other CNS depressing medications
3) May cause nausea and vomiting, administer slowly, and consider an antiemetic
4) Strongly consider ½ typical dosing in elderly patients or when combining with benzodiazepines

Hydroxocobalamin (Cyanokit)

Provider Level	1st Dose	Repeat Doses
EMR	NO*	NO
EMT	NO*	NO
EMT-IV	NO*	NO
AEMT	NO*	NO
Intermediate	SO	SO
Paramedic	SO	SO

Description

a) Cyanide inhibits cytochrome oxidase, thereby arresting cellular respiration and forcing anaerobic metabolism, which leads to lactate production and acidosis and ultimately death. Hydroxycobalamin binds cyanide ions to form cyanocobalamin which is excreted in urine

Onset & Duration

1) Onset: Rapid
2) Duration: Variable

Indications

1) Known or suspected cyanide toxicity or exposure in extremis with altered mental status, respiratory failure, poor perfusion, dysrhythmias, chest pain, and/or seizures

Contraindications

1) Known allergy to hydroxocobalamin or cyanocobalamin, but consider administration if life-threatening cyanide toxicity

Adverse Reactions

1) Hypertension, nausea, headache
2) Change in urine and secretion color as well as skin redness
3) CO-oximetry including carboxyhemoglobin levels can be inaccurate

Dosage & Administration

1) **ADULT**: 5 grams IV/IO, may repeat once to a **MAX** of 10 grams
   Reconstitute the 5-gram vial of hydroxycobalamin with 200 mL of 0.9% normal saline (lactated ringers or D_5W can be substituted if needed)
   a) Use the spike on the hydroxycobalamin vial to introduce the normal saline INTO the hydroxycobalamin vial. The line on the hydroxycobalamin vial marks 200 mL
   b) Following the addition of the diluent (normal saline) to the vial, the vial should be repeatedly inverted or rocked (**NOT** shaken) for at **LEAST** 60 seconds prior to infusion
2) **PEDIATRIC**: 70 mg/kg IV/IO, **MAX** initial dose of 5 grams; **NOT** repeated
   Reconstitute the calculated amount of hydroxycobalamin with 200 mL of 0.9% normal saline (lactated ringers or D_5W can be substituted if needed)
   a) Use the spike on the hydroxycobalamin vial to introduce the normal saline INTO the hydroxycobalamin vial. The line on the hydroxycobalamin vial marks 200 mL
   b) Following the addition of the diluent (normal saline) to the vial, the vial should be repeatedly inverted or rocked (NOT shaken) for at **LEAST** 60 seconds prior to infusion

Special Considerations

1) Assure separate IV line (this medication cannot be given in the same line as other medications)
2) * EMT and above can administer, if they are at a mine and acting under the Mine Act

Ibuprofen

Provider Level	1st Dose
EMR	SO
EMT	SO
EMT-IV	SO
AEMT	SO
Intermediate	SO
Paramedic	SO

Description

a) Ibuprofen is a nonsteroidal anti-inflammatory drug (NSAID)
b) The anti-inflammatory mechanism is due to decreased prostaglandin synthesis. The analgesic activity is effective in cases where inflammation has caused sensitivity of pain receptors

Onset & Duration

1) Onset: 30-60 minutes
2) Duration: Up to 4-6 hours

Indications

1) Mild to moderate pain
2) Frostbite or frozen extremity

Contraindications

1) Patients who have experienced signs of severe allergic reaction or anaphylaxis with the use of ibuprofen or other NSAIDs
2) Current or recent history of GI disease and/or bleeding
3) ACS
4) Patients on anticoagulant therapy (does not include aspirin)
5) Pregnancy

Adverse Reactions

1) Bradycardia
2) Oliguria (urinating only small amounts)
3) Bronchospasms
4) Angioedema
5) May enhance hypoglycemia
6) Blood thinning

Dosage & Administration

1) **ADULT**: 600 mg PO; PRN every 6 hours
2) **PEDIATRIC > 6 months**: 10 mg/kg PO. MAX dose 600 mg.

Special Considerations

1) Use caution with renal disease

IV Fluids

Provider Level	Administration
EMR	NO
EMT	NO
EMT-IV	SO
AEMT	SO
Intermediate	SO
Paramedic	SO

Description

a) Volume Expanders (Normal Saline (NS) or Lactated Ringers (LR))
   i. These contain sodium as the major cation and expand the intravascular fluid space
   ii. Both NS and LR are isotonic solutions
b) Water Solution (D_5W)
   i. Diffuses through three times the body space in comparison to NS and LR; poor volume expander
   ii. D_5W is a hypotonic Solution

Onset & Duration

1) Onset: Immediate
2) Duration: Varies; dependent on situation

Contraindications

1) Administer with caution in patients with underlying medical conditions that can lead to potential fluid overload

Indications

1) NS /LR= Volume Expanders. Expand intravascular volume
2) D_5W= Water Solution. Used in conjunction with certain IV medications

Adverse Reactions

1) Fluid overload, especially in patients with a history of renal insufficiency, cardiac compromise or congestive heart failure

Dosage & Administration

1) Hypovolemia
   a) **ADULT and PEDIATRIC:** 20 mL/kg for volume expansion, repeat as needed until improved perfusion
2) Hemorrhagic Shock
   a) **ADULT and PEDIATRIC:** 10 mL/kg for volume expansion, repeat as needed until restoration of distal pules, improved mental status and/or permissive hypotension levels reached (80 to 100 systolic)
3) Septic Shock
   a) **ADULT:** 30 mL/kg for volume expansion, repeat as needed until improved perfusion
   b) **PEDIATRIC:** 10 mL/kg for volume expansion, repeat up to 2 doses (30mL/kg) reassess in between doses
4) Burn Therapy
   a) **ADULT:** 500 mL/hr
   b) **PEDIATRIC:**
      I. Age ≥14: 500 mL/hr
      II. Age 5 to 13: 250 mL/hr
      III. Age < 5: 125 mL/hr
5) Fluid Challenge
   a) **ADULT and PEDIATRIC:** 250 to 500 mL bolus with reassessment after each administration

Special Considerations

1) Watch for pulmonary edema in cardiac compromise patient
2) Be cautious in any elderly patient history of renal insufficiency, or congestive heart failure
3) Watch for infiltration at the site of the IV or IO

Ketamine (Ketalar)

Pain Management

Waivered Medication		
Provider Level	**1ST Dose**	**Repeat Doses**
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO x 3 doses

Description

a) An anesthetic agent with potent analgesic properties and the ability to produce a cataleptic state often referred to as "dissociative analgesia"

Onset & Duration

1) Onset: 30 seconds IV/IO; 3 to 4 minutes IM/IN
2) Duration: 10 to 15 minutes IV/IO; 15 to 30 minutes IM/IN

Indications

1) Analgesia for severe pain

Contraindications

1) Known hypersensitivity
2) <7 years old

Adverse Reactions

1) Involuntary and tonic-clonic like movements (rare)
2) Extreme salivation

Dosage & Administration

1) **ADULT and PEDIATRIC >7 yo:**
   a) **20 mg IV/IO**
      i. Repeat as needed every 10-15 minutes up to 3 **TOTAL** doses
      ii. If time allows, add to a 50 mL NS or D_5W bag, administered over 5 to 10 minutes and titrate to effect to reduce emergence delirium
   b) **40 mg IN/IM**
      i. Repeat as needed every 15-30 minutes up to 3 **TOTAL** doses
   c) **Contact Medical Control** for additional doses

Special Considerations

1) If extreme salivation after administration, consider administration of *ATROPINE*
2) Consider anti emetic prior to administration, see *NAUSEA/VOMITING GUIDELINE*

KETORALAC (TORADOL)

Provider Level	1st Dose
EMR	NO
EMT	NO
EMT-IV	NO
AEMT	NO
Intermediate	NO
Paramedic	SO

Description

a). It is a nonsteroidal anti-inflammatory drug (NSAIDs). This medication exhibits analgesic, anti-inflammatory, and antipyretic activity. It works by inhibiting the synthesis of prostaglandins. It does not have sedative properties and is a peripherally acting analgesic

Onset & Duration

1). Onset: 1-3 minutes IV/IO; 30-60 minutes IM
2). Duration: Varies by age; adult 2-9 hours

Indications

1). Mild to moderate pain

Contraindications

1) Hypersensitivity
2) Allergy to other NSAIDs
3) Do Not Administer if patient had NSAID's in last 4 hours
4) Severe renal disease or kidney transplant
5) Bleeding disorders
6) Pregnancy

Adverse Reactions

1) Nausea, vomiting, bloating, gas, loss of appetite
2) Sweating, dizziness, drowsiness, blurred vision, dry mouth
3) Irritation at the injection site and abnormal tastes may also occur

Dosage & Administration

1) a). **ADULT: 15mg IV/IO or 30mg IM**
   - Not Repeated

   b). **PEDIATRIC >2 Years: 0.5mg/kg IV/IO/IM, MAX dose 15mg, or 30mg IM**
   - Not Repeated

Special Considerations

1). Increase risk of bleeding when combined with other NSAIDs

Lidocaine

Provider Level	1st Dose	Repeat Doses	2% IO Anesthetic 1st Dose	2% IO Anesthetic Repeat Dose
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	NO	NO	SO	SO
Intermediate	VO	VO	SO	SO
Paramedic	SO	SO	SO	SO

Description

a) Lidocaine is a local anesthetic that has analgesic, anti-hyperalgesic and anti-inflammatory properties

Onset & Duration

1) Onset: 1 ½ min IV/IO
2) Duration: 10 to 20 min IV/IO (remains in body for up to 2 hours)

Indications

1) Local anesthetic for relief of pain during intraosseous fluid administration
2) Alternative to Amiodarone for ventricular tachycardia

Contraindications

1) Allergy or hypersensitivity to lidocaine
2) SA/AV/intraventricular heart block in the absence of artificial pacemaker
3) CHF, cardiogenic shock, second and third-degree heart block (if no pacemaker is present),
4) Wolff-Parkinson-White syndrome (WPW)

Adverse Reactions

1) Lidocaine toxicity is possible with repeat dosing, which can cause CNS disturbances and hypotension

Dosage & Administration

1) Lidocaine 2% Solution: Anesthetic prior to intraosseous infusion
   a) **ADULT** and **PEDIATRIC**: 0.5 mg/kg IO bolus, slow push
      i. **MAX** dose 50 mg
2) VT Regular Monomorphic ONLY
   a) **ADULT:** 1.5 mg/kg, repeat q5-10 at half original, MAX 3 mg/kg

