

DENVER HEALTH

PARAMEDIC

DIVISION

PROTOCOLS

November 17, 2026

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The Denver Health Paramedic Division (DHPD) protocols largely reflect the Denver Metro EMS protocols, which DHPD participates in creating. DHPD would like to acknowledge the other physicians and agency representatives that contribute to the process of creating the Denver Metro EMS protocols. These protocols will continually undergo editing and revision, reflective of emergency medical services within the medical care community.

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DHPD Protocol Change Log

- November 2026

0010 GENERAL GUIDELINES: INTRODUCTION

INTRODUCTION

The following protocols have been developed and approved by the Denver Health Paramedic Division (DHPD) Medical Directors. These protocols are consensus based incorporating current industry best practices and available evidence to the extent possible.

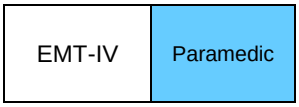
No protocol can account for every clinical scenario encountered, and the DHPD Medical Directors recognize that in rare circumstances deviation from these protocols may be necessary and in a patient's best interest. Variance from protocol should always be done with the patient's best interest in mind and backed by documented clinical reasoning and judgment. Whenever possible, prior approval by direct verbal order from base station physician is preferred. Additionally, all variance from protocol should be documented and submitted for review by the agency's Medical Director in a timely fashion.

The protocols are presented in an algorithm format. An algorithm is intended to reflect real-life decision points visually. An algorithm has certain limitations, and not every clinical scenario can be represented. Although the algorithm implies a specific sequence of actions, it may often be necessary to provide care out of sequence from that described in the algorithm if dictated by clinical needs. An algorithm provides decision-making support but need not be rigidly adhered to and is no substitute for sound clinical judgment.

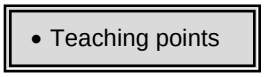
In order to keep protocols as uncluttered as possible, and to limit inconsistencies, individual drug dosing has not been included in the algorithms. It is expected the EMS medical providers will be familiar with standard drug doses. Drug dosages are included with the medications section of the protocols as a reference.

If viewing protocol in an electronic version, it will be possible to link directly to a referenced protocol by clicking on the hyperlink, which is underlined.

PROTOCOL KEY



Boxes without any color fill describe actions applicable to all certification levels. Boxes with blue fill are for Paramedic level. When applicable, actions requiring **Base Contact** are identified in the protocol.



Teaching points deemed sufficiently important to be included in the protocol are separated into grey-filled boxes with a double line border.

TRAINING AND EDUCATION

These protocols define the treatments, procedures, and policies approved by the DHPD Medical Directors. In Colorado, the scope of practice and acts allowed for EMT, EMT-IV, AEMT, EMT-I and Paramedic certifications are defined by the Colorado Department of Public Health and Environment, Chapter Two - Rules Pertaining to EMS Practice and Medical Director Oversight. These protocols do not supersede Chapter Two allowances, but in some instances may vary from Chapter Two depending on medical directors' preference.

The curriculum for initial EMS provider training may not cover some of the treatments, procedures and medications included in these protocols. Therefore, it is the responsibility of the EMS agency and Medical Director to ensure the initial training, verification, and maintenance of these skills falling outside traditional EMS education with all agency providers. This may be of additional importance when training and orienting newly hired providers prior to independent practice.

0015 GENERAL GUIDELINES: AGE DEFINITIONS

INTRODUCTION

For the purposes of these clinical care protocols, the following age guidelines will be used. These are general guidelines, however individual protocols, including medication dosages, may deviate from these age ranges.

ADULT

Adult patients are considered 12 years of age or older.

GERIATRICS

Geriatric patients will be considered 65 years of age or older. Geriatric specific indications will be indicated by a green box.

Geriatric Protocol

PEDIATRICS

Pediatric specific indications will be noted by a purple box. Pediatric age can be defined in the following categories:

Pediatric Protocol

Age Category	Age Range
Pediatric	<12 years
Neonate	<1 month
Newly born	<48 hours

CONFIDENTIALITY

A. The patient-physician relationship, the patient-registered nurse relationship, and the patient-EMT relationship are recognized as privileged. This means that the physician, nurse, or EMT may not testify as to confidential communications unless:

   1. The patient consents
   2. The disclosure is allowable by law (such as Medical Board or Nursing Board proceedings, or criminal or civil litigation in which the patient's medical condition is in issue)

B. The prehospital provider must keep the patient's medical information confidential. The patient likely has an expectation of privacy and trusts that personal, medical information will not be disclosed by medical personnel to any person not directly involved in the patient's medical treatment.

   1. Exceptions:

      i. The patient is not entitled to confidentiality of information that does not pertain to the medical treatment, medical condition, or is unnecessary for diagnosis or treatment.

      ii. The patient is not entitled to confidentiality for disclosures made publicly.

      iii. The patient is not entitled to confidentiality with regard to evidence of a crime.

C. Additional Considerations:

   1. Any disclosure of medical information should not be made unless necessary for the treatment, evaluation, or diagnosis of the patient.
   2. Any disclosures made by any person, medical personnel, the patient, or law enforcement should be treated as limited disclosures and not authorizing further disclosures to any other person.
   3. Any discussions of prehospital care by and between the receiving hospital, the crewmembers in attendance, or at in-services or audits which are done strictly for educational or performance improvement purposes, will fall under the “Carol J. Shanaberger Act” Colorado Revised Statutes §25-3.5-901 et seq., provided that all appropriate criteria have been met for the agencies peer protection program. Further disclosures are not authorized.
   4. Radio communications should not include disclosure of patient names.
   5. This procedure does not preclude or supersede your agency’s HIPAA policy and procedures.
   6. Any communication from the prehospital setting to the receiving hospital or other facility or care provider should be kept in compliance with HIPAA including all smart technology, SMS messaging, wireless communication or otherwise. No personal identifier information should be transmitted over non-HIPAA compliant secure means.

0030 General Guidelines: Consent

Contact Base if there are any questions or concerns about decision-making capacity

General Principles

- An adult in the State of Colorado is 18 years of age or older.
- Every adult is presumed capable of making medical treatment decisions. This includes the right to make "bad" decisions that the prehospital provider believes are not in the best interests of the patient.
- A call to 9-1-1 itself does not prevent a patient from refusing treatment. A patient may refuse medical treatment (IVs, oxygen, medications), but you should try to inform the patient of the need for therapies, offer again, and treat to the extent possible.
- The odor of alcohol on a patient's breath does not, by itself, prevent a patient from refusing treatment.
- A person is welcome to reengage the EMS system at any time after initially refusing care.

Special Situations

In rare circumstances a person other than the patient may authorize consent. This may include:

- Court order (Guardianship)
- Medical durable power of attorney of the patient may authorize treatment and transport decisions when the patient lacks medical decision-making capacity
- Law enforcement officer may authorize transport of people in custody or detention to be evaluated but cannot dictate treatment decisions.

Conscious adult or qualifying minor?

No → Patient does not have decision-making capacity, treat under implied consent

Yes ↓

Reasonable concern the person is experiencing a behavioral health crisis or are gravely disabled, and, without professional intervention may be a danger to themselves or others

Yes → Is a mental health hold in place?

No → Patient does not have decision-making capacity, treat under implied consent

Yes ↓ Transport under mental health hold

No ↓

Determine presence of decision-making capacity

C: Choose / Communicate

Can the patient communicate a choice?

U: Understand

Does the patient understand the risks/ benefits/ alternatives/ consequences of the decision?

R: Reason

Is the patient able to reason and provide logical explanation for the decision?

V: Values

Is the decision in accordance with the patient's values system?

No to Any → Patient does not have decision-making capacity, treat under implied consent

Yes to All ↓

Decision-making capacity intact

Values

- Attempt to assess if the patient's decision is in line with how they have approached the other questions they have been asked during assessment
- If possible, obtain collateral information from friends or family to determine if the patient's decision is in line with other decisions or conversations
- An example question to assess values: "How did you reach your decision to accept (or reject) care?"

Scene Safety Management

- EMS may withdraw or disengage from a person, regardless of mental health hold status, for the following reasons:
  - Scene is unsafe or patient poses perceived safety risks to EMS
  - Law enforcement is unable to provide scene safety
  - Law enforcement cannot or will not gain access to the patient
- Document reasonable attempts to communicate with the person and deescalate the situation.

0030 General Guidelines: Consent

General Principles: Qualifying Minors

A. A parent, including a parent who is a minor, may consent to medical or emergency treatment of his/her child. There are exceptions:
    1. Neither the child nor the parent may refuse medical treatment on religious grounds if the child is in imminent danger as a result of not receiving medical treatment, or when the child is in a life-threatening situation, or when the condition will result in serious handicap or disability.
    2. Minors may seek treatment for medical care related to the intended live birth of a child; contraception; abortion; prevention, diagnosis, and treatment for sexually transmitted infections/HIV; evaluation and/or treatment after sexual assault; and treatment for addiction to or use of drugs, emergency treatment for intoxication, and treatment for alcoholism without consent of parents.
    3. Minors 15 years or older may seek treatment for mental health without parents' consent.
    4. The consent of a parent is not necessary to authorize hospital or emergency health care when a first responder in good faith relies on a minor's consent, if the minor is at least 15 years or older, and
        a. Is living separate and apart from his or her parents, and managing his or her own financial affairs; or
        b. They have contracted a lawful marriage

B. When in doubt, your actions should be guided by what is in the minor's best interests and **BASE CONTACT**.

Procedure: Minors

A. A parent or legal guardian may provide consent to or refuse treatment in a non- life-threatening situation.
B. When the parent is not present to consent or refuse:
    1. If a minor has an injury or illness, but not a life-threatening medical emergency, you should attempt to contact the parent(s) or legal guardian. If this cannot be done promptly, transport.
    2. If the child does not need transport, they can be left at the scene in the custody of a responsible adult (e.g., teacher, social worker, grandparent). It should only be in very rare circumstances that a child of any age is left at the scene if the parent is not also present.
    3. If the minor has a life-threatening injury or illness, transport and treat per protocols. If the parent objects to treatment, **CONTACT BASE** immediately and treat to the extent allowable, notify law enforcement to respond and assist.

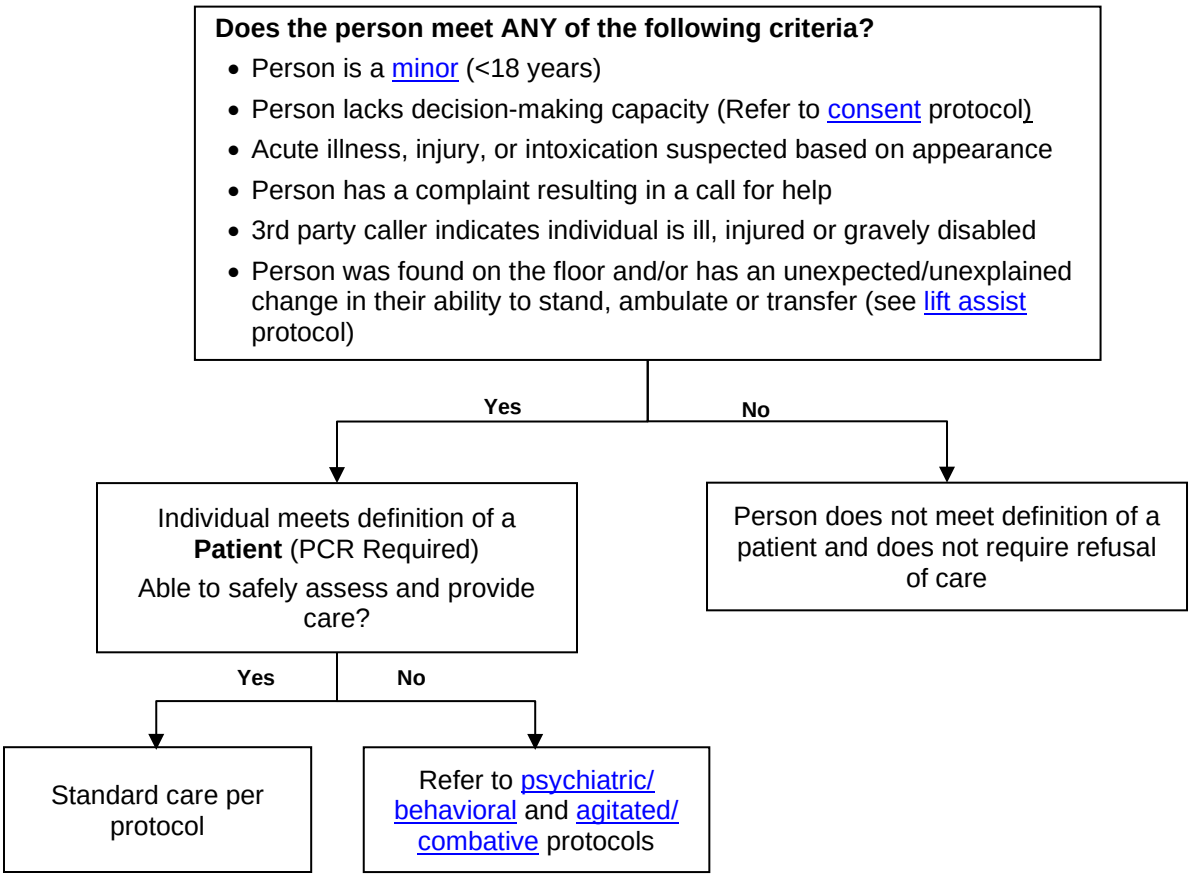
0031 GENERAL GUIDELINES: PATIENT DETERMINATION: "*PATIENT OR NO PATIENT*"

General Guidelines

This protocol is intended to refer to individual patient contacts. In the event of a multiple party incident, such as a multi-vehicle collision, it is expected that a reasonable effort will be made to identify those parties with acute illness or injuries. Adult patients indicating that they do not wish assistance for themselves or dependent minors in such a multiple party incident do not necessarily require documentation as patients.

All patients should receive a full assessment and full set of vital signs, to include heart rate, blood pressure, respiratory rate, and SpO_2, whenever possible. Inability to complete a full assessment or full set of vital signs must be clearly documented.

No protocol can anticipate every scenario and providers must use best judgment. When in doubt as to whether individual is a "patient", err on the side of caution and perform a full assessment and documentation.



Duty to Respond

- Providers must act within the limits of their legal authority.
- The duty to act begins at patient contact within the scope of an EMS professional's ability to access and assess the individual.
- Forced entry to assess a potentially hostile person is not in the EMS providers scope and any entry should be done by law enforcement.
- Providers should prioritize scene safety; if the situation escalates, providers should disengage and request law enforcement support.
- If an individual with no apparent complaints refuses evaluation and departs the scene, do not attempt to physically restrain or detain them.
- Refer to psychiatric/behavioral health protocol for guidance on transport holds.
- Complete thorough documentation of the encounter, including the circumstances of the contact, the individual's actions, and the final disposition.

0032 GENERAL GUIDELINES: PATIENT NON-TRANSPORT OR REFUSAL

EMS encounter with a person who meets patient criteria

Is patient a candidate for an alternative disposition than transport to emergency department?

- For intoxicated patients refer to drug/alcohol intoxication protocol
- Follow agency specific protocols if applicable

If patient has decision-making capacity and is refusing transport determine if standing order refusal

A person who has decision-making-capacity may refuse examination, treatment, and/or transport

Refer to consent for complete decision-making-capacity guidelines

If in doubt about patient decision-making-capacity, **Contact Base** for physician consult

Standing Order Refusal

No base contact required if ALL criteria met:

- 18 and older, or 5 and older if parent/guardian on scene
- Patient has decision-making-capacity
- Unable to safely assess and provide care; patient has eloped from the scene

Base Contact Required

- < 5 years old
- < 18 years old unless parent/guardian on scene
- If uncertain about patient's decision-making capacity
- Unable to safely assess and provide care; patient remains in proximity to EMS

High Risk Patients

Base Contact is strongly recommended whenever you have assessed the patient and, in the clinical judgement of the EMS provider, the patient is at high risk of deterioration without medical intervention.

BLS Providers

BASE CONTACT is required for all refusals when a DHPD ALS provider is not on scene.

Documentation Requirements for Refusal

- Any minor with any complaint/injury is a patient and requires a PCR
- Confirm decision-making capacity
- EMS assistance offered and declined
- Risks of refusal explained to patient
- Patient understands risks of refusal
- Patient reminded they may reengage the EMS system at any time after initially refusing care.
- Name of **Base Contact** physician authorizing refusal of care unless standing order refusal
- Signed refusal of care against medical advice document, if possible

0040 GENERAL GUIDELINES: PHYSICIAN AT THE SCENE/MEDICAL DIRECTION

Purpose:

A. To provide guidelines for prehospital personnel who encounter a physician at the scene of an emergency

General Principles:

A. The prehospital provider has a duty to respond to an emergency, initiate treatment, and conduct an assessment of the patient to the extent possible.
B. A physician who voluntarily offers or renders medical assistance at an emergency scene is generally considered a "Good Samaritan." However, once a physician initiates treatment, he/she may feel a physician-patient relationship has been established.
C. Good patient care should be the focus of any interaction between prehospital care providers and the physician.

Procedure:

A. See algorithm below and sample note to physician at the scene

Special Notes:

A. Every situation may be different, based on the physician, the scene, and the condition of the patient.
B. **CONTACT BASE** when any question(s) arise.

0040 GENERAL GUIDELINES: PHYSICIAN AT THE SCENE/MEDICAL DIRECTION

NOTE TO PHYSICIANS ON INVOLVEMENT WITH EMS PROVIDERS

THANK YOU FOR OFFERING YOUR ASSISTANCE.

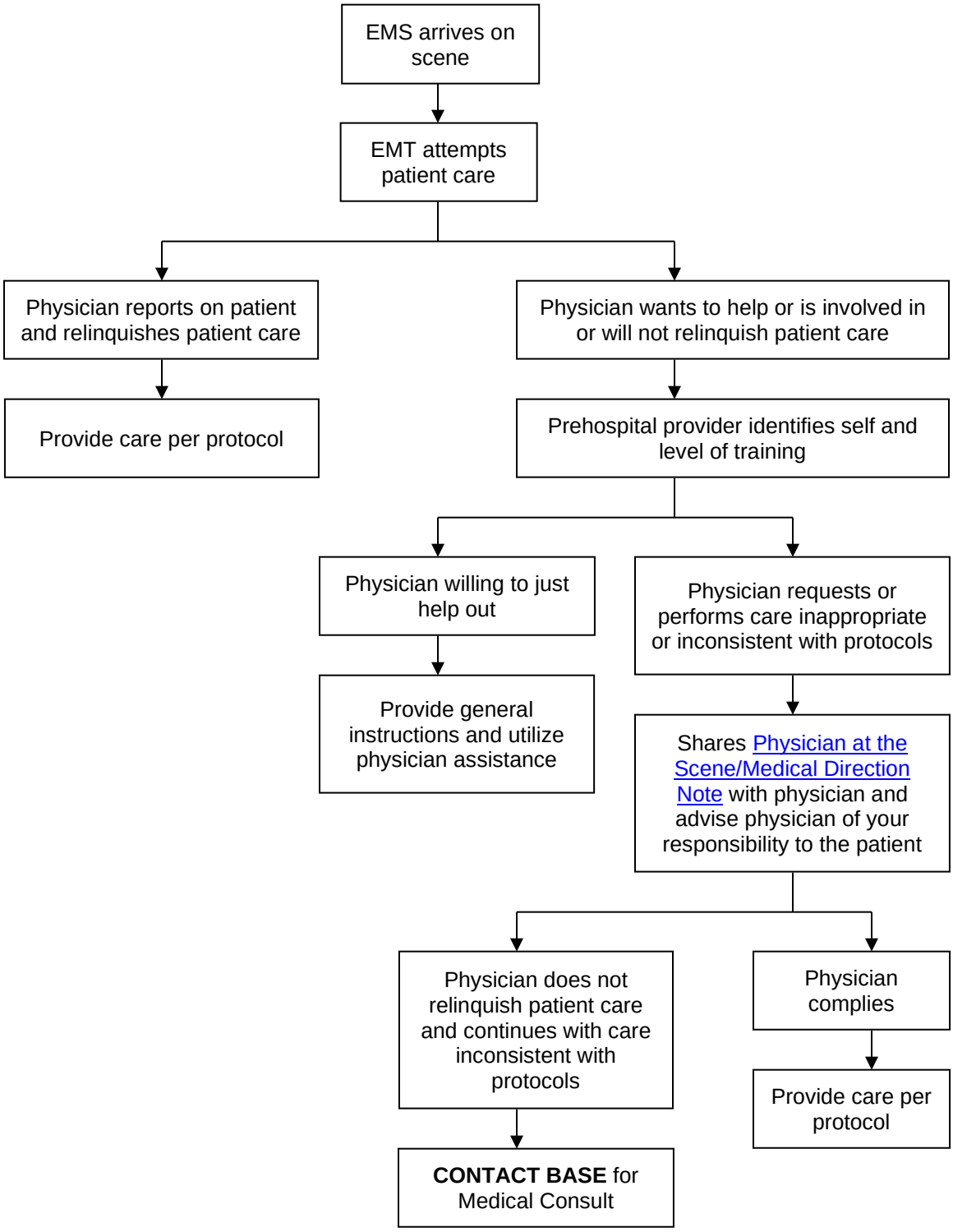
The prehospital personnel at the scene of this emergency operate under standard policies, procedures, and protocols developed by their Medical Director. The drugs carried and procedures allowed are restricted by law and written protocols.
After identifying yourself by name as a physician licensed in the State of Colorado and providing identification, you may be asked to assist in one of the following ways:

1. Offer your assistance or suggestions, but the prehospital care providers will remain under the medical control of their **base** physician, or
2. With the assistance of the prehospital care providers, talk directly to the **base physician** and offer to direct patient care and accompany the patient to the receiving hospital. Prehospital care providers are required to obtain an order directly from the **base physician** for this to occur.

THANK YOU FOR OFFERING YOUR ASSISTANCE DURING THIS EMERGENCY.

Medical Director _____ Agency _____

PHYSICIAN AT THE SCENE/MEDICAL DIRECTION ALGORITHM



0050 GENERAL GUIDELINES: FIELD PRONOUNCEMENT

EMT-IV	Paramedic

Purpose:

A. To provide guidelines for resuscitation and field pronouncement of patients in pulseless arrest in the prehospital setting. EMS may transport any patient perceived to be viable, or if scene dynamics or public perception necessitates transport.

General Principles:

A. Agency policy determines base contact requirements for patients for whom resuscitation efforts are being withheld. **BASE CONTACT** is required for all pronouncements made by a BLS provider.

B. Medical Arrest:
   1. **Standing Order** for field pronouncement if pulseless and (either):
      a. No resuscitation is desired in accordance with *Advanced Medical Directives* protocol
      b. Definite Signs of Death

C. Traumatic Arrest:
   1. **Standing Order** for field pronouncement if (both):
      a. No Signs of Life
      b. Non-survivable Injuries
   2. **Contact Base** for field pronouncement if (either):
      a. Blunt Trauma Arrest with no Signs of Life witnessed by DHPD EMS provider on scene
      b. Penetrating Trauma Arrest with no Signs of Life *and* time of arrest suspected to be >10 minutes
   3. Exceptions to the above recommendations to consider field pronouncement include arrests with the following mechanisms/scenarios
      a. Hypothermic arrest
      b. Drowning w/ hypothermia and submersion < 60 min
      c. Lightning strike and electrocution
      d. Pregnant patient with estimated gestational age ≥20 weeks

D. Nonviable Birth:
   1. If <22 weeks gestation, do not resuscitate
   2. If gestational dates unknown, examine fingers
      a. If not fused, resuscitate
      b. If fused, do not resuscitate
   3. Regardless of gestational age, if infant is born with no signs of life and has one of the following, do not resuscitate
      a. Decomposing and/or macerated, sloughing skin
      b. Anencephalic infants, missing a major part of the head and/or brain
   4. Keep mother and child together, if possible.
   5. **Contact Base**

Definite Signs of Death:

- Dependent Lividity
- Rigor Mortis (not isolated to the jaw)
- Decomposition

Non-Survivable Injuries:

- GSW to the head with exposed brain matter
- Decapitation
- Evidence of massive blunt head, chest, or abdominal trauma
- Massive burns

Signs of Life:

- Spontaneous movement
- Pupillary response
- Respiratory effort
- Pulse

0051 GENERAL GUIDELINES: TERMINATION OF RESUSCITATION FOR MEDICAL PULSELESS ARREST

Paramedic

Purpose:

A. To provide guidelines for termination of resuscitation (TOR) for patients in medical pulseless arrest in the prehospital setting.
B. These guidelines apply to adult and pediatric patients. EMS may transport any patient perceived to be viable, or if scene dynamics or public perception necessitates transport.
    a. For termination of efforts of newly born after field delivery, refer to the Neonatal Resuscitation protocol.

General Principles:

A. Patients who meet Universal TOR Criteria: Resuscitate according to Universal Pulseless Arrest Algorithm on scene (unless unsafe) until 20 minutes of care by ALS provider has been achieved.
    1. Contact base for a field pronouncement at any point after 20 minutes if no ROSC has been achieved despite adequate CPR with ventilation and no reversible causes have been identified.

B. Patients who do not meet Universal TOR Criteria: Resuscitate according to Universal Pulseless Arrest Algorithm on scene (unless unsafe) until at least 30 minutes of care by ALS provider has been achieved.
    1. Contact base for a field pronouncement at any point after 30 minutes if no ROSC has been achieved despite adequate CPR with ventilation and no reversible causes have been identified.

C. When calling for a field pronouncement:
    1. Rhythm identification for the purpose of TOR should be made from a printed rhythm strip.
    2. Determination to call for field pronouncement should involve agreement from all DHPD providers on scene and include all factors involved when feasible.

D. The following patients found pulseless and apneic warrant resuscitation efforts beyond 30 minutes and should be transported:
    1. Hypothermic arrest
    2. Drowning w/ hypothermia and submersion < 60 min
    3. Lightning strike and electrocution
    4. Pregnant patient with estimated gestational age ≥20 weeks

E. In newly born babies deemed a viable birth receiving resuscitation, if there is no heart rate and all the steps of resuscitation have been performed, cessation of resuscitation efforts may be discussed with the team and the family. A reasonable time frame for this change in goals of care is around 30 minutes after birth. **Contact Base**

F. Once the patient is pronounced, they become a potential coroner's case. From that point on the patient should not be moved and no clothing or medical devices (lines, tubes etc.) should be removed or altered pending coroner evaluation.

Universal TOR Criteria:

1. Unwitnessed arrest
2. Never had a shockable rhythm
3. Never had ROSC

Special Considerations:

1. Use actual times for all communications
2. Accurately track all interventions and rhythms using paper, Handtevy app, monitor, etc.
3. On biophone, describe rhythm morphology and rate
    a. Be more specific than "PEA"

0060 General Guidelines: Advanced Medical Directives

General Principles:

1. These guidelines apply to both adult and pediatric patients.
2. It is the intention of this guideline to protect the welfare of patients and to respect the appropriate exercise of professional judgments made in good faith by EMS personnel. **In cases where there is doubt, CONTACT BASE physician for consult.**
3. From Colorado State Statute: *Any EMS personnel who in good faith complies with a CPR directive shall not be subject to civil or criminal liability or regulatory sanction for such compliance (pursuant to CRS Section 15-18.6-104*).
4. EMS providers should try their best to determine a patient's end-of-life wishes and honor them. These wishes may not be written down or documentation may be unavailable. In cases where no documentation exists, consider if compelling reasons to withhold resuscitation exist. Example of compelling reasons to withhold resuscitation may include when written information is not available, yet the situation suggests that the resuscitation effort will be futile, inappropriate, and inhumane and the family, life partner, caregiver, or healthcare agent indicates that the patient would not wish to be resuscitated. **If a verbal DNR request is received by the prehospital provider, CONTACT BASE for guidance.**
5. Specific examples where resuscitation efforts should be withheld or stopped include:
    a. A readily available "No CPR" directive based on the patient's wishes:
        i. According to CO State Rules this could include: personally written directive, wallet card, "No CPR" bracelet, Healthcare Agent verbal request, MOST form, or other document or item of information that directs that resuscitation not be attempted. Photocopied, scanned, faxed copies are valid.
    b. The resuscitation may be stopped if after a resuscitation effort has been initiated, the EMS practitioner is provided with a Do Not Resuscitate directive *or* compelling reasons that such an effort should have been withheld.
    c. Suspected suicide does not necessarily invalidate an otherwise valid No CPR directive, DNR order, etc. **When in doubt, CONTACT BASE.**
    d. Colorado's End-of-Life Options Act (EoLOA), adopted in December 2016, permits terminally ill adults to request and receive prescribed medication for the purpose of ending their life in a peaceful manner. EMS may encounter patients participating in medical aid-in-dying programs (MAiD). **When in doubt, CONTACT BASE.**
6. "Do Not Resuscitate" does not mean "do not care." A dying patient for whom no resuscitation effort is indicated should still be provided with comfort care which may include the following:
    a. Clearing the airway (including stoma) of secretions.
    b. Provide oxygen using nasal cannula or facemask and other non-invasive measures to alleviate respiratory distress.
    c. Pain management.
    d. Transport to the hospital as needed to manage symptoms with the No CPR directive in place

Additional Considerations:

1. Document the presence of the CPR Directive on the incident report. Describe the patient's medical history, presence of an advanced directive (if any), or verbal request to withhold resuscitation.
2. Mass casualty incidents are not covered in detail by these guidelines.
3. If the situation appears to be a potential crime scene, EMS providers should disturb the scene as little as possible and communicate with law enforcement regarding any items that are moved or removed from the scene.
4. Mechanisms for disposition of bodies by means other than EMS providers and vehicles should be prospectively established in each county or locale.
5. In all cases of unattended deaths occurring outside of a medical facility, the coroner should be contacted immediately.