Special Considerations

1) Elderly patients and those with liver disease or poor liver perfusion secondary to shock or congestive heart failure are more likely to experience side effects. Side effects can include seizures, drowsiness, tachycardia, bradycardia, confusion, hypotension, paresthesia, slurred speech, and nystagmus (early sign of toxicity)
2) Seizure from lidocaine toxicity is likely to be brief and self-limited. If prolonged, or status epilepticus, treat per ***SEIZURE*** guideline
3) Lidocaine is NOT recommended for monomorphic IRREGULAR wide complex tachycardias. If stable, **SUPPORTIVE CARE ONLY**
4) Lidocaine is no longer indicated in adult cardiac arrests
5) Lidocaine drips are no longer recommended

Lorazepam (Ativan)

Condition	Anxiety/Sedation/Seizure/Pain	
Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) Sedative hypnotic with short onset of effects and relatively long half-life; by increasing the action of gamma-aminobutyric acid (GABA), which is a major inhibitory neurotransmitter in the brain, lorazepam may depress all levels of the CNS, including limbic and reticular formation

Onset & Duration

1) Onset: 1 to 3 minutes (IV), 15 to 30 minutes (IM)
2) Duration: Up to 8 hours

Indications

1) Status epilepticus
2) Sedation of the severely anxious, agitated, and/or combative patient
3) To treat pain due to muscle spasms
4) Post-intubation sedation
5) Sedation for cardioversion

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Respiratory depression, including apnea
2) Hypotension and volume-related tachycardia

Dosage & Administration

1) Anxiety/ Agitation, Behavioral sedation, Pain due to spasm
   a) **ADULT:** Up to 2 mg IV/IO/IM/IN over 1 to 2 minutes; may repeat every 10 minutes as needed
   b) **PEDIATRIC:** 0.1 mg/kg IV/IO/IM/IN over 1 to 2 minutes, **MAX** single dose of 2 mg; may repeat q 10 mins as needed
2) Active seizure
   a) **ADULT:** 2 mg IN/IM/IV/IO; may repeat every 10 minutes as needed
   b) **PEDIATRIC:** 0.1 mg/kg IN/IM/IV/IO, **MAX** single dose of 2 mg; may repeat q 10 minutes as needed
3) Post-intubation sedation
   a) **ADULT:** 2 mg IV/IO; may repeat every 10 minutes as needed
   b) **PEDIATRIC:** **NOT** Allowed
4) Cardioversion sedation
   a) **ADULT:** Up to 2 mg IV/IO/IM/IN over 1 to 2 minutes
   b) **PEDIATRIC:** 0.1 mg/kg IV/IO/IM/IN over 1 to 2 minutes

Special Considerations

1) Strongly consider ½ typical dosing in elderly patients or when combining with opioids
2) Use caution in patients believed to be hypotensive
3) Extreme care must be used in the elderly, very ill patients and to those with limited pulmonary reserve because of the possibility that apnea

Magnesium Sulfate

Condition	Cardiac/Respiratory		Eclampsia	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	NO	NO	NO	NO
Intermediate	NO	NO	NO	NO
Paramedic	SO	NO	SO	NO

Description

a) Magnesium is a natural element found within the human body that is a cofactor for many enzymatic reactions. Magnesium is essential for the function of the sodium-potassium pump. It prevents or controls convulsions by blocking neuromuscular transmission. It has a depressant effect on the CNS, acts as a physiological calcium channel blocker, and may reduce the incidence of post-infarction ventricular dysrhythmias

Onset & Duration

1) Onset: Immediate
2) Duration: 30 minutes

Indications

1) Eclampsia
2) Polymorphic V-tach (Torsades)
3) Asthma not responsive to albuterol
4) COPD

Contraindications

1) Should not be administered parenterally in patients with heart block

Adverse Reactions

1) May produce heart block and diminish reflexes

Dosage & Administration

1) **ADULT:**
   a) Torsades de Pointes: 2 grams in 50 mL NS or D_5W infused over 5 to 10 minutes IV/IO; rapid IV/IO push in cardiac arrest
      i. **NOT** repeated
   b) Status Asthmaticus/COPD: 2 grams in 50 mL NS or D_5W IV/IO over 10 minutes IV/IO
      i. **NOT** repeated
   c) Eclampsia: 5 grams in 50 mL NS or D_5W over 5 to 10 minutes (rapid IV/IO push in cardiac arrest)
      i. **NOT** repeated
2) **PEDIATRIC:**
   a) Status Asthmaticus: 50 mg/kg in 50 mL NS or D_5W over 5 to 10 minutes IV/IO
      i. **NOT** repeated

Special Considerations

1) Pronounced respiratory depression possible, so be prepared to intervene
2) Pregnant patients **DO NOT** need to be actively seizing to administer; if there was a witnessed seizure or there is a high suspicion of seizure activity prior to arrival, the patient **SHOULD** receive magnesium

Methylprednisolone (Solu-Medrol)

Provider Level	1ST Doses	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	NO
Paramedic	SO	NO

Description

a) It is a synthetic steroid that suppresses acute and chronic inflammation and may alter the immune response. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity
b) May be used in place of dexamethasone if it is unavailable

Onset & Duration

1) Onset: Within 20 minutes
2) Duration: 6 to 12 hours

Indications

1) Moderate to severe allergic reaction or anaphylaxis
2) Severe asthma
3) COPD Exacerbation
4) Suspected Croup with resting stridor **ONLY**
5) Suspected Addisonian Crisis (cardiovascular collapse in patient at risk for adrenal insufficiency)

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Gastrointestinal bleeding (in oral doses only)
2) Hypertension
3) Hyperglycemia

Dosage & Administration

1) **ADULT:** 125 mg bolus IV/IO slow over 2 minutes or IM; **NOT** repeated
2) **PEDIATRIC:** 2 mg/kg bolus IV/IO slow over 2 minutes or IM, **NOT** to exceed 125 mg; **NOT** repeated

Special Considerations

1) Must be reconstituted and used immediately
2) It is not considered a first line drug; do not delay transport to administer this drug

Midazolam (Versed)

Condition	Sedation/Seizures/Pain		Post-Advanced Airway	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	NO	NO	NO	NO
Intermediate	VO	VO	NO	NO
Paramedic	SO	SO	SO	SO

Description

a) It is a shorter-acting benzodiazepine central nervous system depressant that produces sedation and lack of recall

Onset & Duration

1) Onset: 1 to 3 minutes
2) Duration: 2 to 6 hours

Indications

1) Status epilepticus
2) Sedation of the severely anxious, agitated, and/or combative patient
3) Premedication prior to cardioversion
4) Post-advanced airway placement with return of gag reflex

Contraindications

1) Known hypersensitivity
2) Procedural sedation

Adverse Reactions

1) Respiratory depression, including apnea
2) Hypotension and volume-related tachycardia

Dosage & Administration

1) Comfort Measures: (cardioversion, post-intubation sedation, behavioral sedation)
   a) **ADULT:** Up to 2.5mg IV/IO/IN/IM; repeat as needed every 10 minutes; **MAX** dose 5 mg
   b) **PEDIATRIC:** 0.1 mg/kg IV/IO/IN/IM; repeat as needed every 10 minutes to a **MAX** of 10 mg; **MAX** single dose 5 mg
2) Active Seizures:
   a) **ADULT:** 5 mg IV/IO/IN/IM; repeat every 10 minutes as needed
   b) **Pediatric:** 0.1 mg/kg IV/IO/IN/IM; repeat every 10 minutes as needed; **MAX** single dose 5 mg
4) Post-Advanced Airway Placement Sedation
   a) **ADULT:** Up to 5 mg IV/IO/IN/IM; repeat as needed every 10 minutes; MAX dose 10 mg
   b) **PEDIATRIC: NOT** Allowed

Special Considerations

1) Strongly consider ½ typical dosing in elderly patients or when combining with opioids
2) Use caution in patients believed to be hypotensive

Morphine

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	VO	VO
Paramedic	SO	SO

Description

a) Opioid analgesics with desired effects of analgesia, euphoria, and sedation. Depresses the central nervous system and sensitivity to pain. Increases venous resistance, decreases venous return, and produces mild peripheral vasodilation
b) Fentanyl is preferred for pain management, if available

Onset & Duration

1) Onset: 1 to 2 minutes
2) Duration: 1 to 2 hours

Indications

1) An analgesic used for the reduction of moderate to severe pain

Contraindications

1) Known hypersensitivity
2) Hemodynamic instability, respiratory depression, or shock

Adverse Reactions

1) Respiratory Depression
2) Bradycardia (rare)
3) Bronchoconstriction, decrease cough reflex

Dosage & Administration

1) **ADULT:** 2 to 4 mg bolus IV/IO administered over 1 to 2 minutes or rapid IM.
    a) May repeat as needed every 10minutes.
2) **PEDIATRIC:** 0.1 mg/kg bolus IV/IO administered over 1 to 2 minutes or rapid IM
    a) **MAX** single dose of 4 mg
    b) May repeat as needed every 10 minutes

Special Considerations

1) NOT indicated in treatment of pain secondary to acute coronary syndrome
2) Watch for synergistic effects when given with other CNS depressing medications
3) May cause nausea and vomiting, administer slowly and consider an antiemetic
4) Strongly consider ½ typical dosing in elderly or when combining with benzodiazepines

Naloxone (Narcan)

Provider Level	Intranasal 1st Dose	Intranasal Repeat Doses	IV, IO, IM 1st Dose	IV, IO, IM Repeat Doses
EMR	SO	SO	NO	NO
EMT	SO	SO	NO	NO
EMT-IV	SO	SO	SO	SO-IV/IO
AEMT	SO	SO	SO	SO
Intermediate	SO	SO	SO	SO
Paramedic	SO	SO	SO	SO

Description

a) It is a competitive receptor antagonist

Onset & Duration

1) Onset: Within 5 minutes
2) Duration: 1 to 4 hours

Indications

1) For reversal of suspected opioid-induced CNS respiratory depression
2) Coma from unknown cause **WITH** impaired reflexes and/or respiratory depression

Contraindications

1) Known hypersensitivity

Adverse Reactions

1) Tachycardia
2) Nausea and/or vomiting
3) Pulmonary edema
4) Agitation

Dosage & Administration

a. **Adult:** Initial dose at 0.5 mg to 1 mg bolus IV/IO/IM/IN
   i. 2nd dose PRN: 1 mg to 2 mg
   ii. 3rd dose PRN: 2 mg to 4 mg
   iii. If patient symptoms redevelop consider repeating at last therapeutic dose
   iv. If symptoms do not improve at 4 mg, consider other causes
b. **Pediatric:**
   i. **>20 kg:** 0.5 mg bolus IV/IO/IM/IN and titrate to desired effect up to 2 mg total
   ii. **<20 kg:** 0.01 mg/kg bolus IV/IO/IM/IN and titrate to desired effect up to 2 mg total
   iii. **Neonate: NOT ALLOWED**