0070 LIFT ASSIST/MEDICAL ASSIST

EMT | Paramedic

Person meets patient criteria or was found on the floor and has an unexpected/unexplained change in their ability to stand, ambulate or transfer

Yes / No

Meets criteria for a patient (PCR required):
- Perform patient assessment
- Complete vital signs
- Assess functional mobility

Meets criteria for no patient; provide assistance and document per agency guidelines

Expanded screening – Does patient have any of the following?
- Non-mechanical reason for fall
- New medical complaint or problem
- Traumatic injury
- New neurological deficit
- Resting heart rate >90 or <60 beats per minute
- Systolic blood pressure >200 mmHg or <110 mmHg

Yes →
- If altered mental status, consider possible causes
- If trauma suspected, treat per protocol
  - Verify if patient is on blood thinners
- Consider stroke with neurological deficit
- Consider sepsis
- Consider cardiac cause
- If unsure, err on side of caution and recommend physician evaluation

No ↓

Assess functional mobility:
- Can patient sit on the edge of the chair of bed unsupported?
- Can patient stand from sitting without assistance (can use walker)?
- Gait is stable or unchanged – steady and without shuffling?
- Able to access locations unassisted (kitchen, bathroom, phone, etc.)

Yes *OR* Is Baseline for Patient →
- Patient has no identified high-risk factors. Offer transport and treat as per protocol.
- Provide assistance and document per agency guidelines
- If refusing transport, refer to refusal protocol

No ↓
- Patient has high risk factors for underlying medical/traumatic disease process that can lead to worsening condition without hospital evaluation
- If refusing transport, refer to refusal protocol
- If refusal is based on an alternate disposition of care (e.g. hospice), confirm and document.

Consider contacting adult protective services if:
- Patient cannot meet basic needs (food, hygiene, medications) and no capable help is present.
- Unsafe living conditions pose an immediate risk (e.g., filth, hoarding, utilities shut off).
- Signs of abuse, neglect (including self), or exploitation.
- Caregiver appears impaired, absent, abusive, or unwilling to provide necessary care.
- Refer to mandatory reporting policy

0090 GENERAL GUIDELINES: EMERGENCY DEPARTMENT DIVERT & CAPACITY NOTIFICATIONS (OPEN, ADVISORY, CRITICAL, ED DIVERT, CLOSED)

Purpose:

A. To provide a standard approach to EMS destination decision making that is practical for field use and maintains equity for patients, EMS, and hospitals.
B. To facilitate unobstructed access to hospital emergency departments (ED) for ambulance patients
C. To allow for optimal destination policies in keeping with general EMS principles and Colorado State Trauma System Rules and Regulations.

General EMS Principles:

A. EMResource, an internet-based tracking system, is used to manage diversion in the Denver Metro area. The EMResource screen should be routinely monitored for situational awareness of ED capacities to receive patients. This information is then communicated to EMS providers through dispatch.
B. The DHPD trauma destination policies should be followed
C. The only time an ambulance can be diverted from a hospital is when that hospital is posted on EMResource as being on official **ED Divert** (**RED**) or **Closed** (**BLACK**) status.
D. The following are appropriate reasons for an EMS provider to **override ED Divert** (**RED**) and, therefore, deliver a patient to an emergency department that is on **ED Divert** status:
    1. All alerts (trauma, cardiac, stroke, sepsis, etc), cardiac arrests, imminent OB or imminent airway emergencies.
    2. Specialty care needs such as pediatric, obstetric, and burn patients
    3. If the patient's condition and/or system constraints do NOT allow transport to a hospital outside of the EMS agency's service area.
    4. EMS providers always have the discretion to override and transport to the closest facility if they determine the patient's condition warrants.
E. There are EMResource notifications that are considered **Advisory** (YELLOW) or **Critical** (**ORANGE**). These notifications are informational only and are intended to inform field personnel that a hospital on an **Advisory** or **Critical** status may not be able to optimally care for a patient due to a specific resource limitation (such as Psych, ICU) or overall capacity limitation in the availability of staffed ED beds (ED)
F. The following resource limitations may be seen with **Advisory** (YELLOW) or **Critical** (**ORANGE**) and listed in the Comment section of EMResource:
    1. ICU (Intensive Care Unit)
    2. Psych (Psychiatric)
    3. OB (Obstetrics)
    4. OR (Operating Room)
    5. Trauma, Stroke, STEMI
    6. ED (Emergency Department staffed beds)
G. Prehospital personnel should take into consideration hospital ED capacity notifications, when possible, considering the patient's condition, travel time, weather, and system constraints. Patients with specific problems that fall under a specific resource limitation (such as Psych) should be transported to a hospital not experiencing that resource limitation when feasible.

EMResource Hospital ED Load Leveling Rotation Board Notifications:

Open	<80% Staffed ED beds occupied
Advisory	80-100% Staffed ED beds occupied
Critical	>100% of staffed ED beds occupied and >1 ESI2 patient unable to be roomed
Divert	>120% of staffed ED beds occupied and >1 ESI2 patient unable to be roomed and no longer able to safely care for high acuity patients, OR department discretion due to acute incident
Closed	Unable to care for patients due to infrastructure damage, active shooter, etc

0090 GENERAL GUIDELINES: EMERGENCY DEPARTMENT DIVERT & CAPACITY NOTIFICATIONS (OPEN, ADVISORY, CRITICAL, ED DIVERT, CLOSED)

Patient Load Leveling Guideline:

A. All hospitals and free-standing emergency departments (FSED) are grouped in EMResource by regions. The Denver Metro area consists of North, East, West, South, Central, and Boulder regions. Six of the hospital DHPD transports to are considered in the core of our response area: DHMC, P/SL, SJH, RMC, PAH, and SMC.
    1. **Regional Saturation** exists when all hospitals within a region are either on **Critical** (**ORANGE**) or **ED Divert** (**RED**) status *excluding* FSED.
    2. **Status ZULU (Zone Utilization Logistical Understanding)** exists when 4/6 core hospitals are on **Critical** (**ORANGE**) or **ED Divert** (**RED**).

B. The following guidelines are to be considered when one Denver Metro region experiences **Regional Saturation** or **Status ZULU.**
    1. All Denver Metro dispatch centers track hospital destinations to establish a real time rolling count of 911 EMS transports to hospitals.
    2. FSED are not included in hospital destination tracking. However, to decrease the burden on hospitals, EMS providers are encouraged to transport appropriate patients per FSED protocol.
    3. The closest appropriate hospital destinations will still apply for patients meeting criteria for overriding **ED Divert** (**RED**) as outlined in this protocol.
    4. Hospital distribution of stable patients not meeting **ED Divert** (**RED**) override criteria will be determined by dispatch.
    5. A hospital that experiences a significant infrastructure issue such as loss of power, flooding, etc. preventing the facility from receiving patients should be listed as **Closed** (**BLACK**) status in EMResource and should be exempt from load leveling until functional again.

0120 GENERAL GUIDELINES: BASE CONTACT FOR PHYSICIAN CONSULTATION

Purpose:

A. To explain the DHPD Medical Directors' expectations regarding base physician contact.

General Principles:

A. **"BASE CONTACT"** is contact with DHMC physician via the DHMC biophone.

B. The DHPD protocols function as standing order treatment guidelines designed to reflect CDPHE Chapter 2 Rules pertaining to EMS practice and Medical Director oversight. Protocols are to be used as guidelines and cannot account for every patient scenario. Deviation from protocol may, at times, be justified and in the patient's best interest. The DHPD Medical Directors place great faith in the training and expertise of our EMS colleagues and, therefore, wide latitude is granted throughout the protocol.

C. Base contact for physician consultation is not the same as emergency department pre-notification of patient arrival and handoff. Base contact may be used in multiple care scenarios including but not limited to forewarning of unstable or complicated patients, patient refusal, and medical consultation and discussion.

D. Throughout the protocols, "**BASE CONTACT**" is used to signify the need for call in. These algorithm points are set and agreed upon by the DHPD Medical Directors and reflect critical decision points in care where communication with physician support is expected.

Preferred Base Contact Times:

A. The DHPD Medical Directors feel strongly that access to medical consultation should be readily available at all times and utilized in the following circumstances:

1. Any time "**BASE CONTACT**" is required or recommended per protocol.
2. Unusual presentations or patient care situations not addressed in the protocols and outside an area of familiar care by the individual prehospital provider.
3. Necessary deviation from protocol deemed to be in the best interest of the patient.
4. For selected patient care refusals as indicated by General Guidelines: Patient Non-Transport or Refusal.
5. During the care of critically ill patient who is not responding to protocol/ algorithmic treatment.

0130 GENERAL GUIDELINES: TRANSPORTATION OF THE PEDIATRIC PATIENT

General Principles:

For the purpose of the protocols, pediatric patients are defined as <12 years of age. The unique anatomy, physiology, and developmental needs of children in this age range affect prehospital care. Several specific differences include:

A. Airways are smaller, softer, and easier to obstruct or collapse. Actions such as neck hyperflexion, hyperextension, or cricoid pressure may create an upper airway obstruction in a child.
B. Respiratory reserves are small, resulting in the possibility of rapid desaturation in the setting of increased demand. One of the earliest signs of physiologic stress in a child may be an unexplained increase in respiratory rate.
C. Infants and young children utilize their abdominal musculature to assist with respirations. Tight abdominally-placed straps used to secure children to spine boards may result in onset of or worsening respiratory distress.
D. Circulatory reserves are small. The loss of as little as one unit of blood can produce severe shock in an infant.
E. Fluid overload is not a concern in children. 20 mL/kg boluses are always considered safe as the initial fluid resuscitation.
F. The developmental stage of a child impacts the child's ability to cooperate. The perception and memory of pain is escalated by anxiety. Discuss or forewarn what will be done with any child over 2 years of age. Infants, especially those under 6 months of age, tolerate painful procedures better if allowed to suck on a pacifier (especially if dipped in D25W) during the procedure. Utilize the parent or familiar guardian whenever possible to distract/comfort (tell a story, sing a song, etc.) for all pediatric patients during painful procedures.
G. Vital signs on pediatric should include a blood pressure regardless of age. Providers should, if possible, make at least one attempt at obtaining a blood pressure on every pediatric patient.

Specific Consideration: Transportation Safety

Children represent a unique challenge for safe transportation in emergency vehicles. The National Highway Traffic Safety Administration has established guidelines to ensure the safe restraint and positioning of children in emergency vehicles. Children should be restrained during transport. Transport of a child in a restrained adult's arms is not recommended but may be considered in special circumstances (i.e. severe croup, newborn). Transportation of children on the side bench seat in the rear compartment is also not recommended. The published goals are to prevent forward motion/ejection of the child, secure the torso, and protect the head, neck and spine in each of the following scenarios:

1. **For a child who is not a patient, but requires transport to a facility**
   All reasonable effort should be made to transport children who are not patients in a vehicle other than the ambulance. If transport in a vehicle other than an ambulance is not possible, transport in a size-appropriate child restraint system in the front passenger seat (with air bags off) or rear-facing EMS provider's seat in the ground ambulance.
2. **For a child who is injured/ill and whose condition does not require continuous monitoring or interventions**
   Transport child in a size-appropriate child restraint system secured appropriately on a cot (rear-facing) or in an integrated seat in the EMS provider's seat. Do not use a rear-facing child restraint system in a rear-facing EMS provider's seat. If no child restraint system is available, secure the child on the cot using three horizontal restraints across the child's chest, waist, and knees and one vertical restraint across each of the child's shoulders. Remove any bulky clothing on child before restraining. Use blankets to maintain warmth.
3. **For a child whose condition requires continuous or intensive monitoring or interventions**
   Transport child in a size-appropriate child restraint secured appropriately on a cot. If no child restraint system is available, secure the child on the cot using three horizontal restraints across the child's chest, waist, and knees and one vertical restraint across each of the child's shoulders.
4. **For a child whose condition requires spinal motion restriction or lying flat**
   Perform spinal motion restriction procedure per protocol. Three points of restraint with shoulder straps is the optimal for the patient. Avoid placing any restraints across the abdomen. Secure the patient, not just the immobilization device to the stretcher. We do not recommend utilizing the child

restraint system if spinal motion restriction is required, as upright positioning places additional axial load on the patient's neck and emergent airway intervention is not possible.

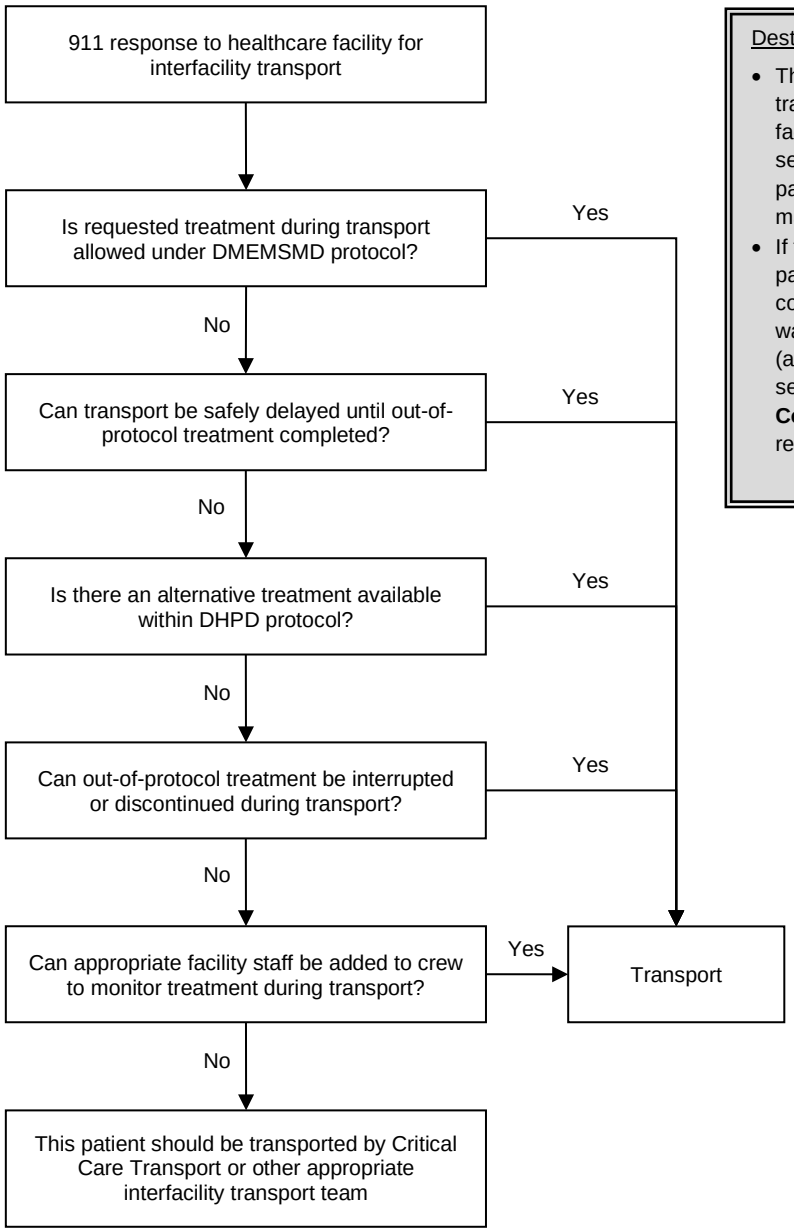
5. **For a child requiring transport as part of a multiple patient transport (newborn with mother, multiple children, etc.)**
   If possible, transport each as a single patient. When available resources prevent single patient transportation, transport patients using safe, designated space available exercising extreme caution and driving at reduced speeds. For mother and newborn, the newborn should be transported in a rear-facing EMS provider seat using a convertible or integrated child restraint system. Do not use a rear-facing child restraint system in a rear-facing EMS provider's seat.

Transportation of the child with special health care needs:

Treat the child, not the equipment. Starting with the ABCs still applies to medically complicated or medical technology-assisted children.

A. The parent/guardian of a special needs child is the expert on that child and knows the details of that illness, typical responses, and baseline interactions better than anyone. Utilize and trust his/her knowledge and concerns. This may include vital signs, medication responses, or physical positioning (i.e. of contracted limbs) that may not be typical.
B. Medically complicated children are often given healthcare notes describing their unique medical history and emergency healthcare needs. Ask the parent/guardian for an emergency information sheet, emergency healthcare form, or QR code.
C. Ask the parent/guardian for the "go bag" for medical technology-assisted children. This will contain the child's spare equipment and supplies that may be needed on scene, during transport or in the hospital.
D. Transport the child to their medical "home" hospital whenever possible.

0140 GENERAL GUIDELINES: 911 SYSTEM RESPONSE TO REQUEST FOR INTERFACILITY TRANSPORT



Destinations:

- The EMS crew should make every effort to transport to the established acceptance facility. Consider that specific specialty services may be alerted and awaiting the patient's arrival and that other closer facilities may not have the same appropriate services.
- If there is a change in patient status, OR a patient may be too unstable, OR there is concern that a time sensitive diagnosis warrants a closer more appropriate facility (alerts, imminent delivery, etc.), discuss with sending physician alternative destinations. **Contact Base** if agreement cannot be reached.

Guidelines:

- The purpose of this protocol is to address the scenario where a 911 response is requested for an interfacility transport and is not intended to supersede existing interfacility transport agency protocols for care.
- Follow existing DHPD protocols during transport
- All reasonable efforts should be made to accommodate sending physician's destination choice, as specialized care may have already been arranged at the receiving facility, however, transports must be consistent with DHPD protocol and policy guidance.
- Per Colorado 6 CCR 1015-3, Chapter 2 "The transporting EMS provider may decline to transport any patient he or she believes requires a level of care beyond his or her capabilities."

0990 QUICK REFERENCE FOR PROCEDURES AND MEDICATIONS ALLOWED

This list reflects State of CO Medical Skills and Acts Allowed (6 CCR 1015-3, Appendix A) and Formulary of Medications Allowed (6 CCR 1015-3, Appendix B). It does not include Medical Director specific waivers or DHPD base contact requirements. The presence of a procedure or medication on this list does **not** mean that equipment or medication is stocked by DHPD nor does it mean DHPD has provided specific training for an intervention listed. Providers should not perform skills for which they have not received department training.

A DHPD EMT-IV may administer and monitor ALS cardiac arrest medications only when the patient is in cardiac arrest and when under the direct visual supervision of a Paramedic. ALS cardiac arrest medications are considered those approved for Paramedic use in settings of cardiac arrest.

Provider Abbreviations	**EMT-IV** = EMT with IV Cert	**P** = Paramedic

In Scope Abbreviations	Y = in State of CO scope	VO = verbal order required, per State of CO	Left Blank = not in scope

Airway / Ventilation / Oxygenation (skill)	**EMT-IV**	**P**
Airway – Supraglottic	Y	Y
Airway – Nasal	Y	Y
Airway – Oral	Y	Y
Bag Valve Mask (BVM)	Y	Y
CO Monitoring	Y	Y
Chest Decompression – Needle		Y
Chest Tube Insertion		
CPAP	Y	Y
PEEP	Y	Y
Cricoid Pressure – Sellick's Maneuver	Y	Y
Cricothyroidotomy – Needle		Y
Cricothyroidotomy – Surgical		Y
End Tidal CO_2 Monitoring/Capnometry/Capnography	Y	Y
Flow Restrictive O_2 Powered Ventilatory Device	Y	Y
Gastric Decompression – NG/OG Tube Insertion		Y
Inspiratory Impedance Threshold Device	Y	Y
Intubation – Digital		Y
Intubation – Bougie Style Introducer		Y
Intubation – Lighted Stylet		Y
Intubation – Medication Assisted (non-paralytic)		
Intubation – Medication Assisted (paralytics) (RSI)		
Intubation – Maintenance with paralytics		
Intubation – Nasotracheal		Y
Intubation – Orotracheal		Y
Intubation – Retrograde		
Extubation		Y
Obstruction – Direct Laryngoscopy		Y
O_2 Therapy – Humidifiers	Y	Y
O_2 Therapy – Nasal Cannula	Y	Y
O_2 Therapy – Non-rebreather Mask	Y	Y
O_2 Therapy – Simple Face Mask	Y	Y
O_2 Therapy – Venturi Mask	Y	Y
Peak Expiratory Flow Testing		Y
Pulse Oximetry	Y	Y
Suctioning – Tracheobronchial		Y
Suctioning – Upper Airway	Y	Y
Tracheostomy maintenance – Airway management only	Y	Y
Tracheostomy maintenance – Including replacement		Y
Ventilators – Automated Transport (ATV)[1]		Y

[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 requires a waiver to these rules.

Cardiovascular / Circulatory Support (skill)	**EMT-IV**	**P**
Cardiac Monitoring – Application of electrodes & data transmission	Y	Y
Cardiac Monitoring – Rhythm & diagnostic EKG interpretation		Y
Cardiopulmonary Resuscitation (CPR)	Y	Y

Cardioversion – Electrical		Y
Carotid Massage		Y
Defibrillation – Automated/Semi-Automated (AED)	Y	Y
Defibrillation – Manual		Y
External Pelvic Compression	Y	Y
Hemorrhage Control – Direct Pressure	Y	Y
Hemorrhage Control – Pressure Point	Y	Y
Hemorrhage Control – Tourniquet	Y	Y
Implantable cardioverter/defibrillator magnet use		
Mechanical CPR Device	Y	Y
Transcutaneous Pacing		Y
Transvenous Pacing – Maintenance		
Targeted Temperature Management[2]		Y
Arterial Blood Pressure Indwelling Catheter – Maintenance		
Invasive Intracardiac Catheters – Maintenance		
Central Venous Catheter Insertion		
Central Venous Catheter Maintenance/Patency/Use		Y
Percutaneous Pericardiocentesis		

[2] Targeted Temperature Management (TTM)

1. Approved methods of cooling include:
    a. Surface cooling methods including ice packs, evaporative cooling, and surface cooling blankets or surface heat-exchange devices.
    b. Internal cooling with the intravenous administration of cold crystalloids (4°C / 39°F)
2. Esophageal temperature probe allowed for monitoring core temperatures in patients undergoing TTM
3. The medical director should work with the hospital systems to which their agencies transport in setting up a "systems" approach to the institution of TTM. Medical directors should not institute TTM without having receiving facilities that also have TTM programs to which to transport these patients.

Immobilization (skill)	**EMT-IV**	**P**
Spinal Immobilization – Cervical Collar	Y	Y
Spinal Immobilization – Long Board	Y	Y
Spinal Immobilization – Manual Stabilization	Y	Y
Spinal Immobilization – Seated Patient	Y	Y
Splinting – Manual	Y	Y
Splinting – Rigid	Y	Y
Splinting – Soft	Y	Y
Splinting – Traction	Y	Y
Splinting – Vacuum	Y	Y

Intravenous Cannulation / Fluid Administration / Fluid Maintenance (skill)	**EMT-IV**	**P**
Blood/Blood By-Products Initiation (out of facility initiation)		
Colloids – (Albumin, Dextran) – Initiation		
Crystalloids (D5W, LR, NS) – Initiation/Maintenance	Y	Y
Intraosseous – Initiation		Y
Intraosseous Initiation – In Extremis	Y	Y
Medicated IV Fluids Maintenance – As Authorized in Appendix B		Y
Peripheral – Excluding External Jugular – Initiation	Y	Y
Peripheral – Including External Jugular – Initiation		Y
Use of Peripheral Indwelling Catheter for IV Medications (Does not include PICC)	Y	Y

Medication Administration Routes (skill)	**EMT-IV**	**P**
Aerosolized	Y	Y
Atomized	Y	Y
Auto-Injector	Y	Y
Buccal	Y	Y
Endotracheal Tube (ET)		Y
Extra-abdominal umbilical vein		Y
Intradermal		Y
Intramuscular (IM)	Y	Y
Intranasal (IN)	Y	Y
Intraosseous	Y	Y
Intravenous (IV) Piggyback		Y
Intravenous (IV) Push	Y	Y
Nasogastric		Y
Nebulized	Y	Y
Ophthalmic		Y
Oral	Y	Y

Rectal		Y
Subcutaneous		Y
Sublingual	Y	Y
Sublingual (nitroglycerin)	Y	Y
Topical	Y	Y
Use of Mechanical Infusion Pump		Y

Miscellaneous (skill)	**EMT-IV**	**P**
Aortic Balloon Pump Monitoring		
Assisted Delivery	Y	Y
Capillary Blood Sampling	Y	Y
Diagnostic Interpretation – Blood Glucose[4]	Y	Y
Diagnostic Interpretation – Blood Lactate[4]		Y
Dressing/Bandaging	Y	Y
Esophageal Temperature Probe for TTM		Y
Eye Irrigation Noninvasive	Y	Y
Eye Irrigation Morgan Lens		Y
Maintenance of Intracranial Monitoring Lines		
Physical examination	Y	Y
Public Health Related – Oral/Nasal Swab Sample Collection	Y	Y
Restraints – Verbal	Y	Y
Restraints – Physical	Y	Y
Restraints – Chemical		Y
Urinary Catheter – Initiation		Y
Urinary Catheter – Maintenance	Y	Y
Venous Blood Sampling - Obtaining	Y	Y

[4]See also Section 11.4 of 6 CCR 1015-3

General (medications)	**EMT-IV**	**P**
Over-the-counter-medications	Y	Y
O_2	Y	Y
Specialized prescription medications to address acute crisis[1]	VO	VO

[1]EMS providers may assist with the administration of, or may directly administer, specialized medications prescribed to the patient for the purposes of alleviating an acute medical crisis event provided the route of administration is within the provider's scope as listed in Appendix A.