Special Considerations

1) Not intended for use unless **respiratory depression or impaired airway reflexes** are present
2) Reversal of suspected mild to moderate opioid toxicity is **NOT** indicated in the field as it may greatly complicate treatment and transport as narcotic dependent patients may experience violent withdrawal symptoms
3) Patients who receive naloxone **SHOULD** be transported to the hospital for evaluation
4) Use with extreme caution in narcotic-dependent patients who may experience withdrawal syndrome
5) Administration of high doses of Narcan is strongly discouraged, however higher doses may be indicated in the setting of overdoses due to synthetic opioids (i.e. illegally manufactured fentanyl or Carfentanil)

Phenylephrine (Neosynephrine)

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	SO	SO
EMT-IV	SO	SO
AEMT	SO	SO
Intermediate	SO	SO
Paramedic	SO	SO

Description

a) Phenylephrine is an alpha-adrenergic agonist. When administered intranasally, it causes vasoconstriction in the nasal mucosa and subsequently decreased bleeding and nasal decongestion

Onset & Duration

1) Onset: Rapid
2) Duration: 20 minutes

Indications

1) Nosebleed (epistaxis)

Contraindications

1) Known hypersensitivity

Precautions

1) Avoid administration into the eyes, which will dilate pupil but not cause any damage

Dosage & Administration

1) For patients experiencing an active nosebleed and able to follow commands
   a) First have patient blow nose to expel clots.
   b) Administer 2 sprays to each nostril with patient gently sniffing (if possible) until patient can taste the Neosynephrine
   c) Apply digital pressure to the soft nasal portion or apply commercial nose clip for 20 minutes; repeat as needed

Nitroglycerin (Nitrostat)

Route	Pt Assisted		Tablet/Spray		Topical Paste	Pulmonary Edema	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses	0.5-2" Dose	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO	NO	NO	NO
EMT	VO	VO	NO	NO	NO	NO	NO
EMT-IV	VO	VO	NO	NO	NO	NO	NO
AEMT	SO	SO	SO	SO	VO	NO	NO
Intermediate	SO	SO	SO	SO	VO	SO	SO
Paramedic	SO	SO	SO	SO	SO	SO	SO

Description

a) Short-acting peripheral vasodilator decreasing cardiac preload and afterload

Onset & Duration

1) Onset: 1 to 3 minutes
2) Duration: 20 to 30 minutes, variable with paste (up to 12 hours)

Indications

1) Hypertension control in congestive heart failure associated with pulmonary edema

Contraindications

1) Hypotension; systolic blood pressure < 100
2) Recent use of erectile dysfunction (ED) medication within 24 hours of Viagra and or 48 hours with Cialis/Levitra

Adverse Reactions

1) Hypotension
2) Syncope
3) Headache
4) Tachycardia

Dosage & Administration

1) Pulmonary Edema:
   a) ADULT: Sublingual tablet or spray
      i. **SBP 100 to 120:** 0.4 mg sublingual
      ii. **SBP 121 to 200:** 0.8 mg sublingual
      iii. **SBP >200:** 1.2 mg sublingual
      iv. Repeat 0.4 mg sublingual every 5 minutes PRN titrated to symptoms and blood pressure
   b) PEDIATRIC: **NOT** Allowed
   c) ADULT: Nitroglycerin Paste (if available): 0.5" to 2" applied to skin, cover with plastic wrap/Tagaderm to prevent smearing
      i. Monitor systolic blood pressure and wipe off paste if patient becomes hypotensive
   d) PEDIATRIC: **NOT ALLOWED**

Special Considerations

1) Therapeutic effect of NTG is enhanced, but adverse effects are increased, when patient is upright
2) NTG may be given, even to patients using their own paste, discs, or oral long-acting nitrate preparations
3) Ideally, IV access, cardiac monitoring and a 12-lead should be obtained prior to administration
4) NTG may be effective in relieving chest pain caused by food impaction

Olanzapine (Zyprexa)

Route	Orally Dissolved Tablets (ODT)
Provider Level	1st Dose
EMR	NO
EMT	NO
EMT-IV	NO
AEMT	NO
Intermediate	NO
Paramedic	SO

Description

a) An atypical antipsychotic that has dopamine and serotonin 5-HT receptor antagonist that also has anticholinergic, antihistamine, and anti-alpha-adrenergic effects
b) Provides a reduction in anxiety

Onset & Duration

1) Onset: 10-15 minutes
2) Duration: 2-4 hours

Indications

1) Anxious patient with Mild Agitation (non-combative)
2) To avoid the further escalation of the Mild Agitation

Contraindications

1) Known allergy
2) Suspected alcohol intoxication
3) Pregnancy
4) Agitation requiring restraints
5) Dementia related agitation

Adverse Reactions

1) Hypotension
2) Bradycardia
3) Extrapyramidal effects (rare)
4) Prolonged QT syndrome (rare)

Dosage & Administration

1) **ADULT:** 10mg ODT ages 18-65. Not Repeated.

Special Considerations

1) For Extrapyramidal effects treat with *Diphenhydramine* guideline

Ondansetron (Zofran)

Route	Orally Dissolved Tablets (ODT)		IN/IV/IO/IM	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	SO	SO	NO	NO
EMT-IV	SO	SO	SO	SO – IV/IO
AEMT	SO	SO	SO	SO
Intermediate	SO	SO	SO	SO
Paramedic	SO	SO	SO	SO

Description

a) Serotonin 5-HT3 receptor antagonist that
b) Prevents nausea and vomiting by blocking serotonin

Onset & Duration

1) Onset: 10 minutes IV, 40 minutes IM, within 30 minutes ODT
2) Duration: 4 hours

Indications

1) Nausea or vomiting stemming from any medical or traumatic complaint
2) Prophylaxis treatment for opioid ***PAIN MANAGEMENT***, ***CPAP***, ***SPINAL MOTION RESTRICTION***
3) Prophylaxis treatment for any patient with high risk of motion sickness

Contraindications

1) Known allergy

Adverse Reactions

1) Headache, dizziness, drowsiness, fatigue
2) Some patients experience transient blurred vision

Dosage & Administration

1) **ADULT:** 4 mg ODT/IN/IV/IO/IM repeat as needed every 10 minutes
2) **PEDIATRIC:** ≥ 40 kg; 4 mg ODT/IN/IV/IO/IM, repeat as needed every 10 minutes
3) **PEDIATRIC:** < 40 kg; 0.1 mg/kg ODT/IN/IV/IO/IM may repeat every 10 minutes

Special Considerations

1) Ondansetron can pass into breast milk and may harm nursing baby

Oral Glucose (Instaglucose)

Provider Level	1st Dose	Repeat Doses
EMR	SO	SO
EMT	SO	SO
EMT-IV	SO	SO
AEMT	SO	SO
Intermediate	SO	SO
Paramedic	SO	SO

Description

a) Glucose is the body's basic fuel and is required for cellular metabolism
b) After absorption from GI tract, glucose isdistributed in the tissues and provides a prompt increase in circulating blood sugar

Onset & Duration

1) Onset: 1 minute
2) Duration: Varies on degree of hypoglycemia

Indications

1) Known or suspected hypoglycemia and able to swallow and has a patent airway

Contraindications

1) Inability to swallow or protect airway
2) Unable to follow orders or take oral medications

Adverse Reactions

1) Nausea

Dosage & Administration

1) **ADULT and PEDIATRIC:** 1 to 2 full tubes or 15 to 30 grams buccal, repeat as needed every 10 minutes

Special Considerations

1) Due to gel thickness, there is a potential for airway obstruction or aspiration
2) Other sugar sources are acceptable, i.e., fruit juice, candy bar, soda (not diet), etc.
3) Assure that signs of altered mental status are present and that other causes for the patient's condition have been considered, including hypoxia, stroke, seizure, alcohol intoxication, drug overdose, head injury, etc.

Provider Level	1st Dose	Repeat Doses
EMR	SO	SO
EMT	SO	SO
EMT-IV	SO	SO
AEMT	SO	SO
Intermediate	SO	SO
Paramedic	SO	SO

Description

a) Oxygen added to the inspired air increases the amount of oxygen in the blood, and thereby increases the amount delivered to the tissue. Tissue hypoxia causes cell damage and death. Breathing, in most people, is regulated by small changes in the acid-base balance and CO_2 levels. It takes relatively large decreases in oxygen concentration to stimulate respiration

Onset & Duration

1) Onset: Immediate
2) Duration: Variable

Indications

1) Moderate to severe medical illness or traumatic injury with suspected hypoxia

Contraindications

1) None in the emergency setting

Adverse Reactions

1) Hyperoxemia to oxidative injury as well as coronary and cerebral artery constriction.

Dosage & Administration

1) **ADULT and PEDIATRIC:** Dose is dependent on presentation and baseline O_2 saturation.
   a) Increase oxygen concentration and delivery device to maintain recommended O_2 levels between90% to 98%.