Antidotes (medications)	**EMT-IV**	**P**
Atropine		Y
Calcium Salt – Calcium Chloride		Y
Calcium Salt – Calcium Gluconate		Y
Cyanide Antidote		Y
Glucagon		Y
Naloxone	Y	Y
Nerve Agent Antidote	Y	Y
Pralidoxime		Y
Sodium Bicarbonate		Y

Behavioral Management (medications)	**EMT-IV**	**P**
Anti-Psychotic – Droperidol		Y
Anti-Psychotic – Haloperidol		Y
Anti-Psychotic – Olanzapine		Y
Anti-Psychotic – Ziprasidone		Y
Benzodiazepine – Diazepam		Y
Benzodiazepine – Lorazepam		Y
Benzodiazepine – Midazolam		Y
Diphenhydramine		Y
Ketamine (Ketalar)		

Cardiovascular (medications)	**EMT-IV**	**P**
Adenosine		Y
Amiodarone		Y
Aspirin	Y	Y
Atropine		Y
Calcium Salt – Calcium chloride		Y
Calcium Salt – Calcium gluconate		Y
Diltiazem – bolus infusion only		Y
Dopamine		Y
Epinephrine		Y

Lidocaine		Y
Magnesium sulfate – bolus infusion only		Y
Nitroglycerin – sublingual (patient assisted)	VO	Y
Nitroglycerin – sublingual (tablet or spray)		Y
Nitroglycerin – topical paste		Y
Norepinephrine		Y
Sodium bicarbonate		Y
Vasopressin		Y
Verapamil – bolus infusion only		Y

Diuretics (medications)	**EMT-IV**	**P**
Bumetanide		Y
Furosemide		Y
Mannitol (Trauma Use Only)		Y

Endocrine & Metabolism (medications)	**EMT-IV**	**P**
IV Dextrose	Y	Y
Glucagon		Y
Oral glucose	Y	Y
Thiamine		Y
Corticosteroid		Y

Gastrointestinal (medications)	**EMT-IV**	**P**
Anti-nausea – Droperidol		Y
Anti-nausea – Metoclopramide		Y
Anti-nausea – Ondansetron ODT	Y	Y
Anti-nausea – Ondansetron IM/IVP	Y	Y
Anti-nausea – Prochlorperazine		Y
Anti-nausea – Promethazine		Y
Decontaminant – Activated Charcoal	Y	Y
Decontaminant – Sorbitol	Y	Y

Pain Management (medications)	**EMT-IV**	**P**
Acetaminophen (Tylenol) IV		Y
Anesthetic – Lidocaine (for intraosseous needle insertion)		Y
Benzodiazepine – Diazepam		Y
Benzodiazepine – Lorazepam		Y
Benzodiazepine – Midazolam		Y
General – Nitrous oxide		Y
Ketorolac (Toradol)		Y
Narcotic Analgesic – Fentanyl		Y
Narcotic Analgesic – Hydromorphone		Y
Narcotic Analgesic – Morphine sulfate		Y
Ophthalmic Anesthetic – Ophthaine		Y
Ophthalmic Anesthetic – Tetracaine		Y
Topical Anesthetic – Benzocaine Spray		Y
Topical Anesthetic – Lidocaine Jelly		Y

Respiratory & Allergic Reaction (medications)	**EMT-IV**	**P**
Antihistamine – Diphenhydramine		Y
Bronchodilator – Anticholinergic – Atropine (aerosol/nebulized)		Y
Bronchodilator – Anticholinergic – Ipratropium	Y	Y
Bronchodilator – Beta agonist – Albuterol	Y	Y
Bronchodilator – Beta agonist – L-Albuterol	Y	Y
Bronchodilator – Beta agonist – Metaproterenol		Y
Bronchodilator – Beta agonist – Terbutaline		Y
Corticosteroid – Dexamethasone		Y
Corticosteroid – Hydrocortisone		Y
Corticosteroid – Methylprednisolone		Y
Corticosteroid – Prednisone		Y
Epinephrine 1:1,000 IM or SQ Only	Y	Y
Epinephrine IV Only		Y
Epinephrine Auto-Injector	Y	Y
Magnesium Sulfate – Bolus Infusion Only		Y
Racemic Epinephrine		Y
Short Acting Bronchodilator Meter Dose Inhalers (MDI) (Patient assisted)	VO	Y
Short Acting Bronchodilator Meter Dose Inhalers (MDI)	Y	Y

0990 QUICK REFERENCE FOR PROCEDURES AND MEDICATIONS ALLOWED

Seizure Management (medications)	EMT-IV	P
Benzodiazepine – Diazepam		Y
Benzodiazepine – Diazepam – rectal administration		Y
Benzodiazepine – Lorazepam		Y
Benzodiazepine – Midazolam		Y
Benzodiazepine – Midazolam – intranasal administration		Y
OB-associated – Magnesium Sulfate – bolus infusion only		Y

Vaccines (medications)	EMT-IV	P
Post-exposure, employment, or pre-employment related – Hepatitis A		Y
Post-exposure, employment, or pre-employment related – Hepatitis B		Y
Post-exposure, employment, or pre-employment related – Tetanus		Y
Post-exposure, employment, or pre-employment related – Influenza		Y
Post-exposure, employment, or pre-employment related – PPD placement & interpretation		Y
Public Health Related – Vaccine administration in conjunction with county public \health departments & local EMS medical direction, after demonstration of proper training, will be authorized for public health vaccination efforts and pandemic planning exercises		Y

Miscellaneous (medications)	EMT-IV	P
Analgesic Sedative – Etomidate		
Benzodiazepine – Midazolam for TIH		Y
Topical Hemostatic Agents	Y	Y

1000 PROCEDURE PROTOCOL: OROTRACHEAL INTUBATION

Paramedic

Indications:

- Respiratory failure
- Absence of protective airway reflexes
- Present or impending complete airway obstruction

Contraindications:

- There are no absolute contraindications. However, in general, the primary goals of airway management are adequate oxygenation and ventilation, and these should be achieved in the least invasive manner possible.
  - Orotracheal intubation is associated with worse outcomes among pediatric patients and head injured patients when compared to BLS airway maneuvers. Therefore, it is relatively contraindicated in these populations, and BLS airway is preferred unless patient cannot be oxygenated or ventilated by other means.
  - Intubation is associated with interruptions in chest compressions during CPR, which is associated with worse patient outcomes. Additionally, intubation itself has not been shown to improve outcomes in cardiac arrest. Intubation should only be performed during pulseless arrest if it does not cause interruptions in chest compressions.
  - With traumatic brain injury, secondary insult from hypoxia or hypotension have been associated with worse outcomes. Caution should be taken to minimize these potential side effects with intubation.

Technique:

1. Initiate BLS airway sequence and confirm $ETCO_2$ production at this time
2. Suction airway and pre-oxygenate with BVM ventilations, if possible
3. Check equipment and position patient:
   a. If trauma: have assistant hold in-line spinal motion restriction in neutral position
   b. If no trauma, sniffing position or slight cervical hyperextension is preferred
4. Perform video laryngoscopy: (utilize direct technique in the event of VL equipment failure)
   a. To improve laryngeal view, use right hand to manipulate larynx or have assistant apply backwards, upwards, rightward pressure (BURP)
5. Place ETT. Confirm tracheal location and appropriate depth and secure tube
   a. Correct tube depth may be estimated as 3 times the internal diameter of tube at teeth or gums (e.g., 7.0 ETT is positioned at 21 cm at teeth)
6. Confirm and document tracheal location by:
   a. $ETCO_2$ with continuous waveform capnography
   b. Presence and symmetry of breath sounds
   c. Rising SpO_2
   d. Capture video of ETT passing through the chords
7. Ventilate with BVM. Assess adequacy of ventilations
8. Continually reassess ventilation, oxygenation, and tube position with continuous waveform capnography and SpO_2

Precautions:

- Ventilate at age-appropriate rates. Do not hyperventilate
- If the intubated patient deteriorates, think “DOPE”
  - **D**islodgement
  - **O**bstruction
  - **P**neumothorax
  - **E**quipment failure (no oxygen)
- Reconfirm and document correct tube position, preferably with waveform capnography, after moving patient and before disconnecting from monitor in ED
- Unsuccessful intubation does not equal failed airway management. Many patients cannot be intubated without paralytics. Abandon further attempts at intubation and use supraglottic airway or BVM ventilations if 2 attempts at intubation unsuccessful

  $ETCO_2$ < 10 mmHg: “Less than ten, check again”
  $ETCO_2$ < 8 mmHg: “Less than eight, extubate”

1010 PROCEDURE PROTOCOL: NASOTRACHEAL INTUBATION

Paramedic

Indications:

- Age 12 years and older spontaneously breathing patient with indication for intubation who cannot tolerate either supine position or laryngoscopy
- Present or impending airway obstruction
- Lack of protective airway reflexes

Contraindications:

- Apnea
- Severe mid-face trauma
- Known head trauma (objective signs) or suspected closed head injury is a relative contradindication

Technique:

1. Initiate BLS airway sequence and confirm $ETCO_2$ production at this time
2. Suction airway and pre-oxygenate with BVM ventilations, if possible
3. Check equipment, choose correct ETT size (usually 7.0 in adult, limit is size of naris)
4. Position patient with head in midline, neutral position
5. If trauma, cervical collar may be in place, or assistant may hold in-line stabilization in neutral position
6. If no trauma, patient may be sitting upright
7. Administer phenylephrine nasal drops in each nostril
8. Lubricate ETT with lidocaine jelly or other water-soluble lubricant
9. With gentle steady pressure, advance the tube through the nose to the posterior pharynx. Use the largest nostril. Abandon procedure if significant resistance is felt
10. Keeping the curve of the tube exactly in midline, continue advancing slowly
11. There will be slight resistance just before entering trachea. Wait for an inspiratory effort before final passage through cords. Listen for loss of breath sounds
12. Continue advancing tube until air is definitely exchanging through tube, then advance 2 cm more and inflate cuff
13. Note tube depth and tape securely
14. Confirm and document endotracheal location by:
    a. $ETCO_2$ with continuous waveform capnography
    b. Presence and symmetry of breath sounds
    c. Rising SpO_2
15. Ventilate with BVM. Assess adequacy of ventilations
16. Continually reassess ventilation, oxygenation, and tube position with continuous waveform capnography and pulse oximetry

Precautions:

- Before performing BNTI, consider if patient can be safely ventilated with non-invasive means such as CPAP or BVM
- Use caution in anticoagulated or bleeding disorders given risk of epistaxis
- Ventilate at age-appropriate rates. Do not hyperventilate
- If the intubated patient deteriorates, think “DOPE”
    - **D**islodgement
    - **O**bstruction
    - **P**neumothorax
    - **E**quipment failure (no oxygen)
- Reconfirm and document correct tube position, with waveform capnography, after moving patient and before disconnecting from monitor in ED
- Blind nasotracheal intubation is a very gentle technique. The secret to success is perfect positioning and patience

$ETCO_2$ < 10 mmHg: “Less than ten, check again”
$ETCO_2$ < 8 mmHg: “Less than eight, extubate”

1030 PROCEDURE PROTOCOL: CRICOTHYROTOMY

Paramedic

Introduction:

- Surgical cricothyrotomy is a difficult and hazardous procedure that is to be used only in extraordinary circumstances as defined below. The reason for performing this procedure must be documented and submitted for review to the EMS Medical Director within 24 hours; this requirement is met by timely completion of patient care documentation. Surgical cricothyrotomy is to be performed only by paramedics trained in this procedure.
- An endotracheal tube introducer ("bougie") facilitates this procedure and has the advantage of additional confirmation of tube position and ease of endotracheal tube placement. If no bougie is available, the procedure may be performed without a bougie by introducing endotracheal tube or tracheostomy tube directly into cricothyroid membrane.
- Given the rarity and relative unfamiliarity of this procedure, it may be helpful to have a medical consult on the phone during the procedure. Strongly consider **BASE CONTACT** for all cricothyroidotomy procedures.

Indications:

- 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")

Contraindications:

- Surgical cricothyrotomy is contraindicated in patients less than 12 years of age for anatomic reasons.

Technique:

1. Position the patient supine, with in-line spinal motion restriction if indicated. If cervical spine injury not suspected, neck extension will improve anatomic view.
2. Using an aseptic technique (betadine/alcohol wipes), cleanse the area.
3. Stabilize the larynx with the thumb and middle finger of your non dominant hand, and identify the cricothyroid membrane with your index finger, typically 4 fingerbreadths below mandible.
4. Using a scalpel, make a 3 cm centimeter vertical incision 0.5 cm deep through the skin and fascia, over the cricothyroid membrane. With finger, dissect the tissue and locate the cricothyroid membrane.
5. Make a horizontal incision through the cricothyroid membrane with the scalpel blade oriented caudal and away from the cords.
6. Insert the bougie curved-tip first through the incision and angled towards the patient's feet guided by the finger.
7. Advance the bougie into the trachea, always ensuring manual control of bougie (one hand on the bougie).
8. Advance a 6-0 endotracheal tube over the bougie and into the trachea. With a full-size endotracheal tube, it is very easy to place tube in right mainstem bronchus. Utilizing the provided cric kit is recommended, and providers should carefully assess for symmetry of breath sounds. Remove bougie while stabilizing ETT ensuring it does not become dislodged.
9. Ventilate with BVM and 100% oxygen.
10. Confirm and document tracheal tube placement as with all advanced airways: $ETCO_2$ (with waveform capnography) as well as clinical indicators e.g.: symmetry of breath sounds, rising pulse oximetry, etc.
11. Secure tube.
12. Observe for subcutaneous air, which may indicate tracheal injury or extra- tracheal tube position.
13. Continually reassess ventilation, oxygenation, and tube placement.

Precautions:

- Success of procedure is dependent on correct identification of cricothyroid membrane
- Bleeding will occur, even with correct technique. Straying from the midline is dangerous and likely to cause hemorrhage.

1050 PROCEDURE PROTOCOL: SUPRAGLOTTIC AIRWAY

EMT-IV	Paramedic

Indications:

- Rescue airway if unable to intubate a patient in need of airway protection
- Primary airway if intubation anticipated to be difficult and rapid airway control is necessary
- Primary airway in pulseless arrest, when attempts at intubation are likely to interrupt CPR
- Designated advanced airway for EMTs
- Preferred advanced airway in the pediatric patient

Contraindications:

- Intact gag reflex
- Caustic ingestion

Technique:

1. Initiate BLS airway sequence
2. Select proper size supraglottic airway based on manufacturer's specifications
3. Assemble equipment, lubricate the back, sides, and front with water-soluble lubricant
4. Suction airway and maximize oxygenation with BVM ventilations
5. If trauma: have assistant hold in-line spinal motion restriction in neutral position
6. If no trauma, sniffing position or slight cervical hyperextension is preferred
7. Place supraglottic airway utilizing device-specific technique
8. Secure the device
9. Confirm tube placement by auscultation, chest movement, capnometry, and waveform capnography
10. Continuously monitor ETCO2 with waveform capnography, SpO_2, vital signs

Precautions:

1. Do not remove a properly functioning supraglottic airway in order to attempt intubation
2. Correct sizing of supraglottic airways is critical for correct function
3. Supraglottic airways are safe and effective in pediatric patients, provided the correct size tube is selected. The age-range for supraglottic airway use is provided in the Handtevy Mobile application
4. Use with caution in patients with broken teeth
5. Use with caution in patients with known esophageal disease who are at increased risk of esophageal injury

iGel Package Color	Weight	Size
Yellow	30-60 kg (66-132 lbs)	3.0
Green	50-90 kg (110-198 lbs)	4.0
Orange	90+ kg (>198 lbs)	5.0

1060 PROCEDURE PROTOCOL: CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

EMT-IV	Paramedic

Indications:

- Symptomatic patients with moderate-to-severe respiratory distress as evidenced by at least two (2) of the following:
  - Rales (crackles), rhonchi, or wheezes
  - Dyspnea with hypoxia (SpO_2 less than 90% despite O_2)
  - Dyspnea with inability to speak full sentences
  - Accessory muscle use
  - Respiratory rate with tachypnea per age despite O_2
  - Diminished tidal volume

Contraindications:

- Respiratory or cardiac arrest
- Hypotension for age
- Lack of airway protective reflexes
- Significant altered level of consciousness such that unable to follow verbal instructions or signal distress
- Vomiting or active upper GI bleed
- Suspected pneumothorax
- Trauma
- Patient size or anatomy prevents adequate mask seal

Technique:

1. Place patient in a seated position and explain the procedure to the patient
2. Assess vital signs (BP, HR, RR, SpO_2, and $ETCO_2$)
3. Initially assist the patient in holding the mask firmly to their face and evaluate the tolerance of the mask. If adequately tolerated, progressively tighten as tolerated to minimize air leak.
4. Operate CPAP device according to manufacturer specifications
5. Start with the lowest continuous pressure that appears to be effective. Adjust pressure following manufacturer instructions to achieve the most stable respiratory status utilizing the signs described below as a guide
6. Monitor patient continuously, record vital signs every 5 minutes.
7. Assess patient for improvement as evidenced by the following:
   a. Reduced dyspnea
   b. Reduced verbal impairment, respiratory rate, and heart rate
   c. Increased SpO_2
   d. Stabilized blood pressure
   e. Appropriate $ETCO_2$ values and waveforms
   f. Increased tidal volume
8. Observe for signs of deterioration or failure of response to CPAP:
   a. Decrease in level of consciousness
   b. Sustained or increased heart rate, respiratory rate, or decreased blood pressure
   c. Sustained low or decreasing SpO_2 readings
   d. Rising $ETCO_2$ levels or other $ETCO_2$ evidence of ventilatory failure
   e. Diminished or no improvement in tidal volume

Precautions:

- Should patient deteriorate on CPAP:
  - Troubleshoot equipment
  - Consider endotracheal intubation
  - Assess need for possible chest decompression due to pneumothorax
  - Assess for possibility of hypotension due to significantly reduced preload from positive pressure ventilation
- In-line nebulized medications may be given during CPAP as indicated and in accordance with manufacturer guidelines
- Some fixed pressure CPAP devices do not have FiO2 adjustment and will only administer up to 30% oxygen. If no improvement in oxygenation with a fixed pressure CPAP device, consider adding supplemental oxygen
- This procedure may be performed on a patient with active Do Not Resuscitate

1070 PROCEDURE PROTOCOL: CAPNOGRAPHY

EMT-IV	Paramedic

Indications:

Mandatory:

A. To evaluate and confirm placement of ANY advanced airway, and particularly, to exclude esophageal intubation in all intubated patients
B. To identify late endotracheal tube or advanced airway dislodgement
C. After sedation of the agitated/combative patient

Consider:

D. To monitor ventilation and perfusion in any ill or injured patient
E. Consider monitoring when patient receives respiratory depressants, like opioids or sedating medications

Contraindications:

A. None

Technique:

A. In patient with endotracheal intubation or advanced airway: place end-tidal carbon dioxide ($EtCO_2$) detector in-line between airway adaptor and bag-valve after airway positioned and secured
B. Patients without endotracheal intubation or advanced airway in place: place $EtCO_2$ cannula on patient. May be placed under CPAP, bag-valve, or non-rebreather facemask
C. Assess and document both capnography waveform and $EtCO_2$ value

Precautions:

A. To understand and interpret capnography, remember the 3 determinants of $EtCO_2$:
    1. Alveolar ventilation
    2. Pulmonary perfusion
    3. Metabolism
B. Sudden loss of $EtCO_2$:
    1. Tube dislodged
    2. Circuit disconnected
    3. Cardiac arrest
C. High $EtCO_2$ (> 45 mmHg)
    1. Hypoventilation/CO_2 retention
D. Low $EtCO_2$ (< 25 mmHg)
    1. Hyperventilation
    2. Low perfusion: shock, PE, sepsis
    3. Compensation for metabolic acidosis
E. Cardiac Arrest:
    1. In low-pulmonary blood flow states, such as cardiac arrest, the primary determinant of $EtCO_2$ is blood flow, so $EtCO_2$ is a good indicator of quality of CPR
    2. If $EtCO_2$ is dropping, change out person doing chest compressions
    3. In cardiac arrest, if $EtCO_2$ not >10 mmHg after 20 minutes of good CPR, this likely reflects very low CO_2 production and is associated with poor outcome
    4. Sudden rise in $EtCO_2$ may be an indicator of return of spontaneous circulation

1080 PROCEDURE PROTOCOL: NEEDLE THORACOSTOMY FOR TENSION PNEUMOTHORAX DECOMPRESSION

Paramedic

Indications:

A. **All** of the following clinical indicators **must** be present:
    1. Severe respiratory distress
    2. Hypotension and signs of shock
    3. Unilateral absent or decreased breath sounds
B. Consider bilateral needle chest decompression in traumatic pulseless arrest if patient is being resuscitated and any trauma to trunk.

Adult/Child Technique:

A. Expose entire chest.
B. Clean skin overlying site with available skin prep.
C. Insert angiocath either at 2nd intercostal space at midclavicular line, 5th intercostal space at midaxillary line, or the 5th intercostal space at anterior axillary line.
    a. Any approach is acceptable, generally the site with the least soft tissue overlying ribs is preferred.
D. Leave angiocath in place; remove needle
E. For adult, use largest, longest available angiocath. For children, refer to Handtevy for needle sizing.
F. Notify receiving hospital of needle decompression attempt.

Neonatal/Young Infant Technique:

A. Expose entire chest
B. Clean skin overlying site with available skin prep
C. Assemble appropriate needle (see Handtevy).
D. Identify 3rd rib at midclavicular line, keeping index finger of non-dominant hand on rib. Insert assembled needle into the 2nd intercostal space above.
    a. Alternate approach at 4th or 5th intercostal space at midaxillary line
E. When release of resistance is felt, stop needle insertion.
F. Notify receiving hospital of needle decompression attempt.

Precautions:

A. Angiocath may become occluded with blood or by soft tissue.
B. A simple pneumothorax is NOT an indication for needle decompression.

Approximating the 5th Intercostal Space:
In emergency situations, it can be challenging to identify intercostal spaces. The best approximation should be used.

When accessing the 5th intercostal space in the midaxillary or anterior axillary line, the landmarks are the nipple line in males and the inframammary crease in females.

Special Populations:
In visibly pregnant patients, mid-axillary and anterior axillary needle placement should be 1-2 intercostal spaces higher (3rd or 4th intercostal space).

1090 PROCEDURE PROTOCOL: SYNCHRONIZED CARDIOVERSION

Paramedic

Unstable tachyarrhythmia with a pulse

Check:
- O_2 via NRB facemask
- Functioning IV line
- Suction
- Advanced airway equipment ready

If time and condition allow, sedation OR analgesia may be considered prior to procedure

Generally, sedation and analgesia are contraindicated in the setting of hypotension. However, in cases of arrythmia, hypotension is expected to resolve with treatment. Administration of sedation or analgesia may allow for a more comfortable treatment experience and may be considered with the following precautions:
- Consider sedation with Versed if SBP >90mmHg, OR
- Consider Fentanyl administration if SBP <90mmHg
- Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order

Perform Synchronized Cardioversion

Adult	Pediatric
200 Joules biphasic	See Handtevy (0.5-1 Joules/kg biphasic)

Continue treatment according to Tachycardia with Poor Perfusion

Precautions:
- If defibrillator does not discharge in “synch” mode, then deactivate “synch” and reattempt
- If sinus rhythm achieved, however briefly, then dysrhythmia resumes immediately, repeated attempts at cardioversion at higher energies are unlikely to be helpful. First correct hypoxia, hypovolemia, etc. prior to further attempts at cardioversion
- If pulseless, treat according to Medical Pulseless Arrest Algorithm
- Chronic atrial fibrillation is rarely a cause of hemodynamic instability, especially if rate is < 150 bpm. First correct hypoxia, hypovolemia, before considering cardioversion of chronic atrial fibrillation, which may be difficult, or impossible and poses risk of stroke
- Sinus tachycardia rarely exceeds 150 bpm in adults, 180 bpm in children, or 220 bpm in infants < 12 months. It does not require or respond to cardioversion. Treat underlying causes
- Transient dysrhythmias or ectopy are common immediately following cardioversion and rarely require specific treatment other than supportive care

1100 PROCEDURE PROTOCOL: TRANSCUTANEOUS CARDIAC PACING

Paramedic

Indications:

1. Symptomatic bradyarrhythmias (includes A-V block) not responsive to medical therapy
2. Pacing is rarely indicated in patients under the age of 12 years. **CONTACT BASE**

Precautions:

1. Generally, sedation and analgesia are contraindicated in the setting of hypotension. However, in cases of arrythmia, hypotension is expected to resolve with treatment. Administration of sedation or analgesia may allow for a more comfortable treatment experience and may be considered with the following precautions:
    a. Consider sedation with Versed if SBP >90mmHg, OR
    b. Consider Fentanyl administration if SBP <90mmHg
    c. Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order

Contraindications:

1. Pacing is contraindicated in pulseless arrest.

Technique:

1. Apply electrodes as per manufacturer specifications: (-) left anterior, (+) left posterior.
2. Turn pacer unit on.
3. Set initial current to 80 mAmps.
4. Select pacing rate at 80 beats per minute (BPM).
5. Start pacing unit.
6. Confirm that pacer senses intrinsic cardiac activity by adjusting ECG size.
7. If no initial capture, increase current 10 mAmps every 10-15 seconds until capture or 200 mAmps (usually captures around 100 mAmps).
8. Check for femoral pulse once there is electrical capture.
9. If no capture occurs with maximum output, discontinue pacing and resume ACLS.

Complications:

1. Ventricular fibrillation and ventricular tachycardia are rare complications, but follow appropriate protocols if either occur.
2. Muscle tremors may complicate evaluation of pulses; femoral pulse may be more accurate.
3. Pacing may cause diaphragmatic stimulation and apparent hiccups.

1110 PROCEDURE PROTOCOL: INTRAOSSEUS CATHETER PLACEMENT

EMT-IV	Paramedic

Indications:

1. Rescue or primary vascular access device when peripheral IV access not obtainable in a patient with critical illness defined as any of the following:
    A. Cardiopulmonary arrest or impending arrest
    B. Profound shock with severe hypotension and poor perfusion
    C. Hypoglycemia with severe symptoms (e.g. unresponsive) and no venous access
2. Utilization of IO access for all other patients requires **BASE CONTACT** (**NOT** indicated for EMT-IV)

Technique:

1. Site of choice

Age	Preferred Site	Alternative Site(s)
Adult	Tibia	Humeral head or femur
Pediatric	Femur	Tibia

2. Clean skin per agency approved aseptic technique.
3. Place intraosseous needle perpendicular to the bone.
    A. For infants less than 6 months old, insert needle manually. Do not use powered device which increases risk of puncturing through both sides of the bone.
4. Follow manufacturer's guidelines specific to the device being used for insertion.
5. Entrance into the bone marrow is indicated by a sudden loss of resistance.
6. Flush line with 10 mL saline. Do not attempt to aspirate marrow.
    A. **Paramedic ONLY**: IO infusion is very painful. If the patient is conscious, consider lidocaine for pain control **before** infusing fluids or medications.
7. Secure line.
    A. Even if properly placed, the needle will not be secure. The needle must be secured and the IV tubing taped. The IO needle should be stabilized at all times.
8. Observe for signs of limb swelling or decreased perfusion to distal extremity that would indicate a malpositioned IO catheter or other complication. If limb becomes tense or malperfused, disconnect IO tubing immediately and leave IO in place.
9. A person should be assigned to monitor the IO at the scene and en route to the hospital.
10. Do not make more than one IO placement attempt per bone.
11. Do not remove IO needles in the field.
12. Notify hospital staff of all insertion sites/attempts.

Complications:

1. Fracture
2. Compartment syndrome
3. Infection

Contraindications:

1. Fracture of target bone
2. Cellulitis (skin infection overlying insertion site)
3. Osteogenesis imperfecta (rare condition predisposing to fractures with minimal trauma)
4. Total knee replacement (hardware will prevent placement)

Side Effects and Special Notes:

1. IO placement may be considered prior to peripheral IV attempts in critical patients without identifiable peripheral veins
2. Some authorities recommend aspiration of marrow fluid or tissue to confirm needle location. This is not recommended for field procedures, as it increases the risk of plugging the needle.
3. Expect flow rates to be slower than peripheral IVs. Pressure bags may be needed. Any drug or IV fluid may be infused.

1120 PROCEDURE PROTOCOL: TOURNIQUET PROTOCOL

EMT-IV	Paramedic

Indications:

A. A tourniquet should be used for initial control of life-threatening hemorrhage.

Precautions:

A. In cases of life-threatening bleeding, benefit of tourniquet use outweighs any theoretical risk of limb ischemia.
B. A commercially made tourniquet is the preferred tourniquet. If none is available, a blood pressure cuff inflated to a pressure sufficient to stop bleeding is an acceptable alternative.

Technique:

A. First, attempt to control hemorrhage by using direct pressure over bleeding area.
B. If a discrete bleeding vessel can be identified, point pressure over bleeding vessel is more effective than a large bandage and diffuse pressure.
C. If unable to control hemorrhage using direct pressure, apply tourniquet according to manufacturer specifications and using the steps below:
    1. Cut away any clothing so that the tourniquet will be clearly visible. NEVER obscure a tourniquet with clothing or bandages.
    2. Apply tourniquet proximal to the wound and not across any joints.
    3. Tighten tourniquet until bleeding stops. Applying tourniquet too loosely will only increase blood loss by inhibiting venous return.
    4. If bleeding is not controlled with the application of a single tourniquet, a 2nd can be applied adjacent to the 1st.
    5. Mark the time and date of application on the patient's skin next to the tourniquet.
    6. Keep tourniquet on throughout hospital transport – a correctly applied tourniquet should only be removed by the receiving hospital.
    7. Pain management as needed.

1130 PROCEDURE PROTOCOL: RESTRAINT PROTOCOL

EMT-IV	Paramedic

Indications:

A. Physical restraint of patients is permissible and encouraged if the patient poses a danger to him/herself or to others. Only reasonable force is allowable, i.e., the minimum amount of force necessary to control the patient and prevent harm to the patient or others. Try alternative methods first. Verbal de-escalation should be used first if the situation allows.
B. Consider pharmacological sedation for agitated patients that require transport and are behaving in a manner that poses a threat to him/herself or others. See Agitated/Combative Patient Protocol
C. Restraints may be indicated for patients who meet the following criteria:
    1. A patient who is significantly impaired (e.g., intoxication, medical illness, injury, psychiatric condition, etc.) and lacks decision-making capacity regarding his or her own care.
    2. A patient who exhibits violent, combative, or uncooperative behavior who does not respond to verbal de-escalation.
    3. A patient who is suicidal and considered to be a risk for behavior dangerous to his or herself or to healthcare providers.
    4. A patient who is on a mental health hold if there is a concern for elopement.

Precautions:

A. When appropriate involve law enforcement. However, law enforcement never serves as medical control for EMS and cannot tell EMS to restrain a patient for their own purposes.
B. Restraints shall be used only when necessary to prevent a patient from seriously injuring him/herself or others (including the EMS providers), and only if safe transportation and treatment of the patient cannot be accomplished without restraints. They may not be used as punishment, or for the convenience of the crew.
C. Any attempt to restrain a patient involves risk to the patient and the prehospital provider. Efforts to restrain a patient should only be done with adequate assistance present.
D. Be sure to evaluate the patient adequately to determine his or her medical condition, mental status, and decision-making capacity.
E. Do not use hobble restraints and do not restrain the patient in the prone position or any position that impairs the airway or breathing.
F. Search the patient for weapons.
G. Handcuffs are not appropriate medical restraints and should only be placed by law enforcement personnel. See Transport of Handcuffed Patient Protocol.

Technique:

A. Be alert for any medical conditions which may ensue following physical struggle. Refer to Agitated/Combative protocol for appropriate assessment and treatment.
B. Treat the patient with respect. Attempts to verbally reassure or calm the patient should be done prior to the use of restraints. To the extent possible, explain what is being done and why.
C. Have all equipment and personnel ready (restraints, suction, a means to promptly remove restraints).
D. Use assistance such that, if possible, 1 rescuer handles each limb and 1 manages the head or supervises the application of restraints.
E. Apply restraints to the extent necessary to allow treatment of, and prevent injury to, the patient. **Under-restraint may place patient and provider at greater risk**.
F. After application of restraints, check all limbs for circulation. During the time that a patient is in restraints, continuous attention to the patient's airway, circulation, and vital signs is mandatory. A restrained patient may never be left unattended.

Documentation:

A. Document the following in all cases of restraint:
    1. Description of the facts justifying restraint, including IMC-RASS score
    2. Efforts to de-escalate prior to restraint
    3. Type of restraints used
    4. Condition of the patient while restrained, including reevaluations during transport
    5. Condition of the patient at the time of transfer of care to emergency department staff
    6. Any injury to patient or to EMS personnel

Complications:

A. Aspiration: continually monitor patient's airway
B. Nerve injury: assess neurovascular status of patient's limbs during transport
C. Complications of medical conditions associated with need for restraint - Patients may have underlying trauma, hypoxia, hypoglycemia, hyperthermia, hypothermia, drug ingestion, intoxication, or other medical conditions

1150 PROCEDURE PROTOCOL: TASER® PROBE REMOVAL

EMT-IV	Paramedic

Indications:

- Patient with TASER® probe(s) embedded in skin.

Contraindications:

- TASER® probe embedded in the eye, genitals, or close to major neurovascular structures. In such cases, transport patient to an emergency department for removal.

Technique:

1. Be alert for any medical conditions which may ensue following physical struggle. Refer to agitated/combative protocol for appropriate assessment and treatment.
2. Confirm the TASER® has been shut off and the barb cartridge has been disconnected.
3. Using a pair of shears, cut the TASER® wires at the base of the probe.
4. Place one hand on the patient in area where the probe is embedded and stabilize the skin surrounding the puncture site. Using the other hand (or use pliers) firmly grasp the probe.
5. In one uninterrupted motion, pull the probe out of the puncture site maintaining a 90° angle to the skin. Avoid twisting or bending the probe.
6. Repeat the process for any additional probes.
7. Once the probes are removed, inspect and assure they have been removed intact. In the event the probe is not removed intact or there is suspicion of a retained probe, the patient must be transported to the emergency department for evaluation.
8. Cleanse the probe site and surrounding skin and apply sterile dressing.
9. Advise patient to watch for signs of infection including increased pain at the site, redness, swelling, or fever.

1160 PROCEDURE PROTOCOL: PAIN MANAGEMENT

Goal of Pain Management:

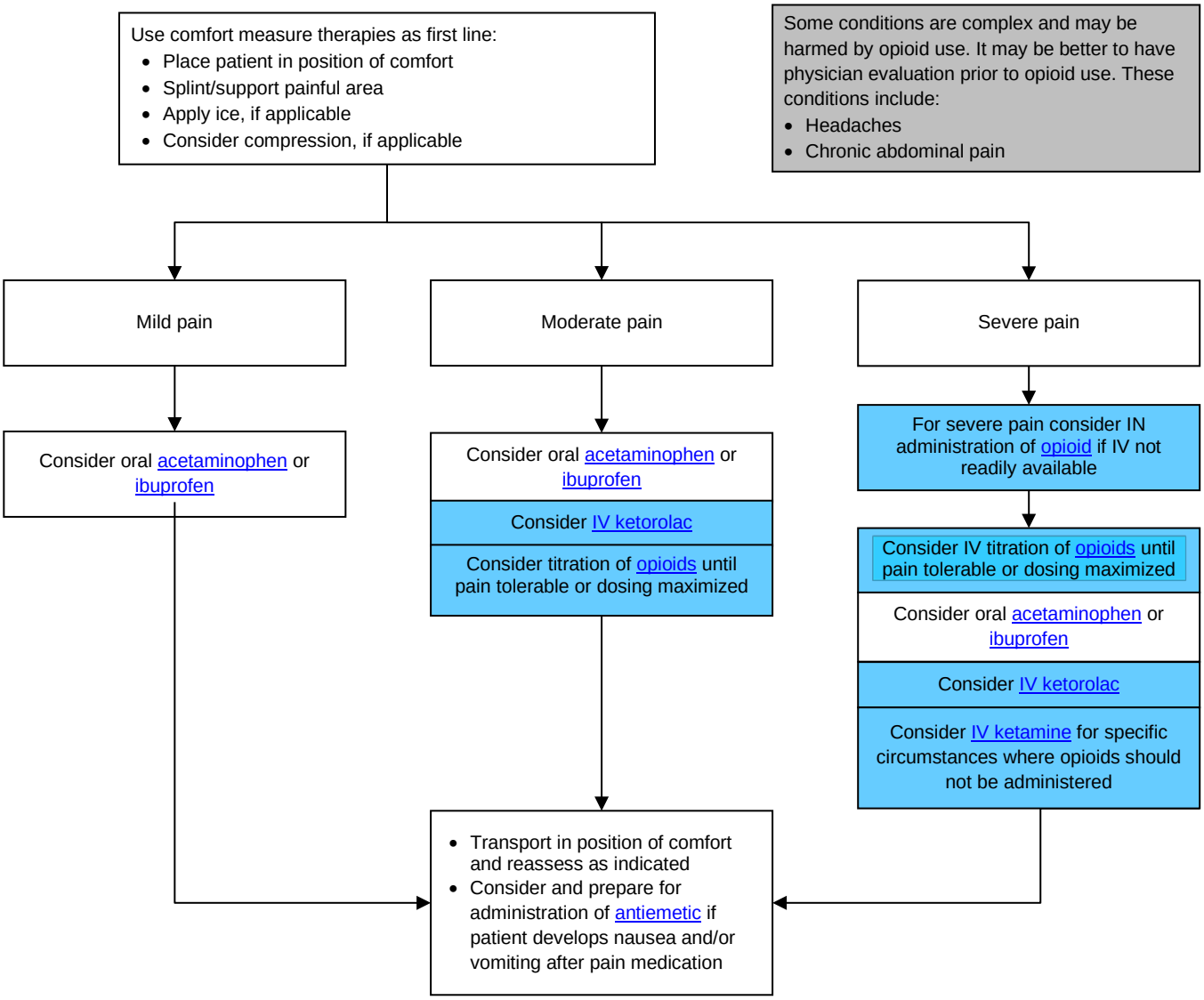
EMT-IV	Paramedic

A. Use comfort measure therapies as first line.
B. If used, medications should be administered to a point where pain is tolerable. This point is not necessarily pain free.

Assessment:

A. Determine patient's pain assessment and consider using a pain scale:
   1. Pediatric use observational scale (see Pediatric Pain Scales)
   2. Adult Self-report scale (Numeric Rating Scale [NRS])
B. Categorize the assessment of pain to mild, moderate, or severe.
   1. Overreliance on pain scores may lead to either inadequate pain control in stoic patients, or over sedation in patients reporting high levels of pain. Use subjective and objective findings to evaluate need for and efficacy of pain management.
   2. For pediatric patients, pain scale use is recommended. A pain score of 0-3 is mild pain, scores from 4-6 moderate pain, and 7-10 severe pain.

General Pain Management Technique:



General Information:

A. Document assessment or pain scale before and after administration of pain medications. Reassess pain 5 minutes after IV administration.
B. Multi-modal analgesia is reasonable with goal of avoiding combinations of sedating agents reducing the overall need for opiates. It is safe to combine acetaminophen or NSAIDS with opioids or other sedating agents.
C. Strongly consider ½ typical dosing in the elderly or frail patient

Pediatric Pain Scales:

Faces, Legs, Activity, Cry, Consolability (FLACC) Behavioral Scale

Appropriate age for use (per guideline): less than 4 years

Categories	Scoring		
	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant frown, clenched jaw, quivering chin
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid, or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging, or being talked to, distractible	Difficult to console or comfort
Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0-2, which results in a total score between zero and ten.			

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Recommended Pain Scale for Ages 4-12 Years

Faces Pain Scale – Revised (FPS-R)



0 2 4 6 8 10

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2000 OBSTRUCTED AIRWAY

EMT-IV | Paramedic

Attempt to determine cause of obstruction

Does patient show universal sign of choking?

Yes

- Perform Heimlich maneuver
- For visibly pregnant or obese patients, perform chest thrusts only
- For infants, 5 chest thrusts then 5 back blows

No

If obstruction is complete, patient will be mute

If patient can speak, obstruction is incomplete

Assess severity of obstruction

Severe or Complete Obstruction
(mute, silent cough, severe stridor)

- Open airway with head tilt-chin lift or jaw thrust if craniofacial trauma
- Attempt ventilation with BVM

Able to ventilate or obstruction cleared?

Yes

No

- Perform laryngoscopy
- If foreign body visualized, use McGill forceps to remove or consider pushing object into mainstem bronchus with ETT

Able to ventilate or obstruction cleared?

Yes

No

- Perform abdominal thrusts or chest thrusts until obstruction relieved then reattempt ventilations with BVM
- For infants, 5 chest thrusts, then 5 back blows

Consider cricothyrotomy if suspected supraglottic obstruction and unable to oxygenate with BVM

Unconscious Patient

Begin chest thrusts
Each time airway is opened, look in mouth for FB, and if found, remove it

Mild or Moderate Obstruction

- Do not interfere with a spontaneously breathing of coughing patient
- Position of comfort
- Give high flow oxygen
- Suction if needed

Is obstruction cleared?

Yes

No

- Supportive care and rapid transport
- If patient deteriorating or develops worsening distress, proceed as for **complete obstruction**

Once obstruction relieved:

- Position of comfort or left lateral recumbent position
- O2 via NRB 15 Lpm
- Monitor ABCs, SpO2, vital signs
- Suction PRN and be prepared for vomiting, which commonly occurs after obstruction relieved

2010 ADULT UNIVERSAL RESPIRATORY DISTRESS

EMT-IV | Paramedic

Respiratory Distress

For all patients:
While assessing ABCs: give supplemental O_2, monitor vital signs, cardiac rhythm, SpO_2, and waveform capnography

Consider pulmonary and non-pulmonary causes of respiratory distress:

- Pulmonary embolism
- Pneumonia
- Heart attack
- Pneumothorax
- Sepsis
- Metabolic acidosis (e.g.: DKA)
- Anxiety
- Cardiac tamponade
- Cardiac dysrhythmia

Patent airway?
- No → Obstructed Airway protocol
- Yes ↓

Are ventilations adequate for physiologic state?
- No → Assist ventilations with BVM and airway adjuncts as needed
- Yes ↓

Is anaphylaxis likely?
- Yes → Allergy/Anaphylaxis protocol
- No ↓

Is asthma or COPD likely?
- Yes → Adult Wheezing protocol
- No ↓
- ? → **Mixed picture may exist**
  - Goal is maximization of oxygenation and ventilation in all cases
  - CPAP may be particularly useful in mixed picture with hypoxia and/or hypoventilation
  - Avoid albuterol in suspected pulmonary edema

Is CHF/pulmonary edema likely?
- Yes → CHF/Pulmonary Edema protocol
- No ↓
- ? → **Mixed picture may exist** (see above)

- Transport
- Provide supportive care
- Maximize oxygenation and ventilation
- **Contact Base** if needed for consult

- Consider 12 lead ECG

Approved by DHPD Medical Directors February 2024

2020 PEDIATRIC UNIVERSAL RESPIRATORY DISTRESS

EMT-IV	Paramedic

Respiratory Distress

For all patients:
While assessing ABCs: give supplemental O_2, monitor vital signs, cardiac rhythm, SpO_2, and consider waveform capnography

Patent Airway?
- No → Obstructed Airway protocol
- Yes ↓

Are ventilations adequate for age?
- No → Assist ventilations at age-appropriate rate with BVM and airway adjuncts as needed
- Yes ↓

Is anaphylaxis likely?
- Yes → Allergy/Anaphylaxis protocol
- No ↓

Is there a barky cough and stridor?
- Yes → Pediatric Stridor/Croup protocol
- No ↓

Is there wheezing?
- Yes → Pediatric Wheezing protocol
- No ↓

- Provide supportive care
- Maximize oxygenation and ventilation
- **CONTACT BASE** if needed for consult

Age-appropriate ventilation rate in respiratory failure:

Age	Breaths/min
Neonate	40
Infants	30
Children	20

Assisted ventilation rates listed do not apply to the patient in cardiac arrest

Characteristics of Stridor:

- High-pitched, harsh sound most often heard on inspiration
- Occurs with upper airway restriction
- Significant restriction may result in biphasic stridor (heard on inspiration and expiration)

Consider pulmonary and non-pulmonary causes:

- Foreign body
- Croup
- Pneumonia
- Bronchiolitis
- Pulmonary embolism
- Sepsis
- Metabolic derangement
- Anxiety

Approved by DHPD Medical Directors February 2024

2030 ADULT WHEEZING

Presentation suggests Bronchospasm: *wheezing, prolonged expiratory phase, decreased breath sounds, accessory muscle use, known hx of asthma/COPD*

→ Adult Respiratory Distress Protocol and prepare for immediate transport

EMT-IV | Paramedic

Therapeutic Goals:

- Maximize oxygenation
- Decrease work of breathing
- Identify cardiac ischemia (Obtain 12 lead EKG)
- Identify complications, e.g., pneumothorax

Give oxygen, check SpO_2, waveform capnography, & consider IV for severe respiratory distress

Give nebulized albuterol + ipratropium

May give continuous neb for severe respiratory distress

Consider pulmonary and non-pulmonary causes of respiratory distress:

Examples: pulmonary embolism, pneumonia, pulmonary edema, anaphylaxis, heart attack, pneumothorax, sepsis, metabolic acidosis (e.g.: DKA), anxiety

Yes

Is response to treatment adequate?

No

- Reassess for pneumothorax
- Consider CPAP early, especially in COPD
- If CPAP contraindicated, ventilate with BVM, and consider advanced airway

- IV methylprednisolone
- Obtain ECG: rule out unstable rhythm, ACS

IV **methylprednisolone** will help resolve acute asthma exacerbation over hours, without immediate effect. In severe exacerbations, it may be given prehospital but should not be given for mild attacks responding well to bronchodilators

COPD

- **Correct hypoxia**: do not withhold maximum oxygen for fear of CO_2 retention
- Patients with COPD are older and have comorbidities, including heart disease
- Wheezing may be a presentation of pulmonary edema, "cardiac asthma"
- Common triggers for COPD exacerbations include infection, dysrhythmia (e.g., atrial fibrillation), myocardial ischemia
- **COPD exacerbations are particularly responsive to CPAP, which may help avoid the need for intubation and should be considered early in treatment**

Yes

Is response to treatment adequate?

No

- Consider epinephrine. Indicated **only** if no response to neb, CPAP and for patient in severe distress. Use with caution if any concern for myocardial ischemia or known coronary artery disease

- Consider IV magnesium

Epinephrine is only indicated for most severe attacks deemed life-threatening and not responding to inhaled bronchodilators. Use extreme caution when administering. Cardiopulmonary monitoring is mandatory. **Base contact is required for patients with history of COPD**.

IV **magnesium** may be beneficial in some patients with severe attacks. It should not be given routinely, rather should be reserved for life-threatening asthma attacks not responding to conventional therapy

- Continue monitoring and assessment en-route
- Be prepared to assist ventilations as needed
- Contact base for medical consult as needed

Approved by DHPD Medical Directors November 2024

2040 PEDIATRIC WHEEZING

EMT | Paramedic

- Pediatric Universal Respiratory Distress protocol
- Assess: SpO_2, consider waveform capnography, RR, lung sounds, accessory muscle use and mental status

Consider the cause of wheezing before initiating specific therapy

Initial best indicator is age. If patient ≤ 2 years old, bronchiolitis is more likely. Age > 2 reactive airways disease is more likely.

Although bronchiolitis and asthma are the most common causes of wheezing in infants and children, respectively, you should consider pulmonary and non-pulmonary causes of respiratory distress, especially if patient not responding as expected to treatment:

Examples: pneumonia, pulmonary edema, congenital heart disease, anaphylaxis, pneumothorax, sepsis, metabolic acidosis (e.g.: DKA, toxic ingestion), foreign body aspiration, and croup.

Age ≤ 2 years old

Bronchiolitis more common

- Viral illness characterized by fever, copious secretions and respiratory distress typically seen November through April
- Most important interventions are to provide supplemental oxygen and suction secretions adequately
- In children > 3 months of age with a strong family history of asthma, prior albuterol use, or prematurity, a trial of albuterol may be warranted. If clinically responsive, consider single dose of albuterol

- Administer oxygen to obtain saturations > 90%
- Nasal suction with 3 mL saline
- Transport in position of comfort
- Monitor SpO2, RR, mental status
- Consider 20mL/kg NS bolus

If worsening respiratory distress despite above therapies, re-suction nostrils and assist ventilations with BVM

BVM/OPA ventilation preferred in peds

IV methylprednisolone

Will help resolve acute asthma exacerbation over hours, without immediate effect. In severe exacerbations, it may be given prehospital but should not be given for mild attacks responding well to bronchodilators.

IM epinephrine

Is indicated for the most severe attacks deemed life-threatening and not responding to inhaled bronchodilators.

Age > 2 years old

Asthma more common

Presentation suggests asthma: *wheezing, prolonged expiratory phase, decreased breath sounds, accessory muscle use, known hx of asthma or albuterol use*

Give nebulized albuterol + ipratropium

May repeat x 2 for total of 3 doses, then give continuous albuterol for severe respiratory distress

Is response to treatment adequate

Yes

No

Severe exacerbation

- IM epinephrine if no response to neb and severe distress
- Start IV
- IV methylprednisolone
- 20mL/kg NS bolus

Is response to treatment adequate?

Yes

No

- Assess for pneumothorax
- Assist ventilations with BVM

BVM/OPA ventilation preferred in peds

- Continue monitoring and assessment en-route
- Be prepared to assist ventilations as needed
- **Contact Base** for medical consult if deterioration

Nasal Aspirators

- Nasal aspirators are safe and effective.
- Nasal aspiration with saline significantly improves upper respiratory tract symptoms.

2050 PEDIATRIC STRIDOR/CROUP

Characteristics of Croup:

- Most common cause of stridor in children
- Child will have stridor, barky cough, and URI symptoms of sudden, often nocturnal onset
- Most often seen in children < 9 years old
- Agitation worsens the stridor and respiratory distress

Pediatric Universal Respiratory Distress protocol and prepare for immediate transport

EMT-IV	Paramedic

Minimize agitation:
Transport in position of comfort, interventions only as necessary

Check SpO_2, give oxygen as needed

Considerations with Stridor:

- Stridor is a harsh, usually inspiratory sound caused by narrowing or obstruction of the upper airway
- Causes include croup, foreign body aspiration, allergic reactions, trauma, infection, mass
- Epiglottitis is exceedingly rare. May consider in the unimmunized child. Treatment is minimization of agitation. Airway manipulation is best done in the hospital

Are symptoms severe and croup most likely?

- Stridor at rest or biphasic stridor
- Severe retractions
- SpO_2 < 90% despite O_2
- Altered LOC
- Cyanosis

No

Yes

Give racemic epinephrine*

*If racemic epinephrine is unavailable, nebulized epinephrine may be used:

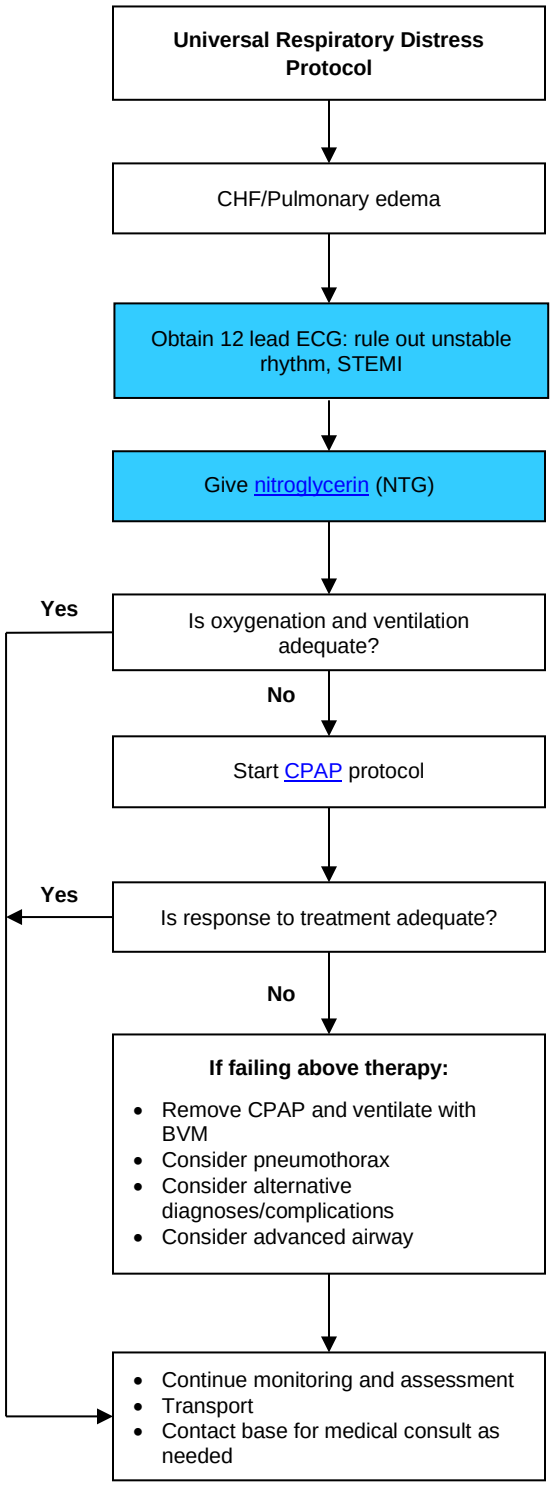
5mg 1:1000 epi directly into nebulizer
Pediatric dose: 0.5mg/kg with a max dose of 5mg

If signs of poor perfusion AND/OR hypotension for age, see Medical Shock protocol and begin fluid resuscitation

- Continue monitoring and assessment en route
- **Contact Base** for repeat dose of racemic epinephrine and medical consult as needed

2060 CHF/PULMONARY EDEMA

EMT-IV	Paramedic



Therapeutic Goals:

- Maximize oxygenation
- Decrease work of breathing
- Identify cardiac ischemia (Obtain 12 lead ECG)

Special Notes:

- In general, diuretics have little role in initial treatment of acute pulmonary edema and are no longer considered first line therapy
- Morphine has been associated with worse outcomes in patients with CHF and is no longer indicated

2090 TRACHEOSTOMY EMERGENCIES

Adult or Pediatric Universal Respiratory Distress Protocol

EMT-IV | Paramedic

Tracheostomy in Place

Attempt repositioning and supplemental oxygen

If gurgling, rhonchi, or mucous present:

- Preoxygenate with 3-5 BVM breaths
- If inner cannula present, remove while stabilizing tracheostomy flange
- Measure suction catheter to length of inner cannula (generally 3-6 cm)
- Instill 1-2 mL saline and suction for ≤10 seconds
- Replace inner cannula if removed
- Begin ventilations with supplemental oxygen through tracheostomy

If patient still has signs of inadequate oxygenation and ventilation:

- Remove tracheostomy, deflating cuff if needed
- If patient has additional tracheostomy tubes readily available, gently insert the same size tracheostomy tube with the obturator in place. Do not force the tube
- If the tracheostomy tube cannot be inserted easily, withdraw the tube, and attempt to pass a smaller size tracheostomy tube, if available
- If smaller tracheostomy tube is not available, or cannot be inserted easily, place ETT in stoma if trach is mature (at least 6 weeks old) and advance until balloon is within trachea
- Confirm placement by continuous waveform capnography, presence, and symmetry of breath sounds, and rising SpO_2

Tracheostomy Removed

- Attempt to replace the tracheostomy tube if trach is mature (at least 6 weeks old)
- If the tracheostomy tube cannot be inserted easily, withdraw the tube, and attempt to pass a smaller size tracheostomy tube, if available
- If smaller tracheostomy tube is not available, or cannot be inserted easily, place ETT in stoma if trach is mature (at least 6 weeks old) and advance until balloon is within trachea
- Confirm placement by continuous waveform capnography, presence, and symmetry of breath sounds, and rising SpO_2

If unable to place tube and patient hypoxic or in respiratory distress, begin BVM over nose and mouth and occlude the stoma with a gloved finger

If unable to oxygenate or ventilate, attempt to place advanced airway through mouth and occlude stoma with gloved finger

If oral ETI is performed, advance ETT balloon below level of stoma

- Transport in position of comfort and monitor
- Reassess for signs of deterioration
- Provide oxygen and ventilator support as needed
- Contact Base if patient is not improving with treatment

ETT Recommended Sizes – Length Based

- Color Pink to Blue (Newborn to <7 years): 3.5 cuffed
- Color Orange to Adult (7 years and up): 6.0 cuffed

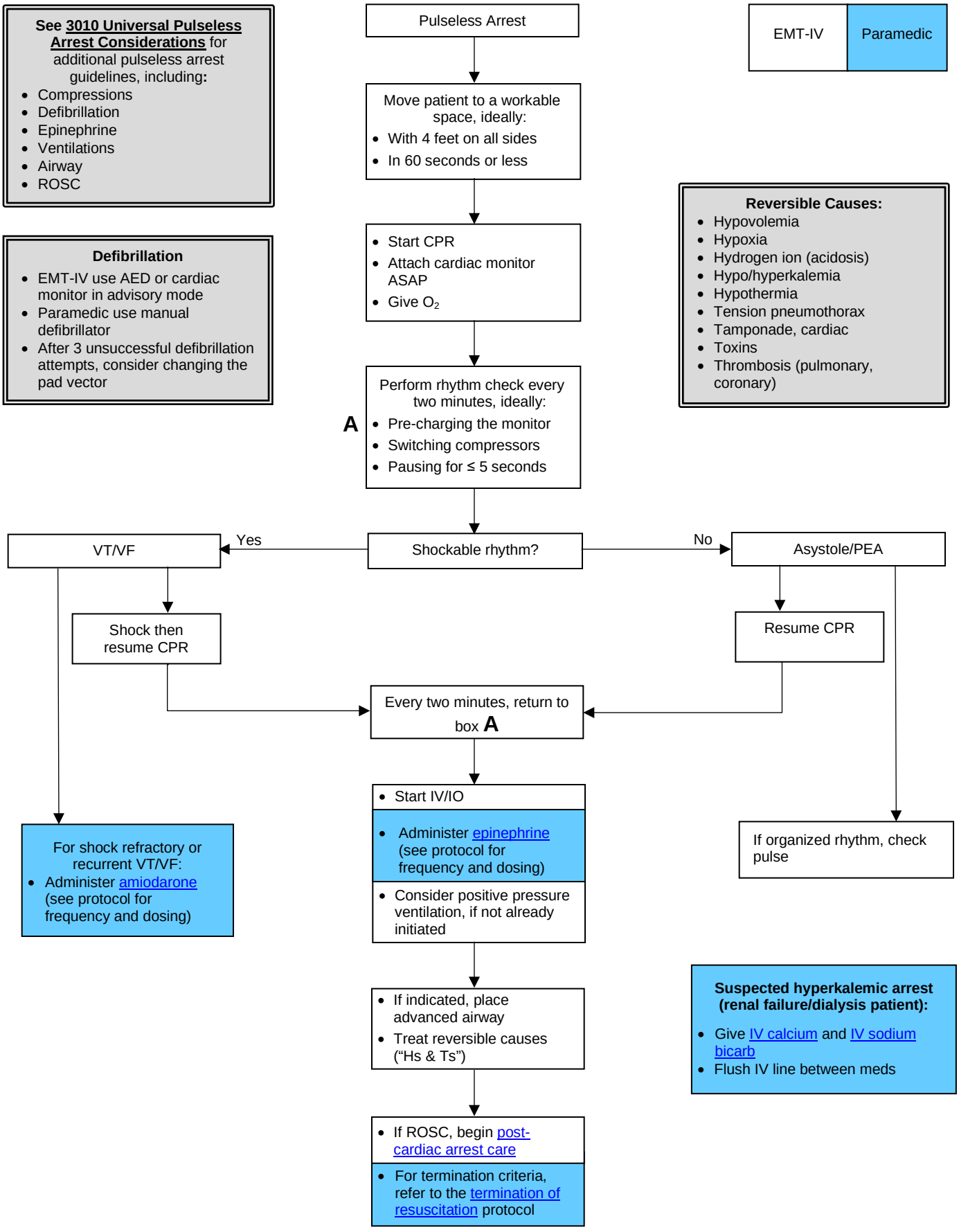
Stomas <6 weeks old

- An established tracheostomy is a tracheostomy that was surgically placed longer than 6 weeks ago. Never replace anything into a stoma that is less than 6 weeks of age.
- For stomas <6 weeks old, if patient has an upper airway, occlude stoma and BVM via traditional method. If patient does not have an upper airway, use neonate mask over stoma site

- Always utilize family members, both for information and for assistance
- Types of tracheostomies include cuffed, uncuffed, fenestrated (allowing for speech), and unfenestrated
- Ask if family has a suction catheter and use theirs if available to ensure appropriate size. If none available, inquire as to size. If size unknown, estimate by doubling the inner diameter of the tracheostomy tube and rounding down to the available size catheter
- Never force suction catheter. When inserting, allow catheter to gently follow the curvature of the tracheostomy
- If tracheostomy tube is a double lumen tube, the inner cannula must be in place to attach the bag-valve-mask. Remove the inner cannula to suction and then re-insert. If outer flange becomes removed, it requires a Paramedic to replace
- Apply suction only while withdrawing catheter from the tracheostomy tube, never during insertion and always <100mmHg of suction

Approved by DHPD Medical Directors February 2024

3000 MEDICAL PULSELESS ARREST ALGORITHM



Approved by DHPD Medical Directors February 2024

3010 MEDICAL PULSELESS ARREST CONSIDERATIONS

ADULT PATIENT

Compressions

- Follow current ACLS guidelines for chest compressions
- Minimize interruptions, resume compressions immediately after shocks, rhythm checks. Check pulses only if organized rhythm
- Push hard (≥ 2 inches) and fast (100-120/min) and allow complete chest recoil
- If available, use metronome to monitor compression rate.
- Assess quality of CPR with continuous waveform capnography
- If $ETCO_2$ < 10, improve quality of compressions.
- If using automated CPR devices, use manufacturer's specifications

Defibrillation

- Recommended energy dosing is 360 J
- After 3 unsuccessful defibrillation attempts, consider changing the pad vector
- When monitor is charged but shock is not indicated, clear patient before discharge

Epinephrine

- The first dose of epinephrine should be administered ASAP
- Subsequent doses should be administered every 3 cycles of compressions or every 6 minutes
- After 3 doses, additional epinephrine is not routinely recommended

Ventilations

- Open the airway, place NPA/OPA, place NRB facemask with O_2 at 15 L/min for initial phase of resuscitation, unless hypoxic arrest suspected (e.g.: asphyxiation, overdose, status asthmaticus), in which case begin ventilations immediately
- Regardless of airway type (BLS, iGel, ETT), ventilate every 10 compressions, without pausing compressions.
- Do not over ventilate

Airway

- An advanced airway (iGel, ETT) may be placed at any time after initial phase of resuscitation, if applicable, or as soon as possible if asphyxial arrest suspected, provided placement does not interrupt compressions

ROSC

- Pulse and blood pressure
- Sustained abrupt rise in $ETCO_2$, typically > 40 mmHg
- Obtain 12-lead ECG after ROSC

PEDIATRIC PATIENT

Compressions

- Follow current PALS guidelines for chest compressions
- Minimize interruptions, resume compressions immediately after shocks, rhythm checks. Check pulses only if organized rhythm
- Push hard (≥ 1/3 of anteroposterior chest diameter and fast (100-120/min) and allow complete chest recoil
- If available, use metronome to monitor compression rate
- Assess quality of CPR with continuous waveform capnography

Defibrillation:

- Follow Handtevy guidelines for energy dosing
- EMT-IV use AED or cardiac monitor in advisory mode.
- Paramedic use manual defibrillator
- When monitor is charged but shock is not indicated, clear patient before discharge

Epinephrine:

- The first dose of epinephrine should be administered ASAP
- Subsequent doses should be administered every 3 cycles of compressions or every 6 minutes
- After 3 doses, additional epinephrine is not routinely recommended

Ventilations

- Regardless of airway type (BLS, iGel, ETT), ventilate continuously at 20-30 breaths/minute (every 3-5 compressions)
- Do not over ventilate

Airway

- BVM preferred for all pediatric patients
- An appropriately sized supraglottic airway (iGel) or ETT may be placed as an alternative if BVM ventilations are inadequate

ROSC

- Pulse and blood pressure
- Sustained abrupt rise in $ETCO_2$, typically > 40 mmHg

Regarding where to work arrest and presence of family members:

- Manual CPR in a moving ambulance or pram is suboptimal
- In general, work cardiac arrest on scene either to return of spontaneous circulation (ROSC), or to field pronouncement, unless scene unsafe
- Family presence during resuscitation is preferred by most families, is rarely disruptive, and may help with grieving process for family members. Family presence during resuscitation is recommended, unless disruptive to resuscitation efforts
- Contact base for consideration of termination of resuscitation

Pacing

- Pacing is not recommended in cardiac arrest

ICD/Pacemaker patients

- If cardiac arrest patient has an implantable cardioverter defibrillator (ICD) or pacemaker: place pacer/defib pads at least 1 inch from device. Biaxillary or anterior posterior pad placement may be used

Approved by DHPD Medical Direction July 2025

3020 NEONATAL RESUSCITATION

EMT | Paramedic

Birth

Term Gestation? Breathing or crying? Good flex or tone?