Special Considerations

1) Do not withhold oxygen from a COPD patient out of concerns for loss of hypoxic respiratory drive
2) Hyperoxemia can be detrimental in the patient with: acute injury, moderate to severe illness, myocardial infarction, and/or stroke. It is important that the provider monitor SpO_2 and $EtCO_2$ closely

Racemic Epinephrine

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Description

a) Inhalation causes local effects on the upper airway as well as systemic effects from absorption. Vasoconstriction may reduce swelling in the upper airway, and ß effects on bronchial smooth muscle may relieve bronchospasm
b) May be used instead of nebulized ***1:10,000 EPINEPHRINE***

Onset & Duration

1) Onset: 1-5 minutes
2) Duration: 1-3 hours

Indications

1) Stridor at rest

Side Effects

1) Tachycardia
2) Palpitations
3) Muscle tremors

Dosage and Administration

1) **ADULT** and **PEDIATRIC**: 0.5 ml racemic epinephrine mixed in 3 mL saline, via nebulizer at 6-8 LPM to create a fine mist; administer over 15 minutes

Special Considerations

1) Racemic epi is heat and light-sensitive; store in cool, dark location
2) Once removed from the refrigerator, the unopened package is stable at room temperature until the expiration date stated on the package

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic

Sodium Bicarbonate

Condition	Cardiovascular		Antidote	
Provider Level	1st Dose	Repeat Doses	1st Dose	Repeat Doses
EMR	NO	NO	NO	NO
EMT	NO	NO	NO	NO
EMT-IV	NO	NO	NO	NO
AEMT	NO	NO	NO	NO
Intermediate	VO	VO	NO	NO
Paramedic	SO	SO	SO	SO

Description

a) Sodium bicarbonate is an alkalotic solution, which neutralizes acids found in the body. Acids are increased when body tissues become hypoxic due to cardiac or respiratory arrest

Onset & Duration

1) Onset: 10 to 15 seconds
2) Duration: 8 to 10 minutes

Indications

1) Tricyclic or antihistamine overdose with arrhythmias, widened QRS complex or hypotension
2) Significant crush injury requiring prolonged extrication
3) Suspected hyperkalemia or hyperkalemic pulseless arrest: consider in patients with known renal failure/dialysis
4) Severe salicylate overdose

Contraindications

1) Metabolic and/or respiratory alkalosis
2) Hypocalcemia
3) Hypokalemia

Adverse Reactions

1) Metabolic alkalosis
2) Paradoxical cerebral intracellular acidosis
3) Sodium bolus can lead to volume overload

Dosage & Administration

1) Suspected hyperkalemia or hyperkalemic pulseless arrest
   a) **ADULT:** 100 mEq slow bolus over 2 to 5 minutes IV/IO of an 8.4% solution:
      i. Repeat as needed until cessation of seizures or QRS shortens to <100 ms (if applicable)
   b) **PEDIATRIC:** **NOT** allowed
2) Antidote for Tricyclic overdose
   a) **ADULT:** 100 mEq slow bolus over 2 to 5 minutes IV/IO of an 8.4% solution:
      i. Repeat as needed until cessation of seizures or QRS shortens to <100 ms (if applicable)
   b) **PEDIATRIC:** 1 mEq/kg slow bolus over 2 to 5 minutes IV/IO of an 8.4% solution; MAX dose 100 mEq
      i. Repeat as needed until cessation of seizures or QRS shortens to <100 ms (if applicable)
3) In severe cases, consider administering via drip
   a) **ADULT:** Mix 150 mEq (150 mL) in 1000 mL NS or D_5W and administer at 200 mL/hr
   b) **PEDIATRIC:** **NOT** allowed

Special Considerations

1) Avoid combining or administering with epinephrine or calcium within the same vascular access line (incompatible), it will precipitate if mixed with sodium bicarbonate
2) Multiple vascular access sites preferred, but if not available, flush catheter thoroughly before administering one medication after another
3) Alkalization of urine may increase half-lives of certain drugs
4) Vasopressors may be deactivated by Sodium Bicarbonate

Topical Ophthalmic Anesthetic

Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	SO	VO
Paramedic	SO	VO

Description

a) Proparacaine and tetracaine are local anesthetics approved for ocular administration for relief of eye pain caused by corneal abrasion or chemical injury

Onset & Duration

1) Onset: 15 to 30 seconds
2) Duration: 15 to 20 minutes

Indications

1) Pain secondary to eye injuries and corneal abrasions
2) Topical anesthetic to facilitate eye irrigation

Contraindications

1) Known allergy to local anesthetics or to PABA (para-aminobenzoic acid)-containing products
2) Globe lacerations or rupture

Adverse Reactions

1) Transient burning/stinging when initially applied

Dosage & Administration

1) **ADULT and PEDIATRIC:** Instill 2 drops into affected eye; repeat as needed every 15 minutes

Special Considerations

1) This medication is packaged for single patient use. Unused portions should be discarded, and only new bottles used
2) Topical ophthalmic anesthetics should never be given to a patient for self-administration
3) During the period of anesthesia, protect the patient's eyes from further injury
   a) The patient will not be able to feel the introduction of new foreign bodies, chemicals, etc.
   b) **DO NOT** allow the patient to rub their eyes. Protect the eye from dust and other hazards
4) Occasional burning/stinging, tearing, and photophobia may occur upon initial instillation of drops. This is usually a transient side effect and occurs less often with proparacaine

Tranexamic Acid (TXA)

Waivered Medication				
Condition	**Epistaxis**		**Hemorrhage**	
Provider Level	**1ST Dose**	**Repeat Doses**	**1ST Dose**	**Repeat Doses**
EMR	**NO**	**NO**	**NO**	**NO**
EMT	**SO**	**SO**	**NO**	**NO**
EMT-IV	**SO**	**SO**	**NO**	**NO**
AEMT	**SO**	**SO**	**NO**	**NO**
Intermediate	**SO**	**SO**	**NO**	**NO**
Paramedic	**SO**	**SO**	**SO**	**NO**

Description

a. Tranexamic acid competitively inhibits activation of plasminogen (via binding to the kringle domain), thereby reducing conversion of plasminogen to plasmin (fibrinolysin), an enzyme that degrades fibrin clots, fibrinogen, and other plasma proteins, including the procoagulant factors V and VIII

Onset & Duration

1) Onset: 10 minutes
2) Duration: 3 hours

Indications

1) Uncontrolled epistaxis
2) Hemorrhagic shock less than 3 hours old with suspected need for massive transfusion (>10 units PRBC) due to internal or external blood loss (as evidenced by hypotension and signs of poor perfusion) which includes post-partum hemorrhage

Contraindications

1) Epistaxis
    a. < 13 years old
2) Hemorrhage (non-epistaxis related)
    a. Isolated traumatic head injury
    b. Time of injury > 3 hours
    c. Active intravascular clotting (known DVT or PE)
    d. GI Bleed

Adverse Reactions

1) CNS: Impaired color vision and other visual disturbances
2) Body as a Whole: Allergic reactions, thrombotic events
3) GI: Nausea, vomiting, diarrhea

Dosage & Administration

1) Epistaxis

Adult: 250 mg (2.5 mL) Topical or IN; Repeat PRN

a. Have the patient clear nostrils (blow nose)
b. Place TXA onto a 2x2 gauze pad or cotton ball
c. Insert TXA soaked pad into affected nostril(s)
d. Apply nose clamp

Pediatric: **NOT ALLOWED**

2) Hemorrhage

Adult: Mix 2 grams in 50 mL NS or D5W over 10 minutes, IV/IO; **NOT** repeated

Pediatric: < 13 years old: **NOT ALLOWED**

Special Considerations

1) Use caution in patients with known renal insufficiency
2) Ensure receiving facility has been notified of the administration of TXA and document appropriately

Provider Level	1ST Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Hepatitis B Vaccine (recombinant)

1) Description
   a) The vaccines currently in use in the United States are made with recombinant DNA technology and contain protein portions of HBV (usually parts of the outer protein or the surface antigen of HBV). Thus, the vaccines do not contain any live virus. More than 95% of children and adolescents and more than 90% of young, healthy adults develop adequate immunity following the recommended three doses. Persons who respond to the vaccine are protected from both acute hepatitis B infections as well as chronic infection
2) Indications
   a) **Pre–employment/employment related**
3) Contraindications
   a) Known hypersensitivity
4) Dosage & Administration
   a) **ADULT**: 1.0 mL (10 mcg) IM, deltoid is the preferred site
      i. 3 doses will be required. 1st on the elected date, 2nd 1 month later, and 3rd 6 months from the first dose.
   b) **PEDIATRIC: NOT** allowed
5) General Considerations
   a) Administered doses should be documented on a vaccination record and provided to the recipient as well as maintained in agency records. Documentation should include the manufacturer, lot number, expiration date, dose given, and site of injection. Recipient should read an information sheet and sign an authorization and consent form before administration
   b) Pain in arm at the injection site, fever, chills, headache, muscle aches and or allergic reaction may occur
   c) In the event of a presumed allergic reaction such as hives, angioedema, allergic asthma, or systemic anaphylaxis, see ***ANAPHYLAXIS GUIDELINE***

Influenza Virus Vaccine

1) Description
   a) Influenza Virus Vaccine is an inoculation of antigens prepared from inactivated influenza virus stimulating the production of specific antibodies. Protection is afforded only against those strains from which the vaccine is prepared or against closely related strains
2) Indications
   a) Any person who, because of age, underlying medical condition, or in close contact with high–risk persons, is at increased risk for complications of influenza
   b) Persons who wish to reduce their risk of acquiring influenza
3) Contraindications
   a) Known hypersensitivity or allergy to eggs or egg products
4) Dosage & Administration
   a) **ADULT**: 0.5 mL IM
   b) **PEDIATRIC: NOT** allowed

5) Special Considerations
   a) Pregnant women **MUST** have a note from their Obstetrician
   b) **DO NOT** administer influenza vaccine within 3 days of pertussis vaccine or combined diphtheria/tetanus/pertussis (DPT) vaccine
6) General Considerations
   a) Administered doses should be documented on a vaccination record and provided to the recipient as well as maintained in agency records. Documentation should include the manufacturer, lot number, expiration date, dose given, and site of injection. Recipient should read an information sheet and sign an authorization and consent form before administration
   b) Pain in arm at the injection site, fever, chills, headache, muscle aches and or allergic reaction may occur
   c) In the event of a presumed allergic reaction such as hives, angioedema, allergic asthma, or systemic anaphylaxis, see ***ANAPHYLAXIS GUIDELINE***

Tetanus-Diphtheria Vaccine (Td)

2) Description
   a) Td is a tetanus–diphtheria vaccine given to adolescents and adults as a booster shot every 10 years, or after an exposure to tetanus under some circumstances. This vaccine works by exposing you to a small dose of the bacteria or a protein from the bacteria, which causes the body to develop immunity to the disease
3) Indications
   a) Pre–employment/employment related if lack of evidence of having received tetanus vaccine in the previous 10 years
   b) Recent deep and contaminated wound (e.g., contaminated with dirt, feces, saliva) and lack of evidence of having received tetanus toxoid–containing vaccine in the previous 5 years
4) Contraindications
   a) Known hypersensitivity or allergy
   b) Pregnancy
5) Dosage & Administration
   a) **ADULT >18**: 0.5 mL IM, deltoid is the preferred site
   b) **PEDIATRIC:** **NOT** allowed
6) Special Considerations
   a) A physician's consultation is required if history of an unstable neurological condition or history of Guillain–Barré syndrome
   b) Persons with moderate or severe illness on the day any vaccine is scheduled should probably be delayed until full recovery
7) General Considerations
   a) At a physician's discretion, either vaccine may be administered during the 2nd or 3rd trimester
   b) Administered doses should be documented on a vaccination record and provided to the recipient as well as maintained in agency records. Documentation should include the manufacturer, lot number, expiration date, dose given, and site of injection. Recipient should read an information sheet and sign an authorization and consent form before administration
   c) Vaccine should be refrigerated at 36–40 degrees F
   d) Pain in arm at the injection site, fever, chills, headache, muscle aches and or allergic reaction may occur
   e) In the event of a presumed allergic reaction such as hives, angioedema, allergic asthma, or systemic anaphylaxis, see ***ANAPHYLAXIS GUIDELINE***