Yes → **Routine Care:**
- Provide warmth and dry
- Clear airway if necessary
- Check glucose in symptomatic or at-risk neonates
- Ongoing evaluation

No → Warm, clear airway if necessary, dry, simulate

30 sec

HR <100, gasping or apnea

No → ***Labored breathing or persistent cyanosis?***

Yes → PPV, SpO_2 monitoring

Yes →
- Clear airway
- SpO_2 monitoring
- Supplementary O_2 as needed

60 sec

HR <100?

No → Post resuscitation care

Yes → Take ventilation corrective steps

- Provide warmth and dry
- Clear airway if necessary
- Check glucose in symptomatic or at-risk neonates
- Ongoing evaluation

HR <60?

No → (return to HR <100?)

Yes → Chest compressions Coordinate w. PPV 100% O_2

Consider:
- Hypovolemia
- Pneumothorax

HR <60 after 60 seconds of chest compressions?

No → (return to HR <100?)

Yes → IV epinephrine

General Considerations
- Providing warmth to newborn could include skin-to-skin contact on mother, body covering, cap on head, increasing ambient temperature.

Assisting Ventilations
- Assist ventilations at a rate of 40-60 breaths per minute to maintain HR > 100
- Use 2-person BVM when possible

Neonatal Oxygen Recommendations
- Begin resuscitation of newborns ≥ 35 weeks gestation with room air. If breathing is labored, supplement with oxygen to the targets listed below.
- Begin resuscitation of newborns <35 weeks gestation with supplemental oxygen titrated to the targets listed.

Target Preductal (R Arm) SpO2 After Birth	
1 minute	60%-65%
3 minutes	60%-75%
5 minutes	80%-85%
10 minutes	85%-95%

Chest Compressions
- Indicated for HR < 60 despite adequate ventilation w. supplemental O_2 for 30 seconds
- 2 thumbs-encircling hands technique preferred. Allow full chest recoil.
- Coordinate with ventilations so not delivered simultaneously.
- 3:1 ratio for compressions to ventilations

Field Pronouncement / Termination of Resuscitation
- For information on pronouncement of nonviable births, refer to field pronouncement protocol.
- For information on termination of efforts of newly born, refer to termination of resuscitation protocol.

Neonatal Hypoglycemia
- Common symptoms include jitters/tremors, sweating, tachypnea, pallor, weakness, irritability, or seizures
- Asymptomatic patients are common and more likely when premature, small or large for gestational age, perinatal stress, or when mother has diabetes
- In the newly born (<48 hours of life), treatment threshold is 50mg/dL
- If neurologically altered and/or unable to feed, treat with 5ml D10W and recheck after 15 min
- In neurologically stable, allow to breast feed, give formula, or 2mL 40% dextrose gel

Approved by DHPD Medical Directors June 2026

3030 POST-CARDIAC ARREST CARE

Post-Cardiac Arrest Care

- Following ROSC, several simultaneous and stepwise interventions must be performed to optimize care and maximize patient outcome
- Survival and neurologic outcome worsen with fever, hypoxia, hypo/hypercapnia, and hypotension. Post-ROSC care should focus on prevention of these elements

Return of spontaneous circulation (ROSC) criteria:

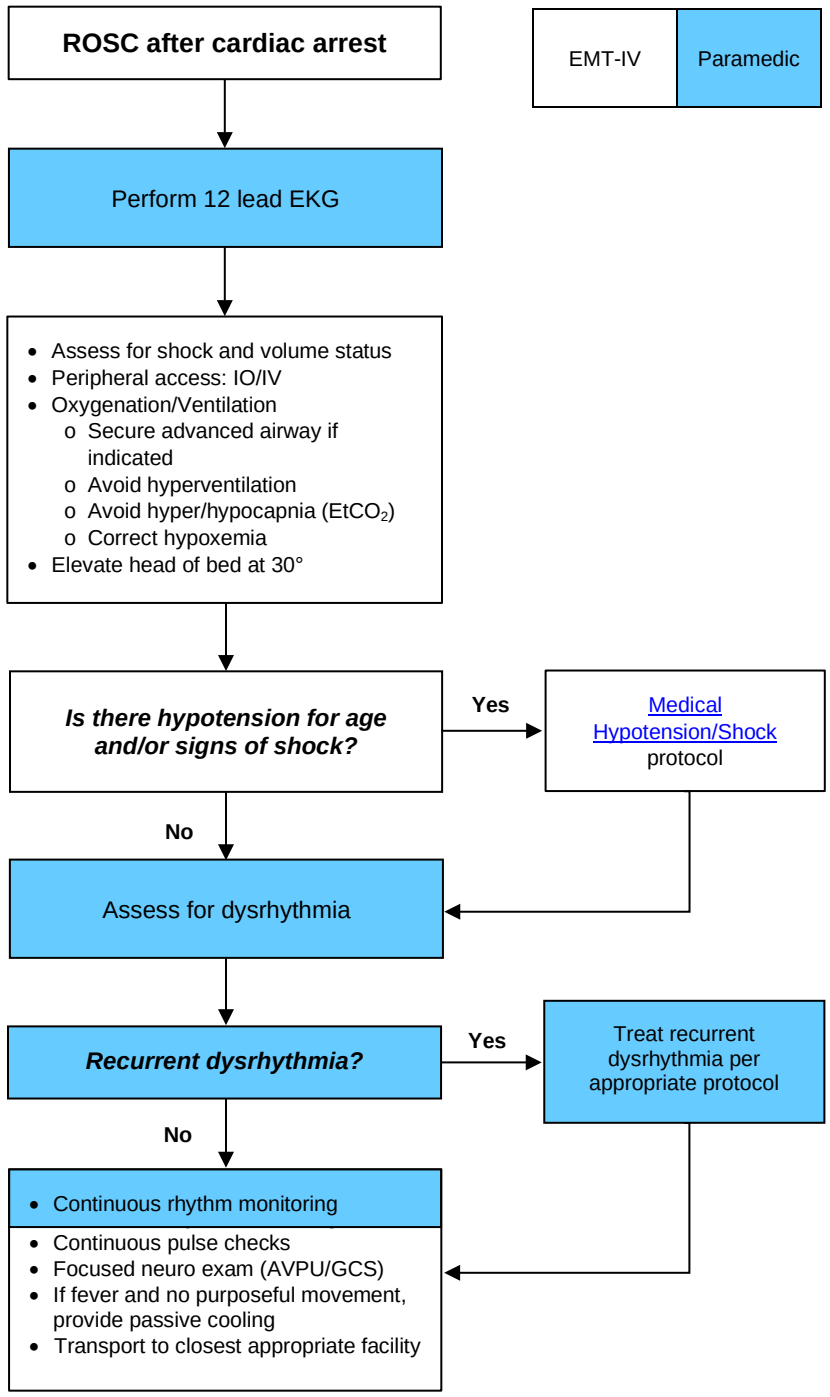
- Pulse and measurable blood pressure
- Increase in ETCO2 on capnography

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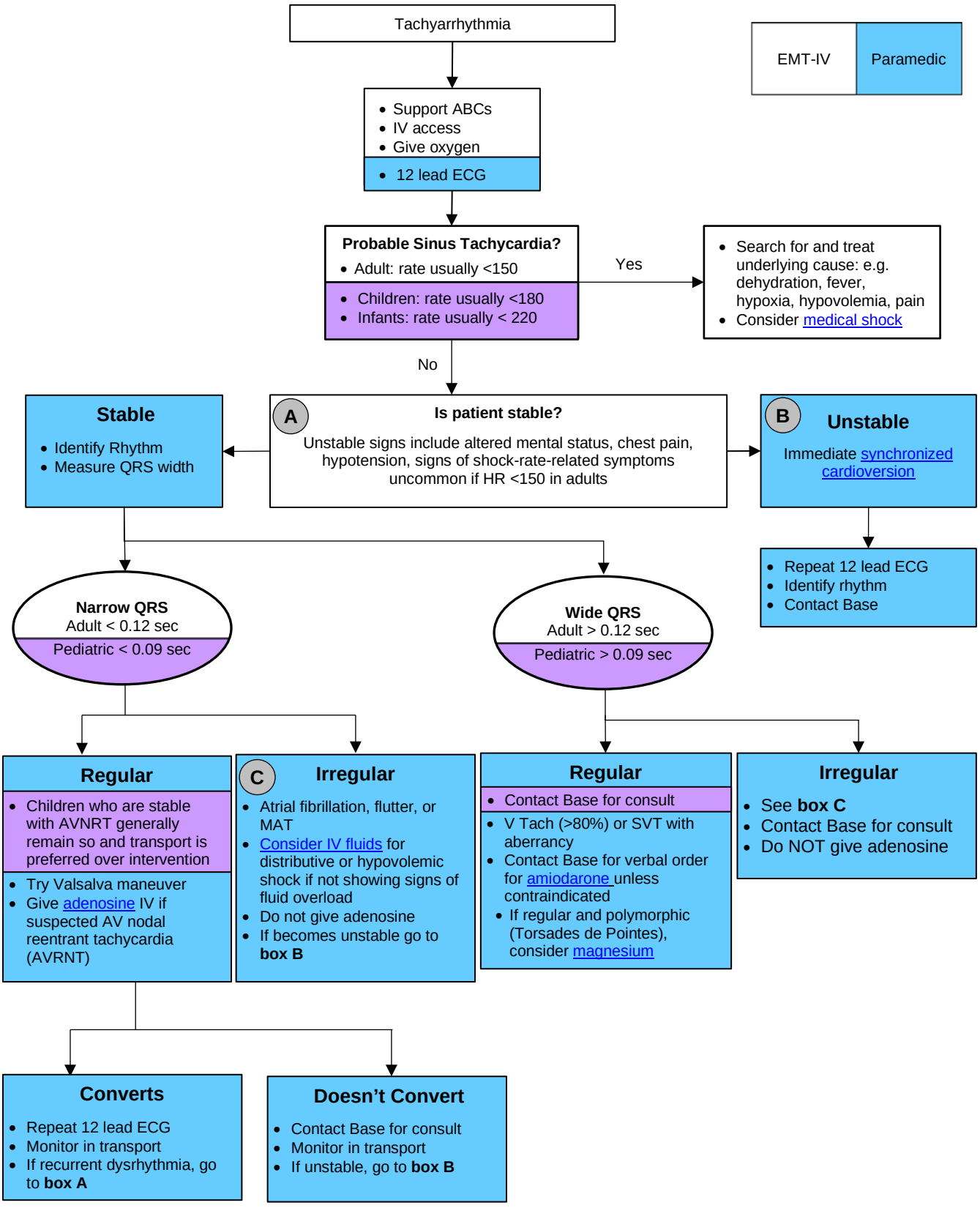
- Time of arrest (or time last seen normal)
- Witnessed vs. unwitnessed arrest
- Initial rhythm shockable vs. non-shockable
- Bystander CPR given
- Time of ROSC
- GCS after ROSC
- Initial temperature of patient after ROSC, if possible

Target ROSC Vital Signs

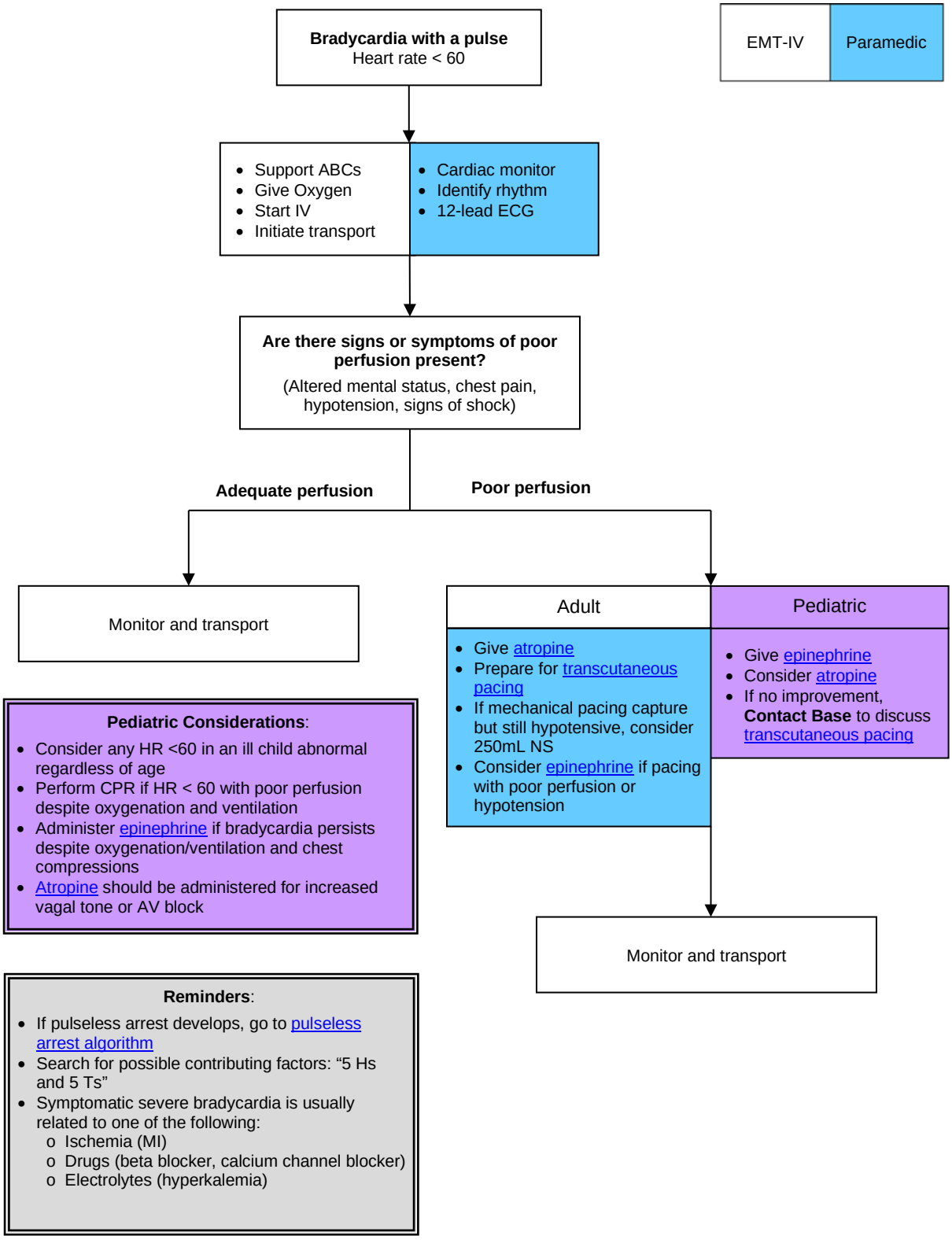
- SpO_2 92%-98%
- $EtCO_2$ 35-45 mmHg
- Systolic pressure >90 mmHg or mean arterial pressure >65 mmHg



3040 TACHYARRHYTHMIA WITH POOR PERFUSION



3050 BRADYARRHYTHMIA WITH POOR PERFUSION



3060 CHEST PAIN

EMT-IV | Paramedic

Consider life threatening causes of chest pain in all patients

- While assessing ABCs, titrate oxygen and monitor vital signs
- Assess cardiac rhythm and obtain 12-lead ECG
- Start IV
- Administer aspirin if history suggests possible cardiac chest pain

STEMI?

No / Yes

Notify base physician immediately if STEMI Alert criteria met

Give SL nitroglycerin if suspected cardiac chest pain and no contraindication

EMT-IV may administer patient's prescribed nitroglycerin, **Contact Base** for verbal order

For hypotension following nitroglycerin, give 250 ml NS bolus, reassess, and repeat bolus as needed. Do not give additional nitroglycerin

Consider opioid for chest pain refractory to nitroglycerin, if no contraindication

- Consider repeat 12-lead if initial 12-lead non-diagnostic and/or patient's condition changes
- Consider additional 12-lead views such as R sided leads for R ventricular infarct if inferior MI present

Life threatening causes of chest pain:

- Acute coronary syndrome (ACS)
  - Unstable angina
  - NSTEMI
  - STEMI
- Pulmonary embolism
- Thoracic aortic dissection
- Tension pneumothorax

Nitroglycerin Contraindications:

- Suspected right ventricular ST-segment elevation MI (inferior STEMI pattern plus ST elevation in right-sided precordial leads e.g. V4R)
- Hypotension SBP < 100
- Recent use of erectile dysfunction (ED) medication (e.g. Viagra, Cialis)

Causes of Chest Pain in Children:

- Costochondritis
- Pulmonary Causes
- Ischemia Is rare but can be seen with a history of Kawasaki's disease with coronary aneurysms
- Cyanotic or Congenital Heart Disease
- Myocarditis
- Pericarditis
- Arrhythmia
- Anxiety
- Abdominal Causes

3070 STEMI ALERT

Paramedic

Goal:

- To identify patients with ST-segment elevation myocardial infarction (STEMI) in the prehospital setting and provide advanced receiving hospital notification in order to minimize door-to-balloon times for percutaneous coronary intervention (PCI)

STEMI Alert Criteria: *note all 4 criteria must be met for field activation*

1. Chest discomfort consistent with ACS
2. 12-lead ECG showing ST-segment elevation (STE) at least 1 mm in two or more anatomically contiguous leads other than leads V2-V3 where at least 2 mm is required
3. Age 35-85 years old
4. No wide complex QRS (paced rhythm, BBB, other)

If patient does not meet all four STEMI alert criteria, do not call a STEMI Alert. Continue to treat and transport appropriately.

Contraindications:

- ROSC (post-cardiac arrest patients are not eligible for STEMI alert)

Actions:

- Treat according to chest pain protocol en route (cardiac monitor, oxygen, aspirin, nitroglycerin, and opioid as needed for pain control)
- Notify base physician ASAP with ETA and request STEMI alert. Do not delay hospital notification. If possible, notify dispatch by radio of STEMI alert before leaving scene
- Start 2 large bore peripheral IVs – avoid the right wrist or hand, if possible, in the field to avoid interfering with cath lab radial access
- Rapid transport

Additional Documentation Requirements:

- Time of first patient contact
- Time of first ECG
- “STEMI Alert”, found in Flowchart > Other

3080 HYPERTENSION

Paramedic

Intent:

A. Even with extremes of blood pressure, treat the medical emergency **associated** with hypertension ("treat the patient, not the number")
    1. Treat chest pain, pulmonary edema, or stroke according to standard protocols (pain control will usually improve BP significantly)
B. Do not use medication to treat asymptomatic hypertension
C. Do not treat hypertension in acute stroke

3090 VENTRICULAR ASSIST DEVICES

Ventricular Assist Device (VAD)

A Ventricular Assist Device (VAD) is a mechanical device used to support circulation in a patient with significant cardiac ventricular dysfunction. The Left Ventricular Assist Device (LVAD) is commonly used to support the left side of the heart and to provide extra cardiac output to the body. 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 for a transplant. 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 protocols.

EMT-IV	Paramedic

Assess the patient

Typically, LVAD patients have no discernible pulse. Blood pressure measurement requires manual BP cuff and Doppler which the patient may have. Utilize other parameters for patient assessment:

- Level of consciousness
- Respiratory rate and work of breathing
- Signs of perfusion: skin color/temperature, capillary refill (HR >100 is hemodynamically unstable)
- SpO_2, blood glucose level
- Cardiac monitor

Is the patient stable?

STABLE

- Address any medical problems according to protocol
- Transport to University of Colorado Hospital for further treatment, if practical
- Contact VAD Coordinator

UNSTABLE

- Determine if VAD is running and functioning properly
- Auscultate chest for whirling sounds
- Examine VAD control unit for alarms

Common VAD Complications

- CVA
- TIA
- Arrhythmias
- Infections
- Sepsis
- Obstructions
- Pump Failure

VAD RUNNING

- 250 mL bolus
- Notify destination of VAD patient inbound
- Consider chest compressions if apneic with no clinical evidence of perfusion
- Initiate ACLS (PALS if patient pre-pubescent) and address underlying dysrhythmia or other problems per protocol

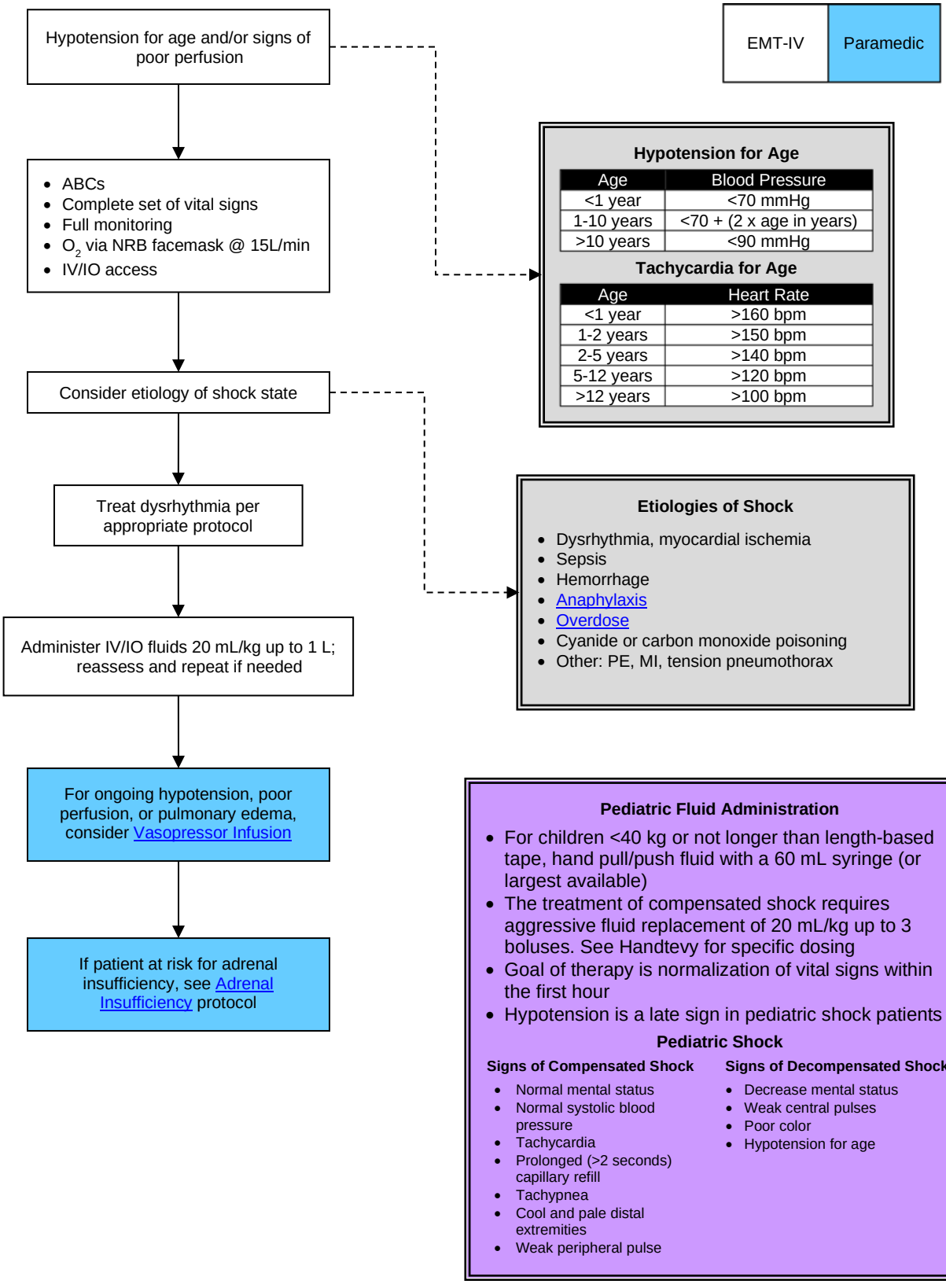
VAD NOT RUNNING

- Consider chest compressions if required
- Address VAD alarms/faults
- Consider defibrillation if required
- Notify destination of VAD patient inbound
- Initiate ACLS (PALS if patient pre-pubescent)