Approved Abbreviations

@ = at
≈ = approximately
≤ = less than or equal to
≥ = greater than or equal to
Δ = change
↓ = decreased or lower
1° = primary exam
2° = secondary exam
ā = before
A/P = anterior/posterior
AA0x4 = Awake, alert, oriented to person, place, time & event
ABC = airway, breathing, circulation
Abd = abdomen
AC = antecubital fossa
AICD = automated internal cardiac defibrillator
AKA = above knee amputation
ALS = Advanced Life Support
AMI = acute myocardial infarction
Ant = anterior
APAP = acetaminophen
ARD = acute respiratory distress
ASA = aspirin
AV = atrioventricular or arteriovenous
AVPU = alert, verbal, pain, unresponsive
B/P = blood pressure
BG = blood glucose
BGL = blood glucose level
Bilat = bilaterally
BKA = below knee amputation
BLS = Basic Life Support
bpm = beats per minute
BVM = bag-valve-mask
C = Centigrade
c = with
c/o = complains of
C/P = chest pain
C2 = code 2 (non-emergent)
C3 = code 3 (emergent)
CA = cancer
CABG = coronary artery bypass graft
CaCl = calcium chloride
CAD = coronary artery disease
CC = chief complaint
cc = cubic centimeter
CCT = critical care transport
CHB = complete heart block
CHF = congestive heart failure
CHI = closed head injury
Clr = clear
cm = centimeter
CMS = circulation, movement, sensation
CNS = central nervous system
CO = carbon monoxide
CO_2 = carbon dioxide
COPD = chronic obstructive pulmonary disease
CPR = cardiopulmonary resuscitation
CSF = cerebrospinal fluid
CSM = carotid sinus massage
C-spine = cervical spine
CT = computerized tomography (CAT scan)
CTL-Spine = cervical, thoracic, lumbar spine
Cx = chest
D50 = dextrose 50%
D5W = dextrose 5% in water
Defib = defibrillation
Dig = Digoxin, Lanoxin
DKA = diabetic ketoacidosis
DOA = dead on arrival
Dx = diagnosis
ECG = electrocardiogram
ED = Emergency Department
EKG = electrocardiogram
EMS = Emergency Medical Services
ER = Emergency Room
ETA = estimated time of arrival
$EtCO_2$ = End tidal carbon dioxide
ETOH = beverage alcohol
ETT = endotracheal tube
Exp = expiration
F = Fahrenheit
FA = forearm
FBAO = foreign body airway obstruction
Fx = fracture
G or Gm = gram
GCS = Glasgow Coma Scale or Score
GERD = gastro-esophageal reflux disease
GI = gastrointestinal
GSW = gunshot wound
H/P = history and physical
HI = head injury
Hosp = Hospital
HR = heart rate
HTN = hypertension
Hx = history
ICP = intracranial pressure
ICS = intercostal space
ICU = Intensive care unit
IM = intramuscular

Approved Abbreviations

IO = intraosseous
IV = intravenous
IVP = intravenous push
J = Joule
JVD = jugular venous distention
KCl = potassium chloride
Kg = kilogram
L = left
l = liter
LAD = left axis deviation or left anterior descending
LAH = left anterior hemiblock
lb = pound
LBB = left bundle branch block
LLQ = left lower quadrant
LMP = last menstrual period
LOC = loss of consciousness
LPH = left posterior hemiblock
lpm = liters per minute
LR = lactated ringer
LS = lung sounds
LSB = long spine board
LUQ = left upper quadrant
mA = milliamps
mcg = microgram
MCL = mid-clavicular line
meds = medications
mEq = milli-equivalent
mg = milligram
mg/dL = milligrams per deciliter
$MgSO_4$ = Magnesium Sulfate
min = minute
mL = milliliter
mmHG = millimeters of mercury
MOI = mechanism of injury
MRI = magnetic resonance imaging
MVC = motor vehicle crash
N/V = nausea/vomiting
N/V/D = nausea/vomiting/diarrhea
NAD = no acute distress
$NaHCO_3$ = Sodium Bicarbonate
NC = nasal cannula
NEB = nebulizer
NG tube = nasogastric tube
NKDA = no known drug allergies
NL = non labored
NP = nasopharyngeal
NPA = nasal pharyngeal airway
NPO = nothing by mouth
NRB = non re-breather mask
NS = normal saline
NSR = normal sinus rhythm
NTG = nitroglycerin
ø = no, none
O_2 = oxygen
OAOB = odor of alcohol on breath
OB = obstetrical
Occ = occipital
OD = overdose
OM = otitis media
OP = oropharyngeal
OPA = oral pharyngeal airway
oz = ounce
p = after
P#/G# = para # / gravida # (P1G1)
PAC = premature atrial contraction
Palp = palpation
PE = pulmonary embolus
PEA = pulseless electrical activity
PG = pregnant
PJC = premature junctional contraction
PMS = pulse, movement, sensation
PN = pneumonia
PO = by mouth
POP = pain on palpation
Post = posterior
PR = per rectum; rectally
PRI = P-R interval relating to ECG
PRN = as needed
PSI = pounds per square inch
PSVT = paroxysmal supraventricular tachycardia
Pt = patient
PTA = Prior to arrival
PTS = post-traumatic stress
PVC = premature ventricular contraction
Px = pain
q = every
R = right
Rad = radial pulse
RAD = right axis deviation
RBB = right bundle branch block
RCA = right circumflex artery
Resp = respiration
RLQ = right lower quadrant
RR = respiratory rate
RSI = rapid sequence induction or intubation
RUQ = right upper quadrant
Rx = prescribed for
s/p = status post
s/s = signs and symptoms
SaO_2 = oxygen saturation

Approved Abbreviations

sec = second
SL = sublingual
SMOE = sensation, movement of extremity
SOB = shortness of breath
SQ = subcutaneous
ST = S-T segment relative to ECG
Sux - Succinylcholine
synch = synchronous
Sz = seizure
TB = tuberculosis
TCA = tricyclic antidepressant
TCP = transcutaneous pacemaker
Temp = temperature
TIA = transient ischemic attack
TKO = to keep open (minimum IV rate)
Tx = treatment
U/A = upon arrival
URI = upper respiratory infection
UTI = urinary tract infection
V. Fib. = ventricular fibrillation
V. Tach. = ventricular tachycardia
VF = ventricular fibrillation
VS = vital signs
VT = ventricular tachycardia
W/D/P = warm, dry, pink skin
W/O = without
WNL = within normal limits
WPW = Wolff-Parkinson-White syndrome
µ = micro
µg = microgram

Quick Reference Guide

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Airway Procedures	EMR	EMT	EMT-IV	AEMT	EMT-I	EMT-P
Capnography	NA	S	S	S	S	S
Supraglottic Airway Device	NA	S	S	S	S	S
Continuous Positive Airway Pressure	NA	S	S	S	S	S
Adult Oral Intubation (13 years & older)	NA	NA	NA	NA	S	S
Pediatric Oral Intubation	NA	NA	NA	NA	NA	NA
Nasal Intubation	NA	NA	NA	NA	NA	NA
Rapid Sequence Induction (13 years & older)	NA	NA	NA	NA	NA	NA
Bougie-assisted Surgical Cricothyrotomy	NA	NA	NA	NA	NA	S
Needle Cricothyrotomy	NA	NA	NA	NA	NA	S
Needle Thoracostomy for Tension Pneumothorax	NA	NA	NA	NA	S	S
Nasogastric/ Orogastric Tube Insertion	NA	NA	NA	NA	NA	S

Cardiovascular Procedures	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Cardiac Monitoring (Noninterpretive)	S	S	S	S	S	S
Cardiac Monitoring (Interpretive)	NA	NA	NA	NA	S	S
12-Lead ECG (Interpretive)	NA	NA	NA	NA	S	S
Automated External Defibrillator	S	S	S	S	S	S
Mechanical CPR Devices	S	S	S	S	S	S
Manual Defibrillation	NA	NA	NA	NA	S	S
Synchronized Cardioversion	NA	NA	NA	NA	NA	S
Transcutaneous Pacing (TCP)	NA	NA	NA	NA	S	S
Vagal Maneuvers	NA	NA	NA	NA	NA	S

Monitoring Devices	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Blood Glucose Monitor	S	S	S	S	S	S
SpO_2 Monitor	S	S	S	S	S	S
$EtCO_2$ Monitor	S	S	S	S	S	S
SpCO Monitor	S	S	S	S	S	S

Vascular Access/Wound Care	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Intravascular Access (Peripheral)	NA	NA	S	S	S	S
Intravascular Access (External Jugular)	NA	NA	NA	S	S	S
Intravascular Access (Umbilical Vein)	NA	NA	NA	NA	NA	NA
Intravascular Access (Arteriovenous Fistula)	NA	NA	NA	NA	NA	NA
Use of Established Central Line - Pt. in Extremis	NA	NA	NA	NA	S	S
Intraosseous Access - Pt. in Extremis (Adult & Pediatric)	NA	NA	S	S	S	S
Intraosseous Access (All Other Patients)	NA	NA	NA	S	S	S
Spinal Motion Restriction	S	S	S	S	S	S
Extremity Splinting	S	S	S	S	S	S
Eye Irrigation (Non-Invasive)	S	S	S	S	S	S
Eye Irrigation Morgan Lens	NA	NA	NA	NA	S	S
Hemostatic Agents	S	S	S	S	S	S
Occlusive Dressing	S	S	S	S	S	S
Pelvic Binder	S	S	S	S	S	S
Pressure Dressing	S	S	S	S	S	S

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Quick Reference Guide

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Vascular Access/Wound Care	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Traction Splint	S	S	S	S	S	S
Tourniquet	S	S	S	S	S	S
Wound Packing	S	S	S	S	S	S

General / Miscellaneous	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Joint Reductions- shoulder, patella, fingers & toes	NA	S	S	S	S	S
Over-the-Counter-Medications (Includes PO Acetaminophen, PO Benadryl, and PO Ibuprofen)	S	S	S	S	S	S
Specialized Rx medications used to address acute crisis	VO	VO	VO	VO	VO	VO
Vaccine Administration – Public Health Related	NA	NA	NA	S	S	S