Key Points

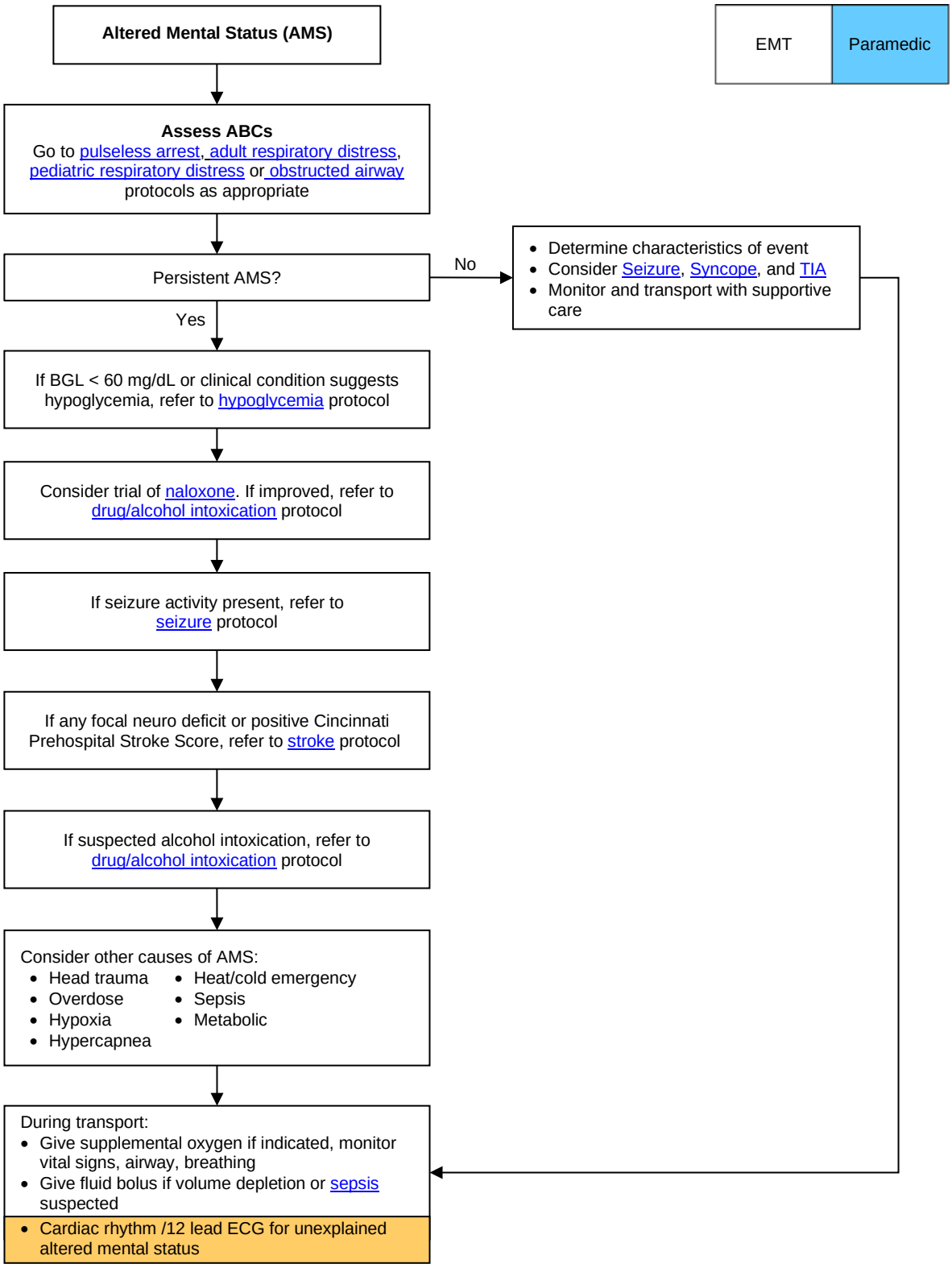
- Unstable VAD patients should be transported to the nearest appropriate facility. University of Colorado Hospital is the only facility in the region that definitively treats VAD patients—and is therefore the preferred destination when patient condition is stable and conditions/operational factors allow transport.
- **Contact VAD Coordinator as soon as possible at 720-848-LVAD (5823)**. **For pediatric patients, contact the Children's Hospital Colorado transplant coordinator pager at (303) 890-3503.** Provide patient name, DOB, condition, and ETA at destination for consultation and/or if transporting to University of Colorado Hospital. VAD coordinator will call back.
- 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/resource-library/ems-field-guides

4000 MEDICAL SHOCK PROTOCOL

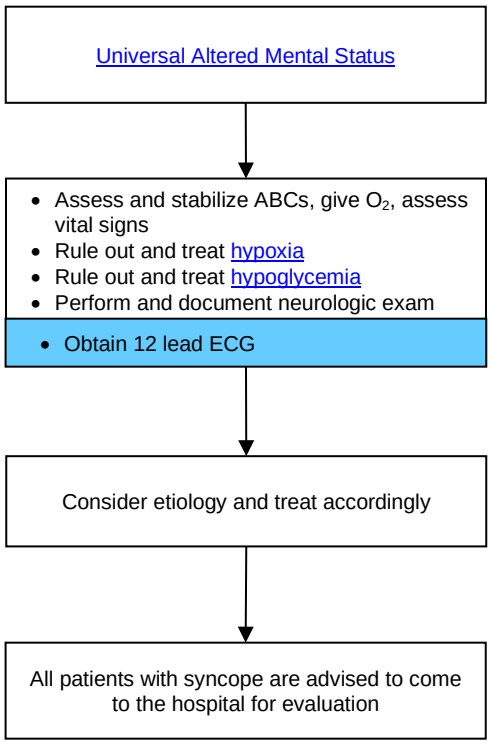


Approved by DHPD Medical Directors February 2024

4010 UNIVERSAL ALTERED MENTAL STATUS



4020 SYNCOPE



EMT-IV	Paramedic

Causes of Syncope:

- Cardiac
  - Structural heart disease
  - Arrhythmia (Prolonged QT, Brugada, WPW, heart block, etc.)
- Seizure
- Hypovolemia
  - Dehydration
  - Blood loss
  - Pregnancy/ectopic
- Pulmonary Embolism
- Vasovagal

General Information:

- Syncope is defined as transient loss of consciousness accompanied by loss of postural tone
- A syncopal episode will generally be very brief and have a rapid recovery with no postictal confusion
- Convulsive movements called myoclonic jerks may occur with syncope. This is often confused with seizures but should not be accompanied by a post-ictal phase, incontinence, or tongue biting
- Elderly syncope has a high risk of morbidity and mortality

Pediatric Considerations:

- Life-threatening causes of pediatric syncope are usually cardiac in etiology (arrhythmia, cardiomyopathy, myocarditis, or previously unrecognized structural lesions)
- In addition to the causes listed above, consider the following in the pediatric patient:
  - Seizure
  - Breath holding spells
  - Toxins (marijuana, opioids, cocaine, CO, etc.)
  - Heat intolerance
  - BRUE (Brief Resolved Unexplained Events, formerly ALTE)
- Important historical features of pediatric syncope include color change, seizure activity, incontinence, post-ictal state, and events immediately prior to syncope event

4030 STROKE

EMT-IV | Paramedic

POSSIBLE STROKE
Any acute onset neurological deficit not likely due to trauma ***regardless of age***

For possible strokes, think **"BE-FAST"**
(Balance, Eyes, Face, Arm, Speech, Time)

Assess and stabilize ABCs, titrate O_2

Assess Cincinnati Prehospital Stroke Score
(Presence of single sign sufficient)

Cincinnati Prehospital Stroke Scale

Assess Facial Droop

Say: "Smile for me", or "Show me your teeth"

Assess Arm Pronator Drift

Demonstrate and say: "Put your arms up for me like this and hold them while I count to 10"

Assess Speech

Say: "Repeat after me: you can't teach an old dog new tricks", or "No ifs, ands, or buts"

- If you have a negative CPSS, the patient may still be having a stroke. Stroke signs may be very subtle; therefore, it is important to know other signs of stroke, which include:
  - Impaired balance or coordination, vertigo
  - Blurred or lost vision
  - Headache
  - Confusion or altered mental status
  - Seizure
- The Cincinnati Prehospital Stroke Scale (CPSS) is designed to be very reproducible and identify those strokes most likely to benefit from reperfusion therapy.

Rule out or treat hypoglycemia

Determine when last KNOWN to be normal and document **specific** time (e.g., "At 2:15 PM," **not** "1 hour ago")

- Obtain medical history and document medications
- Identify family or friend who may assist with history and decision-making, get contact info, and strongly encourage to come to ED as they may be needed for consent for treatments

Consider common stroke mimics/syndromes

Stroke Mimics (for all ages):

- Hypoglycemia
- Post-ictal paralysis
- Complex migraine
- Overdose
- Trauma
- Bell's palsy

- Start IV and draw blood
- Document cardiac rhythm and obtain 12-lead ECG
- Elevate head 30°, if possible

Fully monitor patient and continually reassess:
- Improvement or worsening of deficit
- Adequacy of ventilation and oxygenation
- Cardiovascular stability

- Notify receiving hospital of suspected stroke and time of onset of symptoms in order to provide hospital the opportunity for Stroke Alert
- **It is more important that you know timeline of your patient's symptoms than an individual hospital's Stroke Alert criteria, which may vary**

4040 SEIZURE

EMT-IV | Paramedic

- Support ABCs:
- Give oxygen
- Universal seizure precautions (see below)
- Consider the cause (see below)

Actively Seizing?

Yes

- If ≥20 weeks gestational age or up to 6 weeks postpartum, administer magnesium sulfate
- If prolonged (e.g.: > 5 min) or recurrent seizure, then treat as follows:

Give benzodiazepine

Rule out and treat hypoglycemia (check blood glucose)

Actively seizing after 5 minutes?

No

Yes

- Establish IV access if not already in place
- Repeat benzodiazepine

Actively seizing after 5 minutes?

No

Yes

CONTACT BASE

No

- Check pulse and reassess ABC
- Give supplemental oxygen
- Rule out and treat hypoglycemia (check blood glucose)

- Transport and monitor ABCs, vital signs, and neurological condition
- Cardiac monitoring if recurrent seizures and/or meds given
- Complete head to toe assessment

Universal Seizure Precautions:

- Ensure airway patency, but do not force anything between teeth
- Give oxygen
- Suction as needed
- Protect patient from injury
- Check pulse immediately after seizure stops
- Keep patient on side

Document:

- Document: Seizure history: onset, time interval, previous seizures, type of seizure
- Obtain medical history: head trauma, diabetes, substance abuse, medications, compliance with anticonvulsants, pregnancy

Consider the Cause of Seizure

- Epilepsy
- EtOH withdrawal or intoxication
- Hypoglycemia
- Stimulant use
- Trauma
- Intracranial hemorrhage
- Overdose (TCA)
- Eclampsia
- Infection: meningitis, sepsis
- Febrile (age 6 months to 6 years old)

4050 HYPOGLYCEMIA

EMT-IV | Paramedic

Check blood glucose level in ANY patient with signs or symptoms consistent with hypoglycemia

Examples:
Altered mental status, agitation, focal neurologic deficit, seizure, weakness, diaphoresis, decreased motor tone, pallor

Blood glucose level < 60 mg/dl

If newly born refer to neonatal resuscitation protocol

If hypoglycemia still most likely despite normal reading on glucometer, administer glucose **regardless**, while considering other causes of altered mental status

If patient can safely tolerate, administer oral glucose
(intact gag reflex, follows verbal commands)

If oral glucose contraindicated or symptoms unresolved, administer dextrose IV

If unable to establish IV:

- Administer glucagon
- Alternative: If severe symptoms (coma), consider IO and administer dextrose IO

If still symptomatic, recheck blood glucose level and consider other causes of altered mental status

Monitor and transport or **Contact Base** for refusal if indicated

Regarding refusals after a hypoglycemic episode:

See Patient Refusal protocol

Transport is always indicated for any of the following patients:

- With *unexplained* hypoglycemia
- Taking oral hypoglycemic meds
- Not taking food by mouth
- Do not have competent adult to monitor

Considerations for Hyperglycemia:

- In general, treat the patient, not the glucose value. Treat shock if present.
- Consider normal saline bolus for patients with hyperglycemia and no evidence of fluid overload.
- Pediatric patients with concern for DKA should not exceed 10-20 mL/kg of fluids. See Handtevy for specific dosing.

4060 PEDIATRIC BRIEF RESOLVED UNEXPLAINED EVENTS (BRUE) (FORMERLY ALTE)

EMT-IV	Paramedic

DEFINITION:
An infant < 1 year of age with episode frightening to the observer characterized by apnea, choking/gagging, color change, or change in muscle tone

↓

Support ABCs as necessary

↓

Obtain detailed history of event and medical history

↓

Complete head-to-toe assessment

↓

- Any child with a BRUE should be transported to ED for evaluation
- Monitor vital signs en route

Clinical history to obtain from observer of event:

- Document **observer's** impression of the infant's color, respirations, and muscle tone
- For example, was the child apneic, cyanotic, or limp during event?
- Was there seizure-like activity noted?
- Was any resuscitation attempted or required, or did event resolve spontaneously?
- How long did the event last?

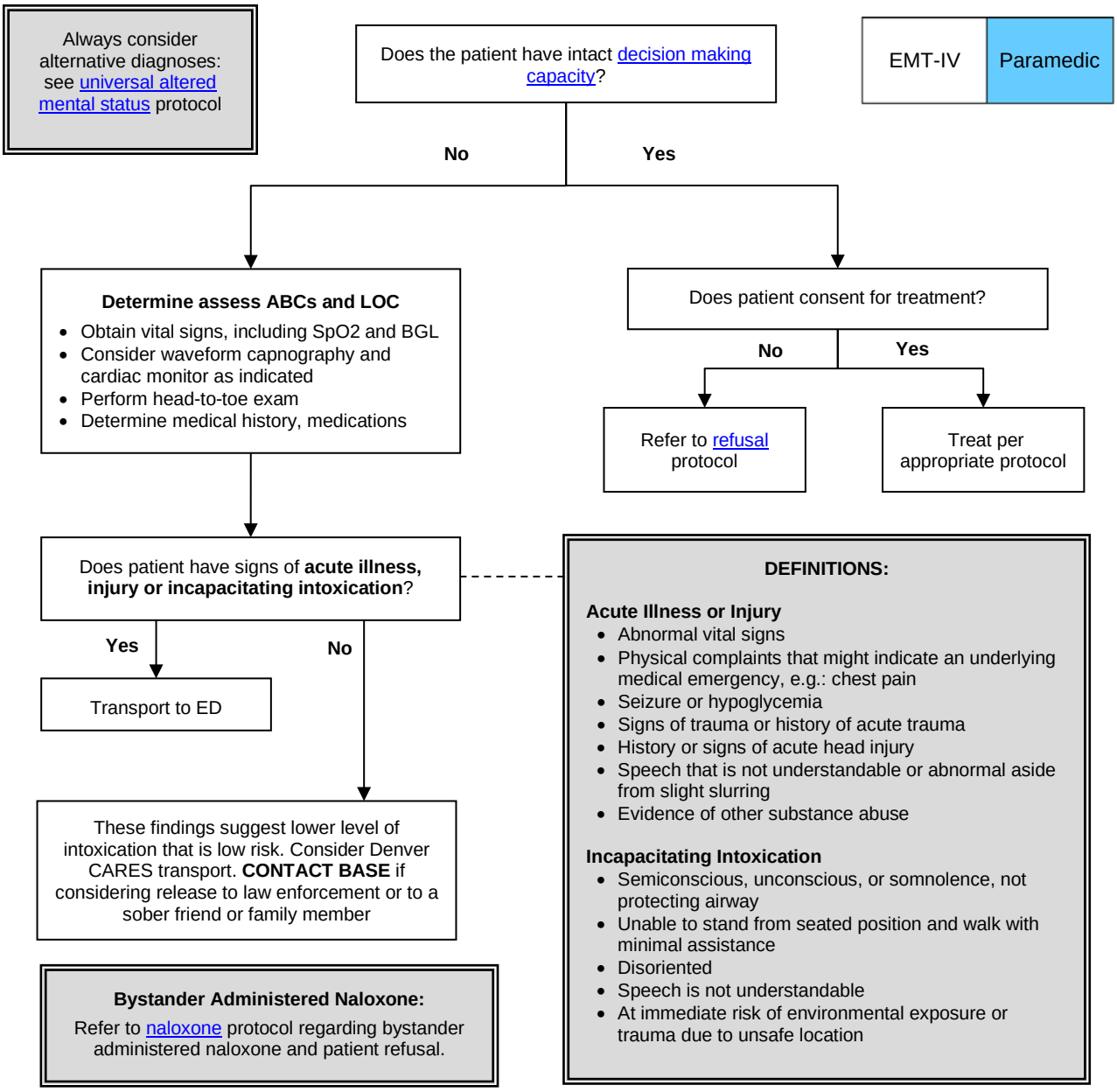
Past Medical History:

- Recent trauma, infection (e.g. fever, cough)
- History of GERD
- History of Congenital Heart Disease
- History of Seizures
- Medication history

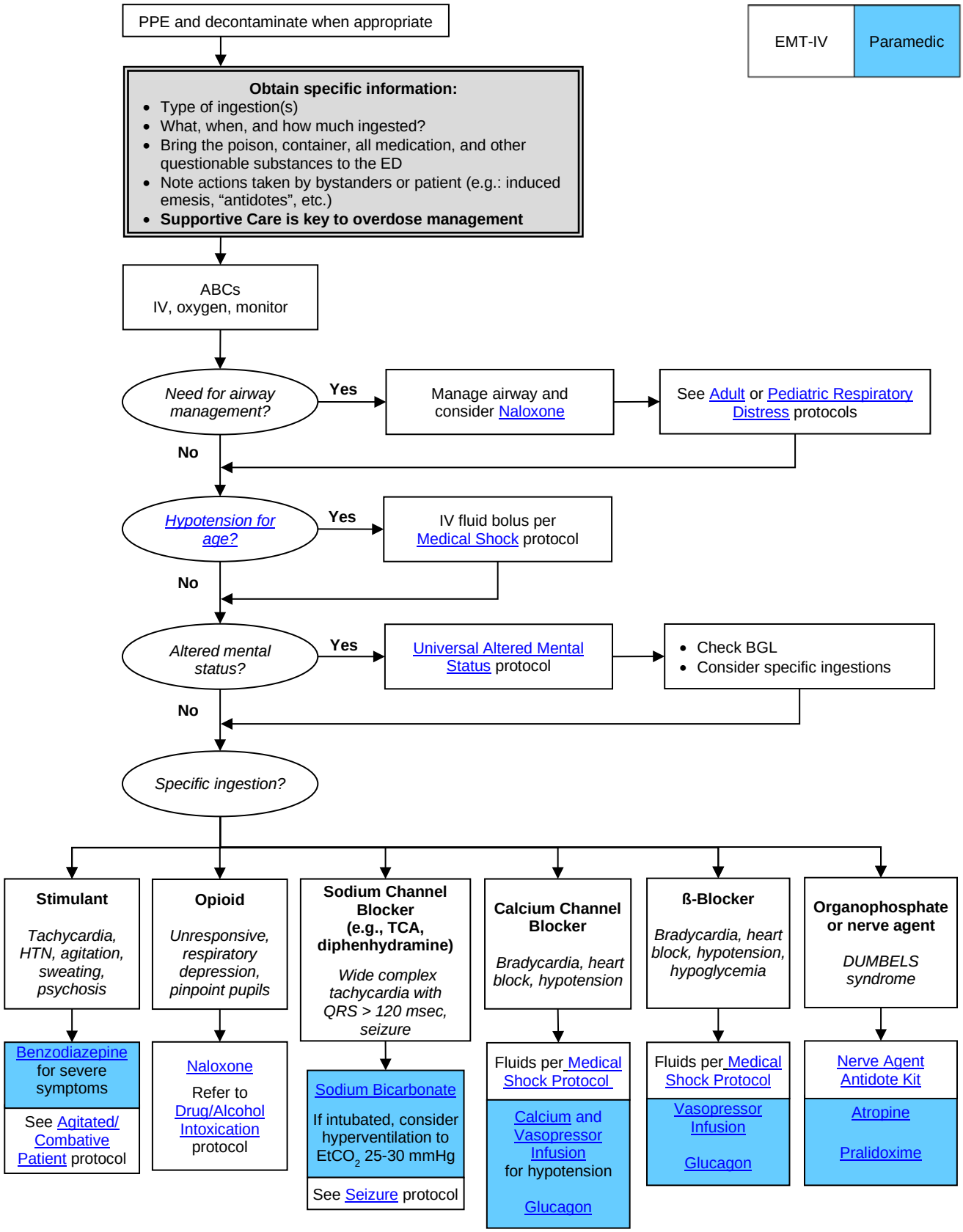
Examination/Assessment

- Head to toe exam for trauma, bruising, or skin lesions
- Check anterior fontanelle: is it bulging, flat, or sunken?
- Pupillary exam
- Respiratory exam for rate, pattern, work of breathing, and lung sounds
- Cardiovascular exam for murmurs and symmetry of brachial and femoral pulses
- Neuro exam for level of consciousness, responsiveness, and any focal weakness

4070 DRUG/ALCOHOL INTOXICATION



4080 OVERDOSE AND ACUTE POISONING



4090 ALLERGY AND ANAPHYLAXIS

Allergic reaction, anaphylaxis, or angioedema

EMT-IV | Paramedic

- Assess ABCs, give oxygen
- If possible, determine likely trigger
- Determine PMH, medications, allergies
- Classify based on symptom severity and systems involved
- Other specific protocols may apply e.g. obstructed airway, bites & envenomation

If patient has any of the following:

1. **Signs of shock:** Poor perfusion, altered mental status, hypotension
2. **Airway or mucous membrane involvement:** Tongue or uvula swelling, stridor, lip swelling
3. **Anaphylaxis:** Potential allergen AND any two of the following:
   - **Angioedema:** facial/lip/tongue swelling, throat tightening voice changes
   - **Breathing:** shortness of breath, wheeze, stridor, cyanosis
   - **Poor perfusion:** hypotension, altered mental status, syncope, delayed capillary refill
   - **Skin:** Hives, itching, extremity swelling, erythema
   - **Gastrointestinal:** vomiting, abdominal pain, diarrhea

Localized Reaction / Isolated Generalized Rash

If patient discomfort:

- Consider diphenhydramine
- Consider methylprednisolone

Reassess and if patient deteriorates or does not improve go to epinephrine IM

- Give epinephrine IM
- Avoid standing/ambulating patient. Keep supine if possible
- Give IV NS bolus per medical shock protocol

- If no response in 5 minutes repeat epinephrine IM
- For adult, consider epinephrine IV infusion or push dose if peri-arrest

- If no response in 5 minutes start epinephrine IV infusion or push dose

If time and patient stability permit:

- Give diphenhydramine
- Give methylprednisolone
- Consider addition of albuterol if wheezing

- Monitor ABCs, SpO2, cardiac rhythm
- Reassess for signs of deterioration

Document:

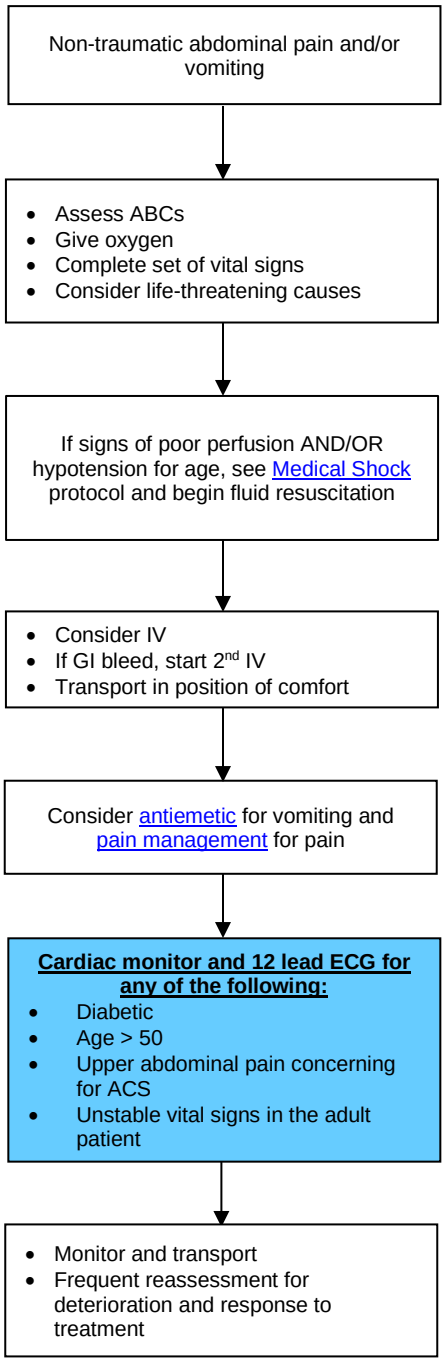
- History of allergen exposure, prior allergic reaction and severity, medications or treatments administered prior to EMS assessment
- Specific symptoms and signs presented: itching, wheezing, respiratory distress, nausea, weakness, rash, anxiety, swelling of face, lips, tongue, throat, chest tightness, etc.

Pediatric Considerations:

- Anaphylaxis in children less than 6 months is rare, consider alternative causes.
- For pediatric patients with severe systemic allergic reaction (anaphylaxis) refractory to IM epinephrine x 3 total doses ***AND*** 60 mL/kg NS rapid push (see Handtevy for dosing), consider IV epinephrine

Approved by DHPD Medical Directors November 2024

4100 NON-TRAUMATIC ABDOMINAL PAIN/VOMITING



EMT-IV	Paramedic

Life-threatening causes:

- Cardiac etiology: MI, ischemia
- Vascular etiology: AAA, dissection
- GI bleed
- Gynecologic etiology: ectopic pregnancy

History:

- Onset, location, duration, radiation of pain
- Associated sx: vomiting, bilious emesis, GU sx, hematemesis, coffee ground emesis, melena, rectal bleeding, vaginal bleeding, known or suspected pregnancy, recent trauma

Pediatric Patients:

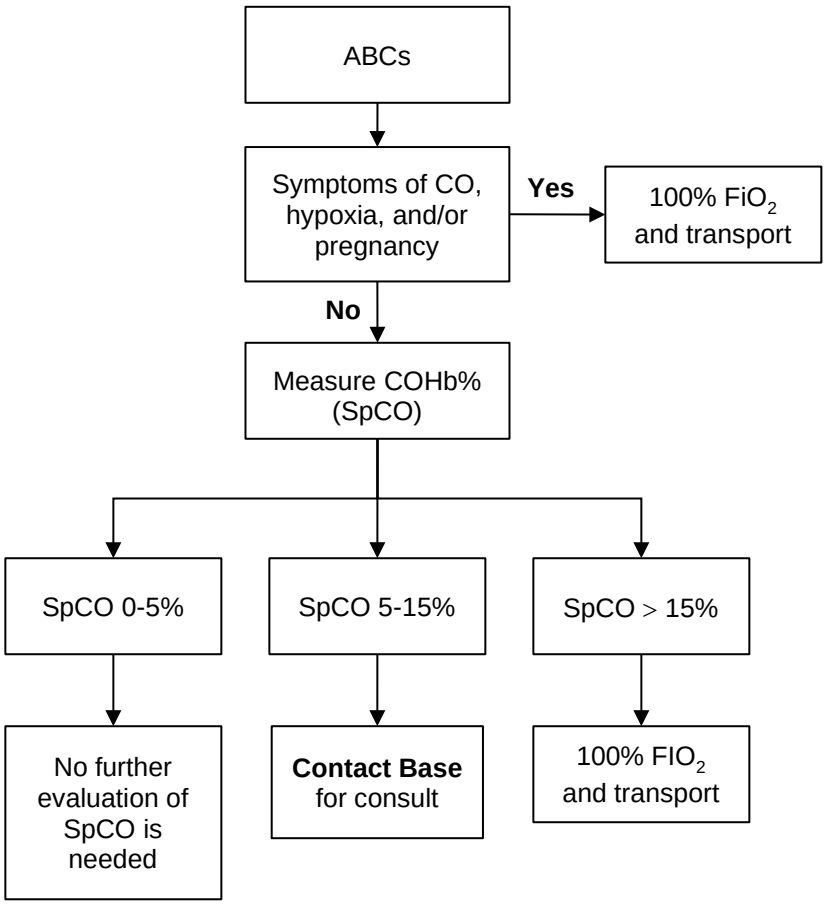
- Life-threatening causes vary by age. Consider occult or non-accidental trauma, toxic ingestion, button battery ingestion, GI bleed, peritonitis
- For most pediatric patients without signs of shock, no IV is required and pharmacologic pain management should be limited

Elderly Patients:

- Much more likely to have life-threatening cause of symptoms
- Shock may be occult, with absent tachycardia in setting of severe hypovolemia

4110 SUSPECTED CARBON MONOXIDE EXPOSURE

EMT-IV | Paramedic



General Guidelines:

- *Signs and Symptoms of CO exposure include:*

  Headache, dizziness, coma, altered mentation, seizures, visual changes, chest pain, tachycardia, arrhythmias, dyspnea, N/V, "flu-like illness"
- The absence or low readings of COHb is not a reliable predictor of toxicity of other fire byproducts
- In smoke inhalation victims, consider cyanide treatment with hydroxocobalamin as per indications
- The fetus of a pregnant woman is at higher risk due to the greater affinity of fetal hemoglobin to CO. With CO exposure, the pregnant woman may be asymptomatic while the fetus may be in distress. In general, pregnant patients exposed to CO should be transported
- People who smoke may have SpCO of up to 10% baseline

COHb	Severity	Signs and Symptoms
5-20%	Mild	Headache, nausea, vomiting, dizziness, blurred vision
21-40%	Moderate	Confusion, syncope, chest pain, dyspnea, tachycardia, tachypnea, weakness
41-59%	Severe	Dysrhythmias, hypotension, cardiac ischemia, palpitations, respiratory arrest, pulmonary edema, seizures, coma, cardiac arrest
>60%	Fatal	Death

4120 ADRENAL INSUFFICIENCY PROTOCOL

EMT-IV	Paramedic

Patient at risk for adrenal insufficiency (Addisonian crisis):

- Identified by family or medical alert bracelet
- Chronic steroid use
- Congenital Adrenal Hyperplasia
- Addison's disease

Assess for signs of acute adrenal crisis:

- Pallor, weakness, lethargy
- Vomiting, abdominal pain
- Hypotension, shock
- Congestive heart failure

All symptomatic patients:

- Check blood glucose and treat hypoglycemia, if present
- Start IV and give oxygen
- If signs of poor perfusion AND/OR hypotension for age, see Medical Shock protocol and begin fluid resuscitation

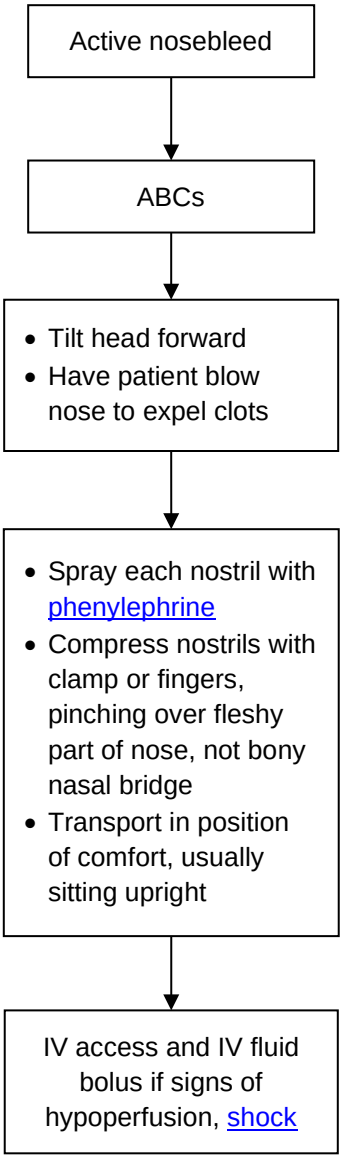
Give corticosteroid

- Continue to monitor for development of hypoglycemia
- **Contact base** for consult if patient not responding to treatment

- Monitor 12 lead ECG for signs of hyperkalemia

- Chronic corticosteroid use is a common cause for adrenal crisis, carefully assess for steroid use in patients with unexplained shock
- Administration of steroids are life-saving and necessary for reversing shock or preventing cardiovascular collapse
- Patients at risk for adrenal insufficiency may show signs of shock when under physiologic stress which would not lead to cardiovascular collapse in normal patients. Such triggers may include trauma, dehydration, infection, myocardial ischemia, etc.
- If no corticosteroid is available during transport, notify receiving hospital of need for immediate corticosteroid upon arrival
- Under Chapter 2 Rule: specialized prescription medications to address an acute crisis may be given by all levels with a direct VO, given the route of administration is within the scope of the provider. This applies to giving hydrocortisone for adrenal crisis, for instance, if a patient or family member has this medication available on scene. Contact base for direct verbal order

4130 EPISTAXIS MANAGEMENT

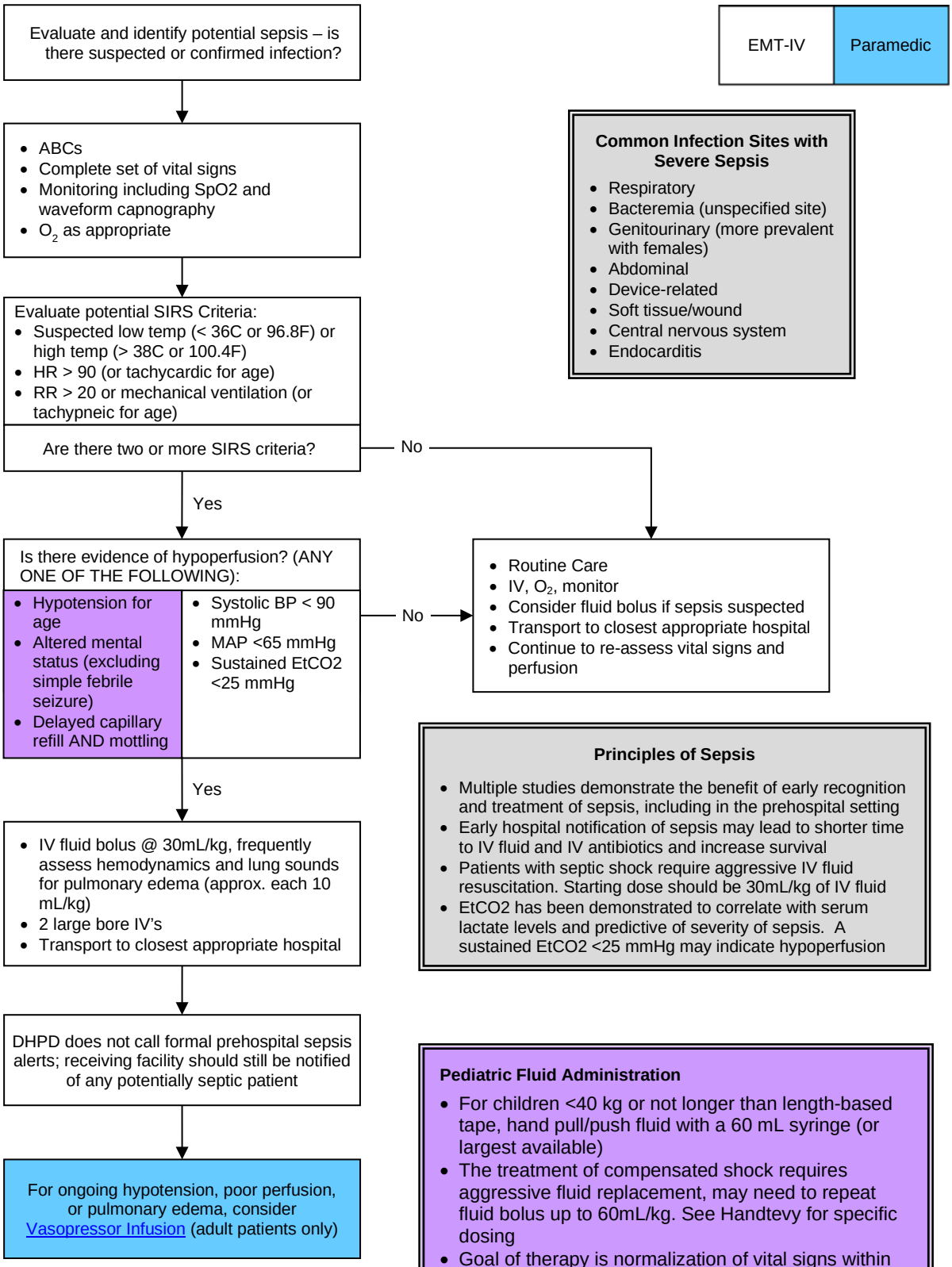


EMT-IV | Paramedic

General Guidelines:

- Most nose bleeding is from an anterior source and may be easily controlled, however, may require up to 30 minutes of constant pressure
- Avoid phenylephrine in patients with known CAD
- Anticoagulant/antiplatelet therapies, e.g., aspirin, clopidogrel (Plavix), warfarin (Coumadin), will make epistaxis much harder to control. Note if your patient is taking these, or other, anticoagulant/antiplatelet medications
- Posterior epistaxis is a true emergency and may require advanced ED techniques such as balloon tamponade or interventional radiology. Do not delay transport. Be prepared for potential airway issues
- For patients on home oxygen via nasal cannula, place the cannula in the patient's mouth while nares are clamped or compressed for nosebleed

4140 SEPSIS PROTOCOL



Approved by DHPD Medical Directors February 2024

4150 HYPERKALEMIA

EMT-IV	Paramedic

Do not use this protocol for prolonged entrapment; refer to general trauma care protocol for specific treatment

Consider hyperkalemia in the following protocols if the patient has risk factors for hyperkalemia, especially with dialysis patients:
- Universal altered mental status
- Bradycardia
- Ventricular arrhythmia
- Adrenal insufficiency

- Assess and stabilize ABCs, give O_2 if needed, assess vital signs
- Initiate cardiac monitor, consider 12 lead
- Start IV
- If there is high clinical suspicion or documented hyperkalemia and the patient has ECG changes indicative of hyperkalemia:
  - o Administer calcium
  - o Consider albuterol
  - o Consider sodium bicarbonate
- Consider fluids
  - o Administer fluids cautiously if severe acute kidney injury; only administer fluids if patient producing urine and does not have contraindications such as end-stage renal failure or congestive heart disease
- Acquire 12 lead ECG post-treatment if time permits
- Continue monitoring during transport and **Contact Base** if patient deteriorates

Hyperkalemia Risk Factors:
- Dialysis patient
- Chronic renal failure/insufficiency
- Renal injury
- Rhabdomyolysis
- Burns
- Prolonged entrapment/crush injury/ suspension syndrome
- Potassium supplements
- Potassium sparing diuretics (e.g., spironolactone)
- Digoxin toxicity
- Adrenal insufficiency

ECG Changes Indicative of Hyperkalemia:
- Peaked T waves
- New wide complex rhythm
- Ventricular tachycardia with following characteristics:
  - o P waves disappear
  - o May see very wide QRS
  - o Peaked T waves
  - o Heart rate slower than typical VT
- Sine-wave pattern
- Bradycardia with widened PR interval
- Junctional rhythm

General Information:
- Hyperkalemia can be present without ECG changes which may not require prehospital treatment in the stable patient.
- ECG changes may not directly correspond to serum potassium levels.
- Calcium is the only medication that will stabilize the cardiac membrane and is the backbone of treatment in prehospital care.
- Calcium must be given in separate line from IV sodium bicarbonate to prevent precipitation/formation of calcium carbonate.
- In setting of digoxin toxicity, calcium administration may worsen cardiovascular function and is contraindicated.

5000 DROWNING

EMT-IV | Paramedic

Rapid extrication if patient is still in the water

If unresponsive:

- Provide ventilations with oxygen
- Start CPR if patient is pulseless
  - Treat per medical arrest algorithm with following changes if hypothermic:
    - o Single defibrillation attempt
    - o Handle very gently/keep horizontal
    - o Insulate patient
    - o Start IV w. warm IV fluids
    - o Single dose epinephrine IV/IO
- Remove wet garments, dry and insulate patient
- Consider spinal motion restriction if trauma suspected or patient has signs of spinal cord injury, although rescue breathing and CPR should be prioritized.
- Consider advanced airway, especially if suspected pulmonary edema

- Monitor cardiac rhythm, waveform capnography

- BVM/OPA ventilation preferred in pediatrics

If responsive:

- Administer oxygen
- Provide ventilations and suction as indicated,
- Consider spinal motion restriction if trauma suspected or patient has signs of spinal cord injury
- Consider all causes of altered mental status
- Remove wet garments, dry and insulate patient
- Start IV, w. warm fluids if hypothermic
- Monitor ABC, VS, mental status, waveform capnography
- Delayed pulmonary edema can occur after drowning; consider PEEP/CPAP if suspected pulmonary edema

- Monitor cardiac rhythm

- BVM/OPA ventilation preferred in pediatrics

General Information

- Encourage transport, even if patient is asymptomatic, as pulmonary edema may present in a delayed manner after drowning.

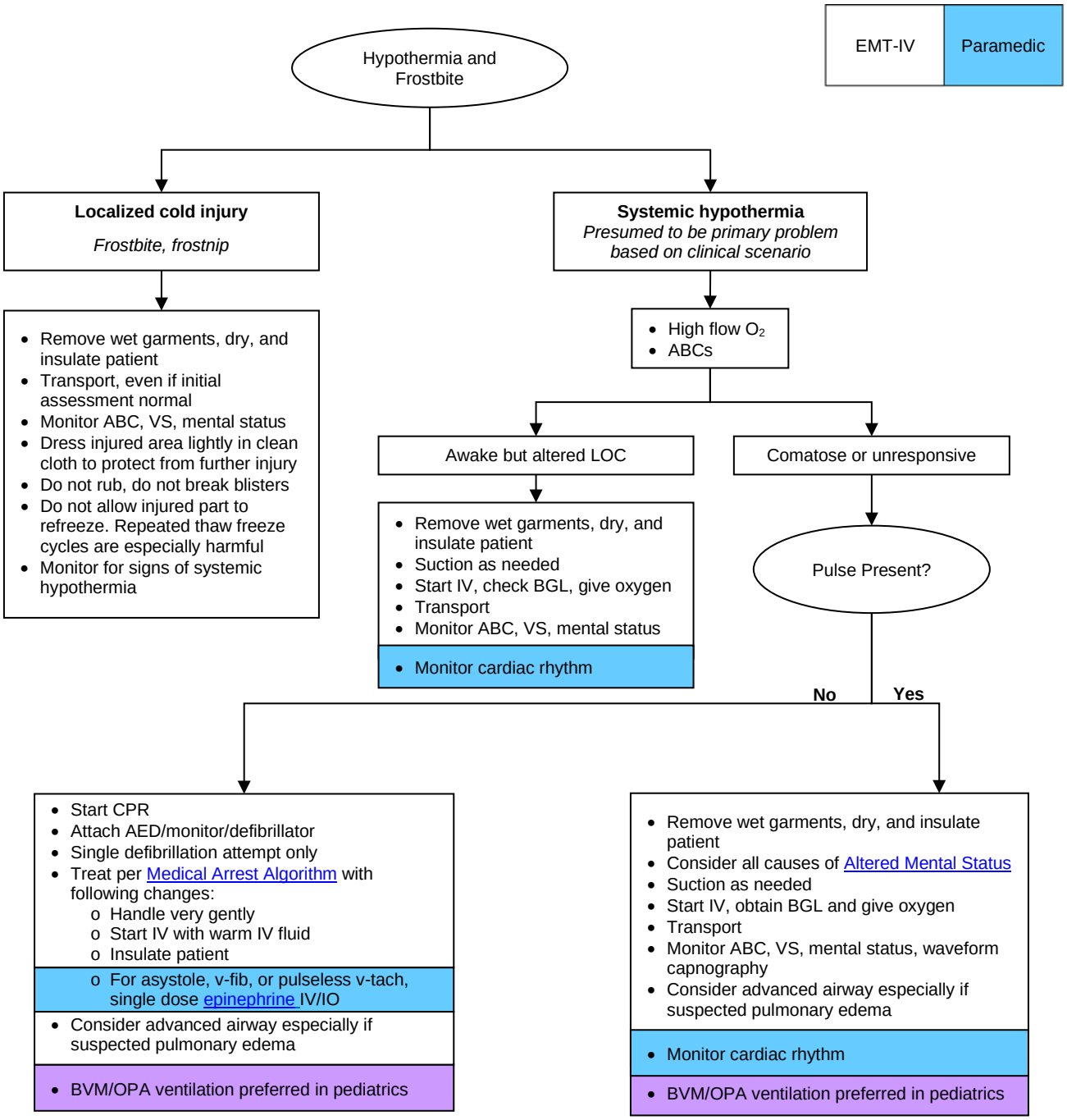
Drowning and Hypothermia

- Drowning/submersion commonly associated with hypothermia.
- In the moderate to severe hypothermic patient rough extrication can lead to cardiac irritability and destabilization into ventricular fibrillation. This includes sudden position change or rough handling so extrication should be rapid but gentle.
- Even profound bradycardias may be sufficient in setting of severe hypothermia and decreased O2 demand.
- Good outcomes after even prolonged hypothermic arrest are possible, therefore patients with suspected hypothermia should generally be transported to the hospital.
- BLS: pulse and respirations may be very slow and difficult to detect if patient is severely hypothermic. If no definite pulse, and no signs of life, begin CPR.
- ALS: advanced airway and resuscitation medications are indicated.

Specific Information Needed

- Length of submersion
- Degree of contamination of water
- Water temperature – All open water drownings in Colorado could likely be considered cold water drowning
- Diving accident and/or suspected trauma

5010 HYPOTHERMIA



- Passive external rewarming: Place patient in warm environment and prevent further exposure to cold, remove cold/wet clothing, and covering with blankets or insulating materials
- Active external rewarming: Apply external heat, like warm blankets, heating pads/hot packs, forced warm air, etc. If possible, apply to torso first to decrease core temperature drop
- Even profound bradycardias may be sufficient in setting of severe hypothermia and decreased O_2 demand
- Good outcomes after even prolonged hypothermic arrest are possible. Therefore, patients with suspected hypothermia should generally be transported to the hospital. For critical hypothermia patients, consider Level 1 Trauma destinations where ECMO and aggressive re-warming procedures are more readily available
- BLS: pulse and respirations may be very slow and difficult to detect if patient is severely hypothermic. If no definite pulse, and no signs of life, begin CPR
- If not breathing, start rescue breathing
- ALS: advanced airway and resuscitation medications are indicated

5020 HYPERTHERMIA

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Hyperthermia
- *Classify by clinical syndrome*
- *Consider non-environmental causes* (see below)

Heat Cramps
- *Normal or slightly elevated body temperature*
- *Warm, moist skin*
- *Generalized weakness*
- *Diffuse muscle cramping*

Administer IV/IO fluids 20 mL/kg up to 1 L of cool saline; reassess and repeat if needed

Monitor VS and transport

Heat Exhaustion
- *Elevated body temperature*
- *Cool, diaphoretic skin*
- *Generalized weakness*
- *Anxiety*
- *Headache*
- *Tachypnea*
- *Possible syncope*

Heat Stroke
- ***Altered mental status***
- *Very high core body temperature*
- *Hot, dry skin*
- *Hypotension*
- *Seizure*
- *Coma*

Rapid transport indicated

Adequate airway and breathing?

No

Assist ventilations and manage airway as needed

Yes

Administer O_2
Administer IV/IO fluids 20 mL/kg up to 1 L of cool saline; reassess and repeat if needed

- Remove excess clothing and loosen any restrictive garments
- For heat stroke, consider active cooling measures if prolonged transport
- Treat seizures, cardiac arrhythmias per protocol
- Monitor and transport

General Guidelines:

- People can sweat through heat stroke right up until they die depending on their level of acclimatization
- Heat stroke has mortality that exceeds trauma, STEMI, and Stroke and should be treated accordingly

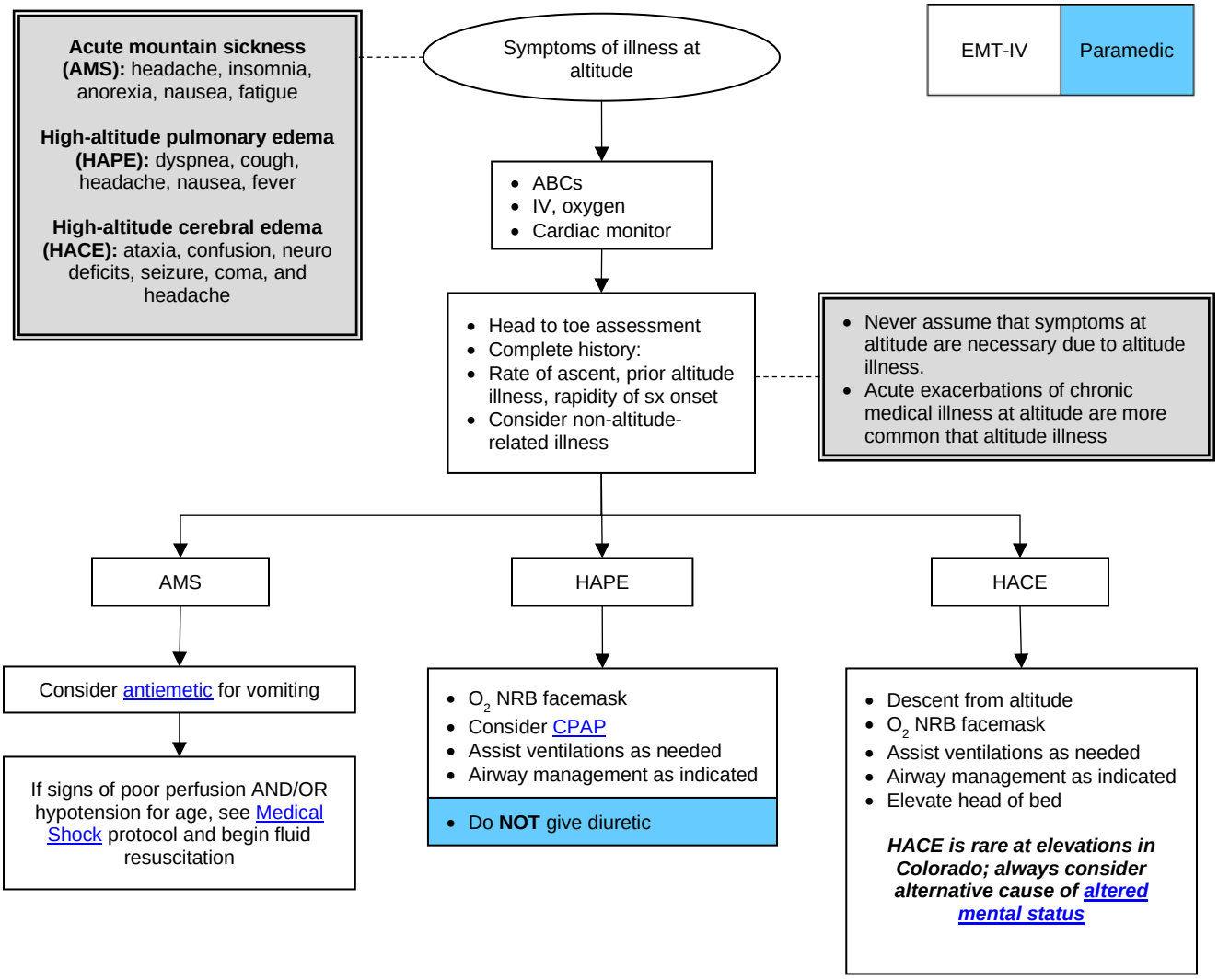
Other causes of hyperthermia besides environment exposure:

- **Neuroleptic malignant syndrome (NMS)**: *patients taking antipsychotic medications*
- **Sympathomimetic overdose**: *cocaine, methamphetamine*
- **Anticholinergic toxidrome**: *overdose ("Mad as a hatter, hot as a hare, blind as a bat, red as a beet") common w. ODs on psych meds, OTC cold medications, Benadryl, Jimson weed, etc.*
- **Infection**: *fever (sepsis)*
- **Thyrotoxicosis**: *goiter* (enlarged thyroid)

Active Cooling Techniques

- If core temperature is greater than 104°F (40°C) or if altered mental status is present, consider starting active cooling
- Ice bath immersion provides the most rapid cooling mechanism. However, if not available, consider utilizing tarp-assisted cooling with oscillation, rotating ice water-soaked towels or sheets, or continually misting exposed skin with water while fanning the victim. Truncal ice packs may be used but are less effective than evaporation
- Do not apply wet clothing. This may trap heat and prevent evaporative cooling

5030 HIGH ALTITUDE ILLNESS



Special Notes:

- There are no specific factors that accurately predict susceptibility to altitude sickness, but symptoms are worsened by exertion, dehydration, and alcohol ingestion
- Acute Mountain Sickness (AMS) can begin to appear at around 6,500 ft above sea level, although most people will tolerate up to 8000 ft without difficulty. Altitude illness should not be suspected below 6,500 ft. AMS is the most frequent type of altitude sickness encountered. Symptoms often manifest themselves six to ten hours after ascent and generally subside in one to two days, but they occasionally develop into the more serious conditions
- High altitude pulmonary edema (HAPE) and cerebral edema (HACE) are the most severe forms of high-altitude illness. The rate of ascent, altitude attained, exertion, and individual susceptibility are contributing factors to the onset and severity of high-altitude illness
- Mild HAPE may be managed with high-flow oxygen and supportive care and does not necessarily require descent from altitude
- More severe forms of HAPE and all forms of HACE require descent

5040 INSECT/ARACHNID STINGS AND BITES PROTOCOL

EMT-IV | Paramedic

Initiate general care for bites and stings

Assess for localized vs. systemic signs and symptoms and depending on animal involved

General Care

- For bees/wasps - Remove stinger mechanism by scraping with a straight edge. Do not squeeze venom sac

Specific Information Needed:

- Timing of bite/sting
- Identification of spider, bee, wasp, other insect, if possible
- History of prior allergic reactions to similar exposures
- Treatment prior to EMS eval: e.g. EpiPen, diphenhydramine, etc

Localized Symptoms:

- *Pain, warmth and swelling*

Consider pain management for severe pain (e.g.: black widow spider) and /or

diphenhydramine if needed for itching

Systemic Symptoms:

- *Hives, generalized erythema, swelling, angioedema*
- *Hypotension*
- *Altered mental status*
- *Other signs of shock*

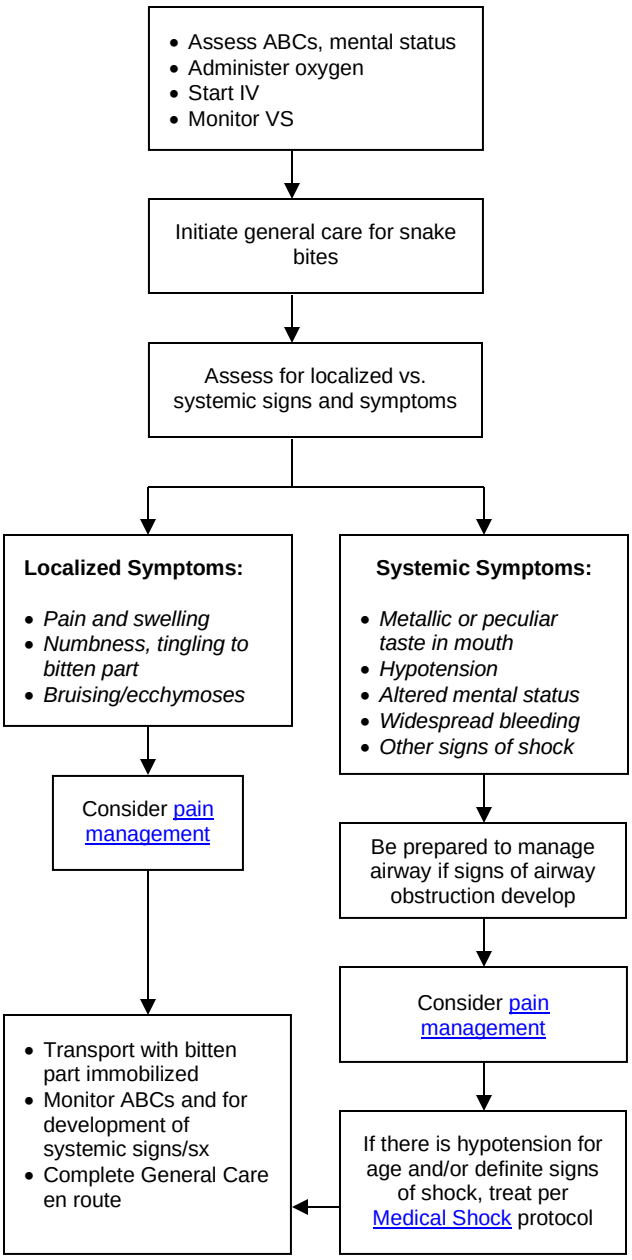
- Administer oxygen
- Start IV

Treat per allergy & anaphylaxis protocol

Specific Precautions:

- For all types of bites and stings, the goal of prehospital care is to prevent further envenomation and to treat allergic reactions
- Anaphylactoid reactions may occur upon first exposure to allergen and do not require prior sensitization
- Anaphylactic reactions typically occur abruptly and rarely > 60 minutes after exposure

5050 SNAKE BITE PROTOCOL



EMT-IV	Paramedic

General Care:

- Remove patient from proximity to snake
- Remove all constricting items from bitten limb (e.g.: rings, jewelry, watch, etc.)
- Immobilize bitten part
- Initiate prompt transport
- Do NOT use ice, refrigerants, tourniquets, scalpels, or suction devices
- Mark margins of erythema and/or edema with pen or marker and include time measured

Obtain specific information:

- Appearance of snake (rattle, color, thermal pit, elliptical pupils)
- Appearance of wound: location, # of fangs vs. entire jaw imprint
- Timing of bite
- Prior 1st aid
- To help with identification of snake, photograph snake, if possible. Include image of head, tail, and any distinctive markings
- Do not bring snake to ED

Specific Precautions:

- The prairie rattlesnake is native to Denver Metro region and is most common venomous snake bite in the region.
- Exotic venomous snakes, such as pets or zoo animals, may have different signs and symptoms than those of pit vipers. In case of exotic snake bite, **CONTACT BASE** and consult zoo staff or poison center for direction
- **Take a picture of the snake, including images of head and tail. If an adequate photo can be taken, it is not necessary to bring snake to ED**
- Never pick up a presumed-to-be-dead snake by hand. Rather, use a shovel or stick. A dead snake may reflexively bite and envenomate
- > 25% of snake bites are “dry bites,” without envenomation
- Conversely, initial appearance of bite may be deceiving as to severity of envenomation
- Fang marks are characteristic of pit viper bites (e.g. rattlesnakes)
- Jaw prints, without fang marks, are more characteristic of non-venomous species

Approved by DHPD Medical Directors February 2024

6000 PSYCHIATRIC/BEHAVIORAL PATIENT PROTOCOL

EMT-IV	Paramedic

Scene Safety:

A. Scene safety should be assured prior to initiating care. Consider police contact if scene safety is a concern.
B. Refer to restraint protocol as needed, especially as it relates to A.