This is a quick reference for **Prehospital Medications and Administration Routes Allowed by Scope of Practice**. Certain medications have multiple indications; you are required to know which indications and dosages are in your scope of practice

Medication Administration Routes Allowed	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Auto-injector	S	S	S	S	S	S
Buccal	S	S	S	S	S	S
Endotracheal Tube	NA	NA	NA	NA	S	S
Extra-abdominal Umbilical Vein	NA	NA	NA	NA	S	S
Intramuscular (IM) - 1:1000 epinephrine only	NA	S	S	S	S	S
Intramuscular (IM)	NA	NA	NA	S	S	S
Intranasal (IN) / Atomized	S	S	S	S	S	S
Intraosseous (IO)	NA	NA	S	S	S	S
Intravenous – IV Bolus/ IV Push	NA	NA	S	S	S	S
Nebulized	NA	S	S	S	S	S
Oral (ODT/ PO)	S	S	S	S	S	S
Nasogastric/ Orogastric	NA	NA	NA	NA	NA	S
Rectal	NA	NA	NA	NA	S	S
Subcutaneous (SQ)	NA	NA	NA	S	S	S
Sublingual (SL)	NA	S	S	S	S	S
Mechanical Infusion Pumps	NA	NA	NA	NA	S	S

Medications	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Adenosine	NA	NA	NA	NA	VO	S
Acetaminophen (PO)	S	S	S	S	S	S
Albuterol Sulfate	NA	S	S	S	S	S
Amiodarone	NA	NA	NA	NA	VO	S
Ancef (Cefazolin)	NA	NA	NA	NA	NA	S
Aspirin	S	S	S	S	S	S
Atropine	NA	NA	NA	NA	VO	S
Atrovent (Ipratropium Bromide)	NA	NA	NA	VO	VO	S
Calcium Chloride 10% & Calcium Gluconate 10%	NA	NA	NA	NA	NA	S
Dexamethasone (Decadron)	NA	NA	NA	NA	VO	S
Dextrose (Intravenous)	NA	NA	S	S	S	S
Diazepam (Valium)	NA	NA	NA	NA	VO	S
Diltiazem (Cardizem)	NA	NA	NA	NA	NA	S
Diphenhydramine (Benadryl)	NA	NA	NA	VO	VO	S

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Quick Reference Guide

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Medications	EMR	EMT	IV	AEMT	EMT-I	EMT-P
Epinephrine (1:1,000 IM only)	NA	S	S	S	S	S
Epinephrine (1:10,000 IV/IO)	NA	NA	NA	NA	VO	S
Epinephrine (1:1,000 Nebulized)	NA	NA	NA	NA	VO	S
Epinephrine (Auto Injector)	S	S	S	S	S	S
Etomidate (Amidate)	NA	NA	NA	NA	NA	NA
Fentanyl (Sublimaze)	NA	NA	NA	NA	VO	S
Glucagon - Hypoglycemia	NA	NA	NA	S	S	S
Glucagon – Calcium Channel & Beta Blocker Overdose	NA	NA	NA	VO	VO	S
Haloperidol (Haldol)	NA	NA	NA	NA	VO	S
Droperidol (Inapsine)	NA	NA	NA	NA	VO	S
Hydromorphone (Dilaudid)	NA	NA	NA	NA	NA	S
Hydroxocobalamin (Cyanokit)	NA	NA	NA	NA	S	S
Ibuprofen (PO)	S	S	S	S	S	S
Isotonic IV Solutions (NS, LR, D5W)	NA	NA	S	S	S	S
Ketalar (Ketamine)	NA	NA	NA	NA	NA	S
Ketoralac (Toradol)	NA	NA	NA	NA	NA	S
Lorazepam (Ativan)	NA	NA	NA	NA	VO	S
Lidocaine (Xylocaine)	NA	NA	NA	NA	VO	S
Lidocaine 2% Solution – Anesthetic for IO Insertion	NA	NA	NA	S	S	S
Magnesium Sulfate	NA	NA	NA	NA	VO	S
Metered Dose Inhaler (MDI)	S	S	S	S	S	S
Methylprednisolone (Solu-Medrol)	NA	NA	NA	NA	VO	S
Midazolam (Versed)	NA	NA	NA	NA	VO	S
Morphine	NA	NA	NA	NA	VO	S
Narcan (IN & Autoinjector)	S	S	S	S	S	S
Narcan (IO/ IV/ IM)	NA	NA	S-IV/IO	S	S	S
Neosynephrine (Phenylephrine)	NA	S	S	S	S	S
Nitroglycerin (Nitrostat) Patient Assisted	NA	VO	VO	S	S	S
Nitroglycerin (Nitrostat) Agency Supplied	NA	NA	NA	S	S	S
Nitroglycerin - Topical Paste	NA	NA	NA	VO	VO	S
Olanzapine (Zyprexa)	NA	NA	NA	NA	NA	S
Ondansetron (Zofran) ODT	NA	S	S	S	S	S
Ondansetron (Zofran) IV/IO/IM	NA	NA	S-IV/IO	S	S	S
Oral Glucose (Instaglucose)	S	S	S	S	S	S
Oxygen	S	S	S	S	S	S
Racemic Epinephrine	NA	NA	NA	VO	VO	S
Rocuronium Bromide (Zemuron)	NA	NA	NA	NA	NA	NA
Sodium Bicarbonate	NA	NA	NA	NA	VO	S
Succinylcholine (Anectine)	NA	NA	NA	NA	NA	NA
Topical Ophthalmic Anesthetic	NA	NA	NA	NA	VO	S
Tranexamic Acid (TXA) Epistaxis	NA	S	S	S	S	S
Tranexamic Acid (TXA) Hemorrhage	NA	NA	NA	NA	NA	S
Vaccines	NA	NA	NA	NA	NA	S
Vecuronium (Norcuron)	NA	NA	NA	NA	NA	NA

6 CCR 1015-3 CHAPTER TWO - RULES PERTAINING TO EMS PRACTICE AND MEDICAL DIRECTOR OVERSIGHT.

EMR	EMT	EMT-IV	AEMT	Intermediate	Paramedic	Waivered

Pikes Peak Regional Health Specific Destination Guidelines

Patients meeting any of the following criteria shall not be transported to Pikes Peak Regional Hospital, unless needed for stabilization at the discretion of the prehospital providers:

1) Cardiorespiratory arrest patients with return of spontaneous circulation
   a) Pulseless patients should be taken to Pikes Peak Regional, if even transported
   b) Hemodynamically abnormal or difficulty airway patients may be taken to Pikes Peak Regional for stabilization if the prehospital crew is concerned about management during transport
2) Surgical patients with any of the following:
   a) Acute hypoxia with field-initiated oxygen ≥ 4lpm
   b) Hemophiliacs or other bleeding disorders (does not include cirrhosis or patients on anti-coagulants)
   c) Less than 15 years of age
3) Combative or significantly altered psychiatric or alcohol clients
4) 12-lead EKG confirmed STEMI*or confirmed elevated troponin
5) Patients meeting trauma guidelines for transport to other destinations
6) Suspected aortic dissection or aneurysm
7) Patient intubated or on a ventilator
8) Orthopedic injury with vascular compromise after attempted field reduction
9) GI bleed with any of the following:
   a) Active hemorrhaging
   b) Anticoagulation (not including Aspirin, Plavix, Brillinta, other anti-platelets)
10) Ischemic extremities
11) Impending respiratory failure
12) Moderate to severe hypothermia (will accept isolated frozen extremity for tPA administration prior to transfer to burn center)
13) Complications of pregnancy ≥ 20 weeks gestation
14) Pediatric patients with any of the following**:
   a) Neonates up to 2 months post-gestation age
   b) Depressed or deteriorating neurologic status
   c) Persistent respiratory distress or failure
   d) Requiring endotracheal intubation and/or ventilatory support
   e) Suspected abuse (should be transported to Children's Hospital Colorado Springs)
   f) Shock, uncompensated or compensated
   g) Potential need for invasive monitoring (arterial and/or central venous pressure)
   h) Potential need for intercranial pressure monitoring
   i) Potential need for vasoactive medication

*If, due to weather or other circumstances, a STEMI patient is expected to have transport time or longer than 60 minutes to a non-PCI facility, transport to the closest Emergency Department (Pikes Peak Regional or St. Thomas More) shall occur for consideration of administration of IV thrombolytics

**Pediatric or neonatal patients requiring potential PICU or NICU care should be transferred to Children's Hospital Colorado Springs. Neonatal patients up to two months of age requiring potential NICU admission should be transferred to either Memorial Central, Children's Hospital Colorado Springs or St. Francis

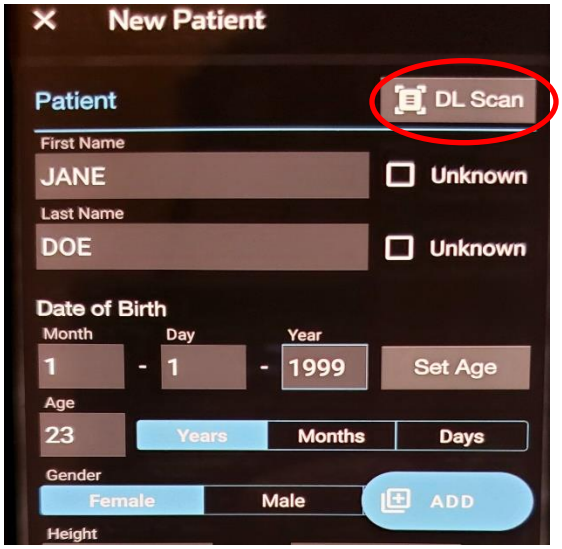
***BLS ambulances may transport any patient to Pikes Peak Regional Hospital even if any of the above criteria are met

PULSARA TIP SHEET

Version: v24.7098

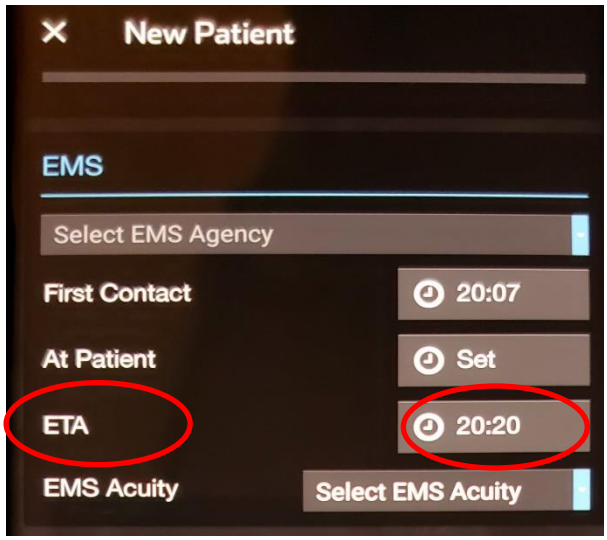
DL (Drivers License) Scan

Scanning the drivers license can auto populate your patient information for you. Scan back side lengthwise.



ETA

This is a mandatory field. It will need to be adjusted to your estimated ETA, not what the system generates.

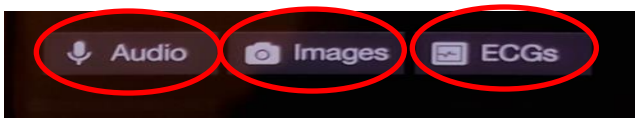


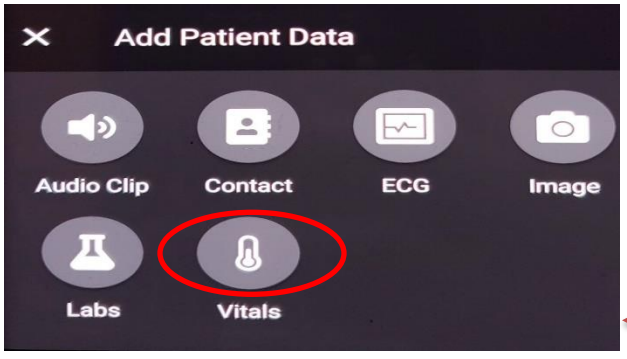
Vital Signs

Click the blue circle with + on it at the bottom of the page. It is best practice to get worst set of vitals and most recent.

Audio/Images/ECGs

You have the option to add audio, which in times where you don't have time to fill out everything or need to clarify information can be quite handy. Images can be MVC, injuries, or anything you think would help with patient continuity of care. 1 ECG is great, more than 1 is even better for trends.

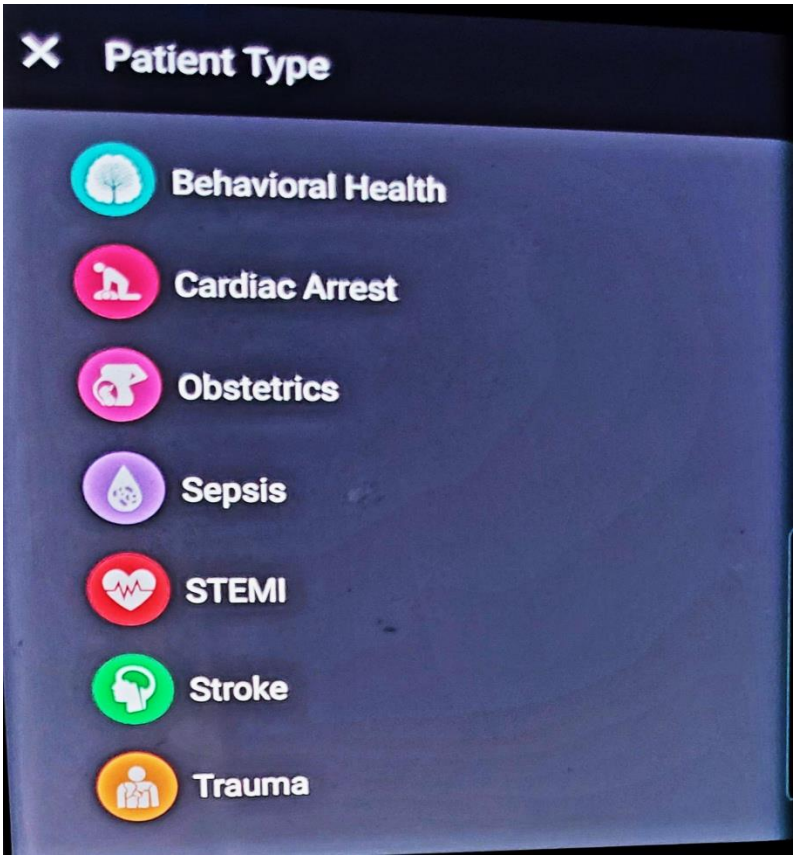




PULSARA TIP SHEET

Patient Type Selection:

This gives you more options for how to categorize your patient. Making
It better for continuity of care and communication with the receiving hospital.



Hakkarinen Specific

Purpose:

a. This section is made for Dr. Hakkarinen's specific guidelines Only.
b. Only agencies who have been approved and signed off can follow these guidelines.
c. Do not perform these skills/medications if you have not been approved through your agency.
d. Note: all medications that can be run on a pump are allowed for City of Fountain Fire Department.

MEDICATION ASSISTED AIRWAY MANAGEMENT (MAAM)

Description

a. **ONLY** paramedics that have successfully completed an approved training program sponsored by the agency for which the provider intends to utilize MAAM are authorized users of this guideline
   - MAAM can be time consuming and is **NEVER** an emergent airway. It is a complex airway management technique that requires substantial organization and understanding on the part of the paramedic

b. MAAM certified paramedics **MUST** maintain proficiency
   - The agency for which the paramedic provides MAAM services **MUST** possess a valid procedure waiver from the Colorado Department of Public Health and Environment (CDPHE) and the Emergency Medical Practice Advisory Council (EMPAC)

c. All medications in this guideline will be given by standing order
   - Medications or dosages may **NOT** be changed in any way, including by on-line medical control
   - **ONLY** RSI waivered paramedics are **ALLOWED** to administer MAAM specific medications

Indications (general)

a. Age of the patient **≥13 YEARS OLD**
b. MAAM candidates include, but not limited to;
   - Combative closed head injury patients, with or without trismus; or suspected subarachnoid hemorrhage, intracranial masses, or ischemic strokes resulting in significant impairment of mental status with resultant combativeness and/or trismus
   - Glasgow Coma Scale ≤ 8
   - Status seizures
   - Severe respiratory failure and or impairment with an intact gag reflex or imminent respiratory arrest

Selection Criteria

a. Principles of good selection will result in avoidance of almost all of the common difficulties in failing to secure a tracheal intubation
b. There are three (3) basic rules regarding patient selection that **MUST** be reviewed every time a MAAM procedure is considered. These rules incorporate and summarize the general concepts of selection criteria outlined in detail in the MAAM course and are formatted as questions
   - **Can I get a good facial seal with the Bag-Valve-Mask?**
   - **Is the airway patent?**
   - **Do I think I can place an advanced airway in this patient?**

Contraindications

a. Any absolute contraindication to the induction agent or paralytic
b. Patients who **DO NOT** meet the selection criteria for intubation as discussed above
c. Patients who **DO NOT** possess a gag reflex, rendering MAAM medications unnecessary
d. Age of the patient **<13 YEARS OLD**

Complications

a. Cardiac dysrhythmias related to the use of succinylcholine
b. Malignant Hyperthermia or the suspected presence of pseudocholinesterase deficiency
c. Failure to Intubate
d. Unrecognized esophageal intubation
e. Vomiting and aspiration
f. Hypotension
g. Excessive gagging on back-up airway when used in failed intubations

MEDICATION ASSISTED AIRWAY MANAGEMENT (MAAM)

1. Can I get a good facial seal with the Bag-Valve-Mask?
2. Is the airway patent?
3. Do I think I can intubate this patient?
4. Are there valid indications?
5. Is the patient > 13 years old

YES

NO

Attach all monitoring devices ($EtCO_2$/ EKG/SpO_2/ NiBP)
Preoxygenate 3 to 5 minutes
Discuss airway back up plan

Monitor $EtCO_2$/SpO_2 and manage the airway utilizing the *AIRWAY MANAGEMENT GUIDELINE)* as best as possible

Establish Vascular Access
- Normotensive: Administer 250-500 mL NS IV/IO
- Hypoperfusion: Follow *FLUID THERAPY GUIDELINE*

If inadequate perfusion initiate *EPINEPHRINE INFUSION*

Equipment set up
- Video Laryngoscopy (Preferred) or blade/handle
- Bougie/stylet
- Suction
- Supraglottic Airway (backup)
- ET Tube with 10 mL syringe
- Securing device
- Cricothyrotomy kit

Waivered ONLY

STEP 1: Induce
- *KETAMINE*: 200 mg IV/IO
  or
- *MIDAZOLAM*: 5 mg IV/IO
  or
- *ETOMIDATE*: 20 mg IV/IO; NO REPEAT DOSE

STEP 2: Paralyze
- *ROCURONIUM*: 100 mg IV/IO
  or
- *SUCCINYCHOLINE*: 200 mg IV/IO

STEP 3: Insert Advanced Airway:
- See AIRWAY MANAGEMENT GUIDELINE
- Ensure a NC is placed at high flow during attempts

STEP 4: Confirm advanced airway placement (4)
- Positive waveform capnography (print)
- Bi-lateral breath sounds
- Negative epigastric sounds
- One additional method

STEP 5: Secure advanced airway
- Place OG Tube (if allowed AND time allows)

STEP 6: Sedation: PRN every 10 minutes
- *KETAMINE*: 100 mg IV/IO
  OR
- *MIDAZOLAM*: Up to 5 mg IV/IO
  AND/or
- *FENTANYL*: 50-100 mcg IV/IO
  AND/or
- *ATIVAN*: 2 mg IV/IO

Maintain Paralysis:
- *VECURONIUM:* 10 mg/kg IV/IO

Special Considerations
- When applicable, discuss procedure with patient and/or family members.
- Remember to check if there is a valid DNR in place
- Succinylcholine and etomidate are only to be given one time in the MAAM sequence. There is no re-dosing of either drug allowed
- It is anticipated that virtually no MAAM patients will ever require surgical cricothyrotomy as an emergent alternate airway. It should ONLY be utilized if the patient continues to deteriorate due to an inadequate airway
- *VECURONIUM* can be administered at 10 mg IV/IO to maintain paralysis for long distance transports
- Documentation is critical, make sure to describe a detail account of the event
- Procedure must be followed by sedation
- Watch for post procedure hypoperfusion and be ready for resuscitation

Etomidate

WAIVERED - FOUNTAIN FIRE ONLY		
Provider Level	**1st Dose**	**Repeat Dose**
EMT	**NO**	**NO**
EMT-IV	**NO**	**NO**
AEMT	**NO**	**NO**
Intermediate-99	**NO**	**NO**
Paramedic	**SO**	**NO**

Description

a. A hypnotic drug

Onset & Duration

a. Onset: 30 to 60 seconds
b. Duration: 3 to 5 minutes

Indications

a. Induction for MAAM (MAAM Paramedic ONLY)
b. Hypnotic agent used in conjunction with a paralytic to facilitate adult (≥13 years of age) MAAM
c. A sedative/hypnotic agent used in the case of patient's requiring urgent electrical cardioversion

Contraindications

a. Known hypersensitivity

Adverse Reactions

a. Transient myoclonic skeletal muscle movements noted in approximately 30% of patient
b. Transient pain at site of injection has been reported
c. Nausea/Vomiting when drug wears off

Dosage & Administration

a. **Adult:** 30 mg/kg IV/IO, **NOT** repeated
b. **Pediatric:** 0.3 mg/kg IV/IO, **NOT** repeated

Special Considerations

a. Administration over 1 minute or more can reduce likelihood of myoclonic reaction or chest wall rigidity
b. May cause hemodynamic changes or respiratory drive changes associated with its administration

Ketamine (MAAM)

WAIVERED - FOUNTAIN FIRE ONLY		
Provider Level	**1ST Dose**	**Repeat Dose**
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate-99	NO	NO
Paramedic	NO	NO
MAAM Paramedic	SO	SO

Description

a. An anesthetic agent with potent analgesic properties and the ability to produce a cataleptic state often referred to as "dissociative analgesia"

Onset & Duration

a. Onset: 30 seconds IV; 3 to 4 minutes IM
b. Duration: 10 to 15 minutes IV; 15 to 30 minutes IM

Indications

a. Induction agent during Medication Assisted Airway Management (MAAM paramedics **ONLY**)
b. Post MAAM sedation (MAAM paramedics **ONLY**)

Contraindications

a. Age < 13 years old in MAAM
b. Known hypersensitivity

Adverse Reactions

a. Involuntary and tonic-clonic like movements (rare)
d. Extreme salivation

Dosage & Administration

a. **Adult > 13**:
   - MAAM Induction
     i. 200 mg IV/IO
   - Post MAAM Sedation
     i. 100 mg IV/IO
     ii. Repeat as needed every 10 minutes

b. **Pediatric < 13:**
   - **NOT ALLOWED**

Special Considerations

a. If extreme salivation after administration, consider administration of ***ATROPINE***
b. Watch for infiltration at the site of the IV or IO

Ketamine (Ketalar)
Pain Management

Waivered Medication		
Provider Level	**1ST Dose**	**Repeat Doses**
EMR	**NO**	**NO**
EMT	**NO**	**NO**
EMT-IV	**NO**	**NO**
AEMT	**NO**	**NO**
Intermediate	**NO**	**NO**
Paramedic	**SO**	**SO x 3 doses**

Description

a. An anesthetic agent with potent analgesic properties and the ability to produce a cataleptic state often referred to as "dissociative analgesia."

Onset & Duration

1) Onset: 30 seconds IV/IO; 3 to 4 minutes IM/IN
2) Duration: 10 to 15 minutes IV/IO; 15 to 30 minutes IM/IN

Indications

1) Analgesia for severe pain

Contraindications

1) Known hypersensitivity
2) <7 years old

Adverse Reactions

1) Involuntary and tonic-clonic like movements (rare)
2) Extreme salivation

Dosage & Administration

1) **ADULT and PEDIATRIC >7 yo:**
   a) **30 mg IV/IO**
      i. Repeat as needed every 10-15 minutes up to 3 **TOTAL** doses
      ii. If time allows, add to a 50 mL NS or D_5W bag, administered over 5 to 10 minutes and titrate to effect to reduce emergence delirium
   b) **50 mg IN/IM**
      iii. Repeat as needed every 15-30 minutes up to 3 **TOTAL** doses
   c) **Contact Medical Control** for additional doses.

Special Considerations

1) If extreme salivation after administration, consider administration of ATROPINE
2) Consider anti emetic prior to administration, see NAUSEA/VOMITING GUIDELINE

Nitroglycerin Infusion

WAIVERED - FOUNTAIN FIRE ONLY		
Route	INFUSION DRIP Interfacility Transport ONLY	
Provider Level	1st Dose	Repeat Doses
EMR	NO	NO
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate	NO	NO
Paramedic	SO	SO

Description

a. Short-acting peripheral vasodilator decreasing cardiac preload and afterload

Onset & Duration

1. Onset: 1 to 3 minutes
2. Duration: 20 to 30 minutes, variable with paste (up to 12 hours)

Indications

1) Hypertension control in congestive heart failure associated with pulmonary edema
2) Chest pain of suspected cardiac origin, including symptomatic acute myocardial infarction

Contraindications

1. Hypotension systolic blood pressure < 100
2. Contraindicated in right ventricular STEMI
3. Recent use of erectile dysfunction (ED) medication within 24 hours of Viagra and or 48 hours with Cialis/Levitra

Adverse Reactions

1. Can cause profound hypotension and reflex tachycardia, especially in patients with inferior and/or right ventricular wall myocardial infarctions.
2. Syncope
3. Headache

Dosage & Administration

1. Relief of chest pain in the suspected ACS patient
   a. **ADULT:** Initial infusion rate 50 mcg/min. May increase by 10 mcg/min every 3 to 5 minutes until relief of pain or hypotensive MAX dose of 400 mcg/min.
      a. **May be administered via mechanical infusion pump ONLY**
   b. **PEDIATRIC: NOT** Allowed

Special Considerations

2. Therapeutic effect is enhanced, but adverse effects are increased, when patient is upright
3. NTG may be effective in relieving chest pain caused by food impaction
4. NTG may be effective, even in patients using their own paste, discs, or
5. Oral long-acting nitrate preparations
6. Ideally, IV access, cardiac monitoring and a 12-lead should be obtained prior to administration

Rocuronium

WAIVERED - FOUNTAIN FIRE ONLY		
Provider Level	**1ST Dose**	**Repeat Dose**
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate-99	NO	NO
Paramedic	NO	NO
MAAM Paramedic	SO	SO

Description

a. It is a short-to-intermediate acting skeletal muscle relaxant. It initiates flaccid paralysis by blocking receptors of the motor end plate, rather than binding to them. Effectively, this action blocks neuromuscular transmission of impulses without depolarizing the muscle

b. Due to the non-depolarizing nature of this drug, it has less adverse effects in relation to hyperkalemia and is also remarkably free of the traditional histaminic side effects that characterize most other non- depolarizing skeletal muscle relaxants

Onset & Duration

a. Onset: Flaccid paralysis within 2 minutes

b. Duration: Typically 20 minutes but up to 80 minutes

Indications

a. First line paralytic agent for MAAM

b. Maintain paralysis of an intubation patient

Contraindications

a. Known hypersensitivity

Adverse Reactions

a. Patients with severe renal failure and/or hepatic failure may experience prolonged paralysis when given standard doses of the medication

b. There are few, if any, cardiovascular side effects with the administration of rocuronium

Dosage & Administration

a. **Adult:** 100 mg IV/IO

- Repeat as needed every 20 minutes (maintenance) up to **2 TOTAL** doses

b. **Pediatric:** **NOT ALLOWED**

Special Considerations

a. If administering for post MAAM maintenance, assure correctly placed endotracheal tube before this medication is administered

b. It is important to remember that rocuronium has no ability to sedate or relieve pain, **SEDATION SHOULD BE ADMINISTERED**

Succinylcholine

WAIVERED - FOUNTAIN FIRE ONLY		
Provider Level	**1ST Dose**	**Repeat Dose**
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate-99	NO	NO
Paramedic	NO	NO
MAAM Paramedic	SO	NO

Description

a. It is an ultra short-acting depolarizing-type, skeletal muscle relaxant for intravenous (IV) administration

Onset & Duration

a. Onset: Flaccid paralysis within 1 minute
b. Duration: 6 to 10 minutes

Indications

a. Paralytic agent for MAAM (when Rocuronium is **NOT** available)

Contraindications

a. Patients with personal or familial history of malignant hyperthermia and/or skeletal muscle myopathies (multiple sclerosis)
b. Hypersensitivity

Adverse Reactions

a. Cardiac arrest, malignant hyperthermia, arrhythmias, hypertension, and hyperkalemia
b. Muscle fasciculation, jaw rigidity, rhabdomyolysis, and excessive salivation

Dosage & Administration

a. **Adult:** 200 mg IV/IO
    - **NOT** repeated
b. **Pediatric:** **NOT ALLOWED**

Special Considerations

a. Succinylcholine **SHOULD** be administered with **GREAT CAUTION** to patients suffering from electrolyte abnormalities and/or those who may have massive digitalis toxicity,
    - In these circumstances it may induce serious cardiac arrhythmias or cardiac arrest due to hyperkalemia
b. It is important to remember that succinylcholine has no ability to sedate or relieve pain, **SEDATION SHOULD BE ADMINISTERED**

Vecuronium

WAIVERED - FOUNTAIN FIRE ONLY		
Provider Level	**1ST Dose**	**Repeat Dose**
EMT	NO	NO
EMT-IV	NO	NO
AEMT	NO	NO
Intermediate-99	NO	NO
Paramedic	NO	NO
MAAM Paramedic	SO	NO

Description

a. It is a short-to-intermediate acting skeletal muscle relaxant. It initiates flaccid paralysis by blocking receptors of the motor end plate, rather than binding to them. Effectively, this action blocks neuromuscular transmission of impulses without depolarizing the muscle

b. Due to the non-depolarizing nature of this drug, it has less adverse effects in relation to hyperkalemia and is also remarkably free of the traditional histaminic side effects that characterize most other non- depolarizing skeletal muscle relaxants

Onset & Duration

a. Onset: Flaccid paralysis within 2 to 3 minutes

b. Duration: Up to 60 minutes

Indications

a. Maintain paralysis in the intubated patient

Contraindications

a. Known hypersensitivity

Adverse Reactions

a. Patients with severe renal failure and/or hepatic failure may experience prolonged paralysis when given standard doses of the medication

b. There are few, if any, cardiovascular side effects with the administration of vecuronium

Dosage & Administration

a. **Adult:** 10 mg bolus IV/IO
   - **NOT** repeated

b. **Pediatric: NOT ALLOWED**

Special Considerations

a. If administering for post MAAM maintenance, assure correctly placed endotracheal tube before this medication is administered

b. It is important to remember that vecuronium has no ability to sedate or relieve pain, **SEDATION SHOULD BE ADMINISTERED**