Specific Information Needed:

A. Obtain history of current event from patient, bystanders, family, and or other first responders; inquire about recent crisis, toxic exposure, drugs, alcohol, emotional trauma, and suicidal or homicidal ideation.
B. Obtain past history; inquire about previous psychiatric and medical problems, medications.

Specific Objective Findings:

A. Evaluate general appearance. Be aware that implicit bias may influence and affect your care. All patient regardless of appearance, age, sex, or ethnicity deserve equal and consistent care and compassion.
B. Evaluate vital signs: Is a particular toxidrome suggested, e.g., sympathomimetic?
C. Note medic alert tags, breath odors suggesting intoxication.
D. Consider known predictors of violence: intoxicated, history of mental illness, seizure disorder, males 15-35 years old, paranoid, aggressive, or threatening behavior.
E. Assess for evidence of delirium
    1. Acute confusional state
        i. Disoriented to person, place, and/or time
        ii. Disorganized thinking, rambling speech, hallucinations, responding to internal stimuli
    2. Unaware or unable to respond to environment/ surroundings
        i. Is the patient aware of your presence and know why you are there?

Treatment:

A. If patient agitated or combative, see agitated/combative patient protocol
B. Attempt to establish rapport
C. If agitated, attempt verbal calming and de-escalation techniques
D. Assess ABCs. If unstable vital signs, refer to appropriate treatment protocol
E. Transport to closest appropriate Emergency Department
F. Be alert for possible elopement, all patient transports should occur with seatbelt in place and visible to provider at all times
G. Consider organic causes of abnormal behavior (trauma, overdose, intoxication, hypoglycemia)
H. If patient restraint considered necessary for patient or EMS safety, refer to restraint protocol
I. Check blood sugar, vital signs, and assess for signs of toxidrome
J. If altered mental status, refer to universal altered mental status protocol

Transporting Patients Who Have a Behavioral Health Complaint:

A. Maintaining patient respect and dignity is important. Attempt to conduct assessment, treatment, and transport in the safest and least restrictive manner possible.
B. Coordination with law enforcement in managing these delicate situations is vital for safety of the patient, scene, and first responders. Authority to make all medical and treatment decisions lies solely with EMS and not law enforcement. Sedation is entirely the responsibility and decision of EMS on scene. There may be certain situations in which a collaborative effort may need to occur between law enforcement and EMS for the safe management of a patient, however, all medical decisions will be made by EMS in these circumstances.
C. If a patient has an isolated mental health complaint (e.g., suicidality) and does not have a medical complaint or need specific medical intervention, then that patient may be appropriately transported by law enforcement according to their protocols or alternative means per agency specific guidelines.
D. If a patient has a psychiatric complaint with associated illness or injury (e.g., overdose, altered mental status, chest pain, etc.), then the patient should be transported by EMS.
E. It is sufficient to assume the patient lacks decision-making capacity if there is probable cause to believe a person is experiencing a behavioral health crisis or is gravely disabled, and, as a result without professional intervention may be a danger to themselves or others. Effort should be made to obtain consent for transport from the patient, and to preserve the patient's dignity throughout the process. If consent cannot obtained, the person can still be transported under any of the following:

   a. Responder on scene who is authorized, credentialed, and willing to initiate a transportation hold (M-0.5) or a mental health hold (M-1) (C.R.S 27-65 et seq.). DHPD personnel cannot write holds.
   b. The patient may be transported over his or her objections and treated under implied consent.

F. A patient being transported for psychiatric evaluation may be transported to any appropriate receiving emergency department.
G. The DHPD EMS Medical Directors feel strongly that the risk of abandonment of a potentially suicidal or otherwise gravely impaired patient far outweighs the likelihood of accusations of patient abduction. Be sure to document your reason for taking the patient over their objections; that you believe that you are acting in the patient's best interests; and be sure to **Contact Base** if there are concerns.
H. Documentation supports your decision making. Therefore, document thoroughly.

Transporting Patients on a Mental Health Hold (M-1):

A. Although it is commonly believed that the original copy of the mental health hold form is required to accompany the patient, a legible copy of the mental health hold form is also sufficient.
B. By law, patients detained on a mental health hold may not refuse transport. Similarly, by law, patients on a mental health hold are required to be evaluated by an evaluating professional (intervening professional, physician or psychologist) and should be transported.
C. The form documenting the mental health hold should be as complete as possible, including the correct date and time that the patient was detained. The narrative portion should be completed. A signature and license or badge number is also required. Assure that the form is complete before departing.
D. The mental health hold does not need to be started on patients who are intoxicated on drugs and/or alcohol.
E. The patient rights form (M-2) does not need to accompany the patient. The receiving facility may complete this form if there are concerns.
F. Consider ALS attendant if the patient may require sedation during transport.
G. If you have a reasonable concern the person is experiencing a behavioral health crisis or are gravely disabled, and, without professional intervention may be a danger to themselves or others the patient can be transported under implied consent.
H. EMS may withdraw or disengage from a person, regardless of mental health hold status, for the following reasons:
   a. Scene is unsafe or patient poses perceived safety risks to EMS
   b. Law enforcement is unable to provide scene safety
   c. Law enforcement cannot or will not gain access to the patient
   d. Document reasonable attempts to communicate with the person and deescalate the situation.

Specific Precautions:

A. Patients presenting with acute delirium often have an organic etiology. Rapid and thorough assessment of the patient is essential to potentially identify reversible causes of delirium. Be suspicious for hypoglycemia, hypoxia, head injury, intoxication, or toxic ingestion.
B. Providers transporting a patient over his or her objections should reassure the patient. The provider should strongly consider whether the patient may need restraint and/or sedation for safety. Beware of weapons. These patients can become combative.

6010 AGITATED/COMBATIVE PATIENT PROTOCOL

EMT-IV	Paramedic

Principles:

While treating patients experiencing agitation, the safety of EMS providers should be maximized while honoring patient dignity and treating the patient's medical condition in a professional manner.

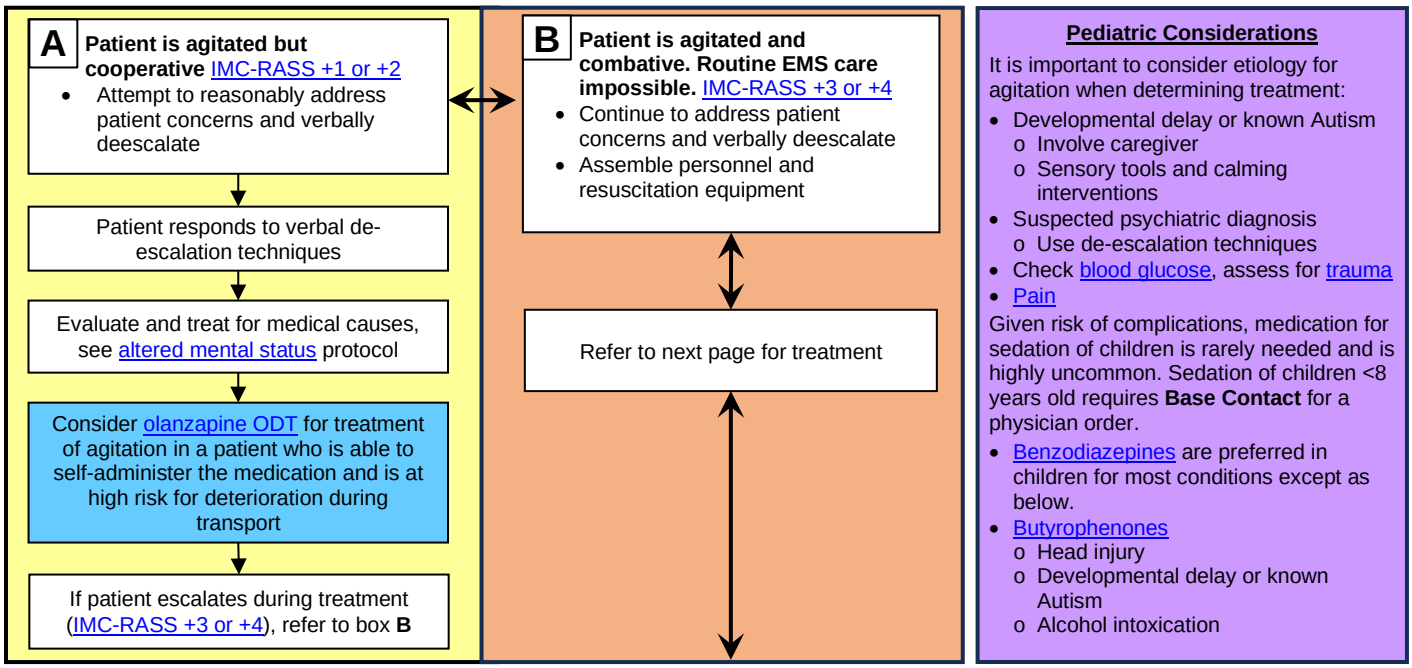
- EMS Safety. The safety of field personnel is paramount. Although EMS personnel have a duty to treat patients experiencing emergency medical conditions, they must not take risks that are threats to safety. Risks to personnel or scene safety should be commensurate to the benefit a patient may receive.
- Patient safety. Patient safety and the aid they receive from our care is the reason EMS exists. All treatments should be designed to reduce potential harm and maximize potential benefit.
- Dignity. All patients and providers deserve dignity and respect. It is essential that EMS professionals recognize our own biases. We owe it to our patients, especially those in disenfranchised groups, to provide equitable care. We strive to maximize the dignity of both patients and providers by practicing with clinical expertise and professionalism.

Initial Assessment:

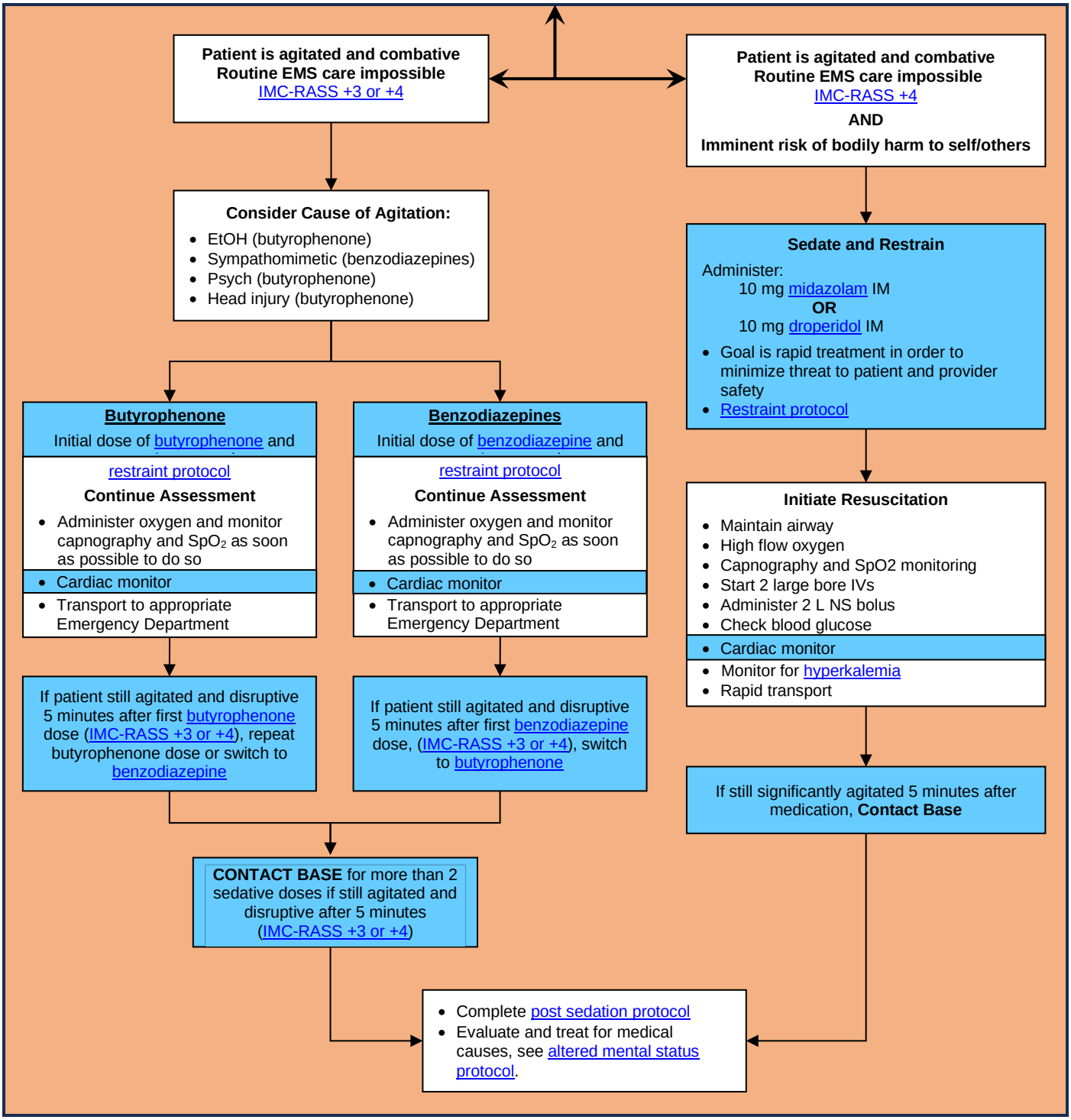
The most critical initial step in managing agitation is the determination of an emergency medical condition.

- Patients assessed as having non-medical agitation do not require emergency medical intervention. EMS should never intervene solely for the support of another 911 function.
- EMS should only intervene in the medical management of agitation when the patient is assessed and suspected to have an emergency medical condition.
- Prior to any physical restraint or medication administration, all patients must first be assessed and suspected to have an emergent medical condition. Depending on the acuity of the situation, some initial assessments must be made in seconds while others may require more time.
- In some situations, it may be appropriate for EMS to stand by in case a person develops a medical emergency.
- Some patients with emergency medical conditions such as trauma or dyspnea may also exhibit agitation. That agitation should only be treated if the paramedic assesses that the patient lacks decision making capacity to care for their illness or injury.
- As soon as safely possible, EMS providers should assess and treat for underlying conditions that may present as agitation.
- EMS safety is paramount. In some uncommon circumstances it may be necessary to separate from an agitated patient in order to protect the patient and personnel on scene.
- When we have tension between the duty to treat and the safety of field personnel, we should apply the principles of EMS safety, patient safety and dignity.

Treatment: (algorithm color relates to IMC-RASS score)



6010 AGITATED/COMBATIVE PATIENT PROTOCOL



General Guideline

- Emphasis should be placed on patient and provider safety and dignity as well as appropriate use of sedation and restraints in treatment of agitation.

Documentation

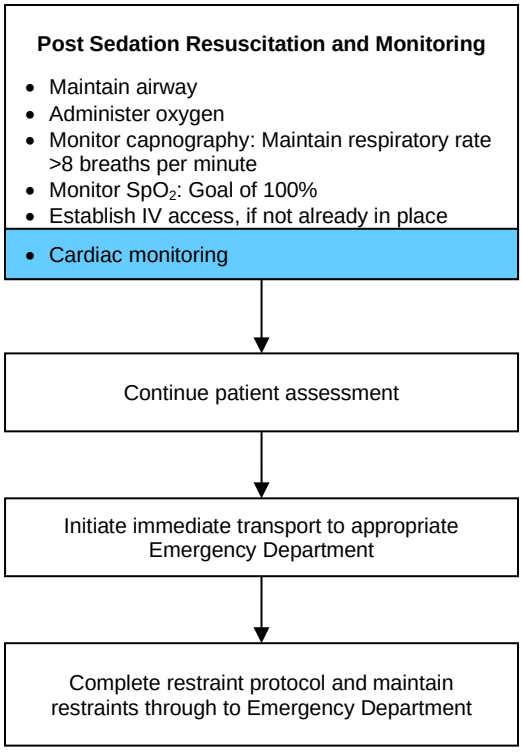
- Include specifics on actions or behaviors that put patient and /or provider safety at risk. Document IMC-RASS scale.

Adequate Sedation

- The goal of sedation is to ensure safety to patient and provider and allow for adequate evaluation and treatment of underlying causes
- Agitation that does not compromise patient/ provider safety or interfere with evaluation and treatment does not require additional sedation

Improved Montgomery County Richmond Agitation Sedation Scale (IMC-RASS)			
Score	Term	Description	EMS Activity
+4	Combative	Overtly combative, violent, immediate danger to staff	Unsafe to care for patient without maximal assistance, may require law enforcement assistance
+3	Very agitated	Pulls or removes tubes and catheters, 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 and Calm		
-1	Drowsy	Not fully alert but has sustained awakening and eye contact to voice (>10 seconds)	Awakens to voice
-2	Light sedation	Briefly awakens with eye contact 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 inflation
-4	Deep Sedation	No response to voice but movement or eye opening 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

6015 POST SEDATION RESUSCITATION AND MONITORING



EMT-IV	Paramedic

Adequate Sedation

- The goal of sedation is to ensure safety to patient and provider and allow for adequate evaluation and treatment of underlying causes
- Agitation that does not compromise patient/ provider safety or interfere with evaluation and treatment does not require additional sedation

General Guidelines

- Patients receiving sedative medications have a broad range of responses both from the medication given and the underlying etiology of the agitation. They should be treated as high risk for respiratory or cardiovascular compromise.
- Goal is to initiate resuscitation/monitoring as soon as possible.
- Each individual element of post-sedation resuscitation/monitoring should be initiated as soon as possible to do so.

6020 TRANSPORT OF THE HANDCUFFED PATIENT

EMT-IV	Paramedic

Purpose:

1. Guideline for transport of patients in handcuffs placed by law enforcement

Guideline:

1. Handcuffs are only to be placed by law enforcement. EMS personnel are not permitted to use handcuffs.
2. If the patient was placed in handcuffs by law enforcement due to agitation/ combativeness, altered mental status or a similar process, the patient should be evaluated for an underlying life-threatening emergency.
3. Request that law enforcement remain with the patient in the ambulance, if possible. If not possible, request that police ride behind ambulance so as to be readily available to remove handcuffs if needed in an emergency situation to facilitate medical care of the patient.
4. EMS personnel are not responsible for the law enforcement hold on these patients.
5. Handcuffs should only be removed for a medical emergency. EMS should assess the need for ongoing physical restraint for patient or provider safety.
6. Handcuffed patients will not be placed in the prone position.
7. Handcuffs may be used with spinal motion restriction. Medical priorities should take priority in the positioning of the handcuffs.

7000 CHILDBIRTH PROTOCOL

Overview:

- EMS providers called to a possible prehospital childbirth should determine if there is enough time to transport expectant mother to hospital or if delivery is imminent
- If imminent, **stay on scene** and immediately prepare to assist with the delivery

ABCs
O_2 15 liters via NRB
IV access

EMT-IV | Paramedic

Obtain obstetrical history (see adjacent)

Specific Information Needed:

- Obstetrical history:
  - Number of pregnancies (gravida)
  - Live births (PARA)
  - Expected delivery date
  - Length of previous labors
  - Narcotic use in past 4 hours

If suspected imminent childbirth:

- Allow patient to remain in position of comfort
- Visualize perineum
- Determine if there is time to transport

Imminent Delivery

Delivery is imminent if there is crowning or bulging of perineum

Delivery not imminent

- Transport in position of comfort, preferably on left side to patient's requested hospital if time and conditions allow
- Monitor for progression to imminent delivery

Emergency Childbirth Procedure

- If there is a prolapsed umbilical cord or apparent breech presentation, go to obstetrical complications protocol and initiate immediate transport.
- For otherwise uncomplicated delivery:
- Position mother supine on flat surface, if possible
- Do not attempt to impair or delay delivery
- Support and control delivery of head as it emerges
- Protect perineum with gentle hand pressure
- Check for cord around neck, gently remove from around neck, if present.
- Suction mouth and nose only if signs of obstruction by secretions
- If delivery not progressing, baby is "stuck," see obstetrical complications protocol and begin immediate transport
- As shoulders emerge, gently guide head and neck downward to deliver anterior shoulder. Support and gently lift head and neck to deliver posterior shoulder
- Rest of infant should deliver with passive participation – get a firm hold on baby
- Dry baby and place skin-to skin on the mother. Assess breathing, tone, and activity

Critical Thinking:

- If there is an infant in distress, call for additional EMS resources to provide care to 2 patients
- Normal pregnancy is accompanied by higher heart rates and lower blood pressures
- Shock will be manifested by signs of poor perfusion
- Labor can take 8-12 hours, but as little as 5 minutes if high PARA
- The higher the PARA, the shorter the labor is likely to be
- High risk factors include: no prenatal care, drug use, teenage pregnancy, DM, htn, cardiac disease, prior breech or C section, preeclampsia, twins
- Note color of amniotic fluid for meconium staining

Postpartum Care Infant

- Suction mouth and nose only if signs of obstruction by secretions
- Respirations should begin within 15 seconds after stimulating reflexes. If not, begin artificial ventilations at 40-60 breaths/min
- If apneic, cyanotic, or HR < 100, begin neonatal resuscitation
- Healthy term babies should be managed skin-to-skin with their mothers. After birth, the baby should be dried and directly placed skin-to-skin with attention to warm coverings and maintenance of normal temperature
- Clamp the cord after the infant is quickly dried, placed on the mother, and assessed for breathing and activity. Double clamp 6" from infant abdominal wall and cut between clamps with sterile scalpel. If no sterile cutting instrument available, lay infant on mother, and do not cut clamped cord
- Document 1- and 5-minute APGAR scores
- Keep the baby covered, including cap over the head

Postpartum Care Mother

- Placenta should deliver in 20-30 minutes. If delivered, collect 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
- Postpartum hemorrhage – see obstetrical complications protocol
- Initiate transport once delivery of child is complete and mother can tolerate movement

7010 OBSTETRICAL COMPLICATIONS

EMT-IV	Paramedic

For All Patients with obstetrical complications

- Do not delay: immediate rapid transport
- Give high-flow oxygen
- Start IV en route if time and conditions allow. Treat signs of shock w. IV fluid boluses per medical hypotension/shock protocol

Possible actions for specific complications (below)

- The following actions may not be feasible in every case, nor may every obstetrical complication by anticipated or effectively managed in the field. These should be considered "best advice" for rare, difficult scenarios. In every case, initiate immediate transport to definite care at hospital

Prolapsed Umbilical Cord

- Discourage pushing by mother
- Position mother in Trendelenburg or supine with hips elevated
- Place gloved hand in mother's vagina and elevate the presenting fetal part off of cord until relieved by physician
- Feel for cord pulsations
- Keep exposed cord moist and warm

Breech Delivery

- 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
- IF infant delivered, see childbirth protocol – Postpartum care of infant and mother

Postpartum Hemorrhage

- Massage abdomen (uterine fundus) until firm
- Initiate rapid transport
- Note type and amount of bleeding
- Treat signs of shock with IV fluid boluses

Complications of Late Pregnancy

3rd Trimester Bleeding (6-8 months)

- High flow O_2 via NRB, IV access
- Suspect placental abruption or placenta previa
- Initiate rapid transport
- Position patient on left side
- Note type and amount of bleeding
- IV NS bolus for significant bleeding or shock

Pre-eclampsia/Eclampsia

- High flow O_2 via NRB, IV access
- SBP > 140, DBP > 90, peripheral edema, headache, seizure
- Transport position of comfort
- Treat seizures with magnesium sulfate
- See seizure protocol

Shoulder Dystocia

- Support baby's head
- Suction oral and nasal passages
- DO NOT pull on head
- May facilitate delivery by placing mother with buttocks just off the end of bed, flex her thighs upward, and gentle open hand pressure above the pubic bone
- If infant delivered, see childbirth protocol – Postpartum care of infant and mother

8000 GENERAL TRAUMA CARE

EMT-IV | Paramedic

- General impression
- The number one priority is rapid treatment and transport to definitive care
- Trauma expose the patient
- Consider need for additional resources

Scene Considerations:

- Identify provider safety concerns
- Triage the scene
  - o Identify number of patients
  - o Request additional resources as needed
  - o Determine ingress / egress
  - o Set-up ambulance

M

Look for massive hemorrhage and stop:

- Tourniquet extremities
- Wound pack junctional wounds
- Seal truncal injuries

A

Address airway and support breathing:

- Emergent BLS airway management
- Assist ventilations as indicated

R

- Needle decompression for tension pneumothorax
- Semi-occlusive dressing for open chest wound
- Provide high flow oxygen

Airway Management Goals:

- Manage with the simplest method that provides adequate ventilation and oxygenation
- Intubation should be done en route unless there is no other option
- Nasal intubation is relative contraindication with suspicion of head injury
- BVM/OPA ventilation preferred in pediatrics

C

Assess circulation:

- If pelvis unstable, place binder
- During transport, establish vascular access and treat hypotension per traumatic shock protocol

Prolonged Entrapment:

- Crush syndrome can occur after cells have been under pressure from prolonged immobilization or crush injury for >4 hours when skeletal muscles can no longer survive from ischemia
- After release, intracellular potassium can be released into the systemic circulation causing life-threatening hyperkalemia and generating cardiac arrhythmias. 12-lead and continuous ECG monitoring are used to assess for hyperkalemia
- Consider prior to release placing 1-2 large bore IVs or IOs and initiating a crystalloid fluid bolus
- Prepare to administer treatment for hyperkalemia if patient develops signs of dysrhythmia or hemodynamic instability. Treatment should include IV calcium and sodium bicarbonate, as well as nebulized albuterol

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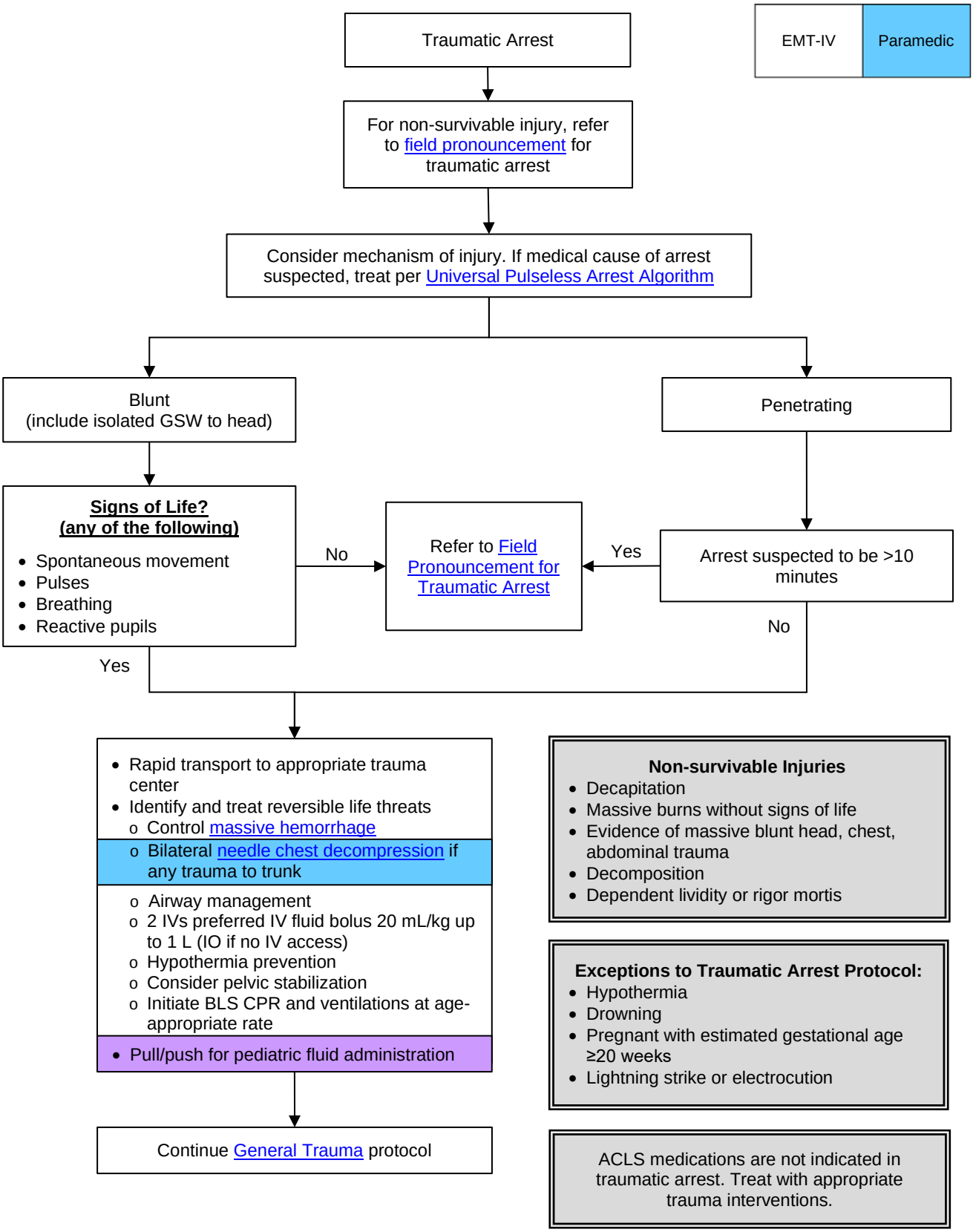
Hypothermia / Head Injury:

- Prevent and treat hypothermia
- Brief neuro assessment
- Minimize secondary injury, refer to head injury protocol

- Consider spinal motion restriction
- Assess vital signs
- Consider advanced airway management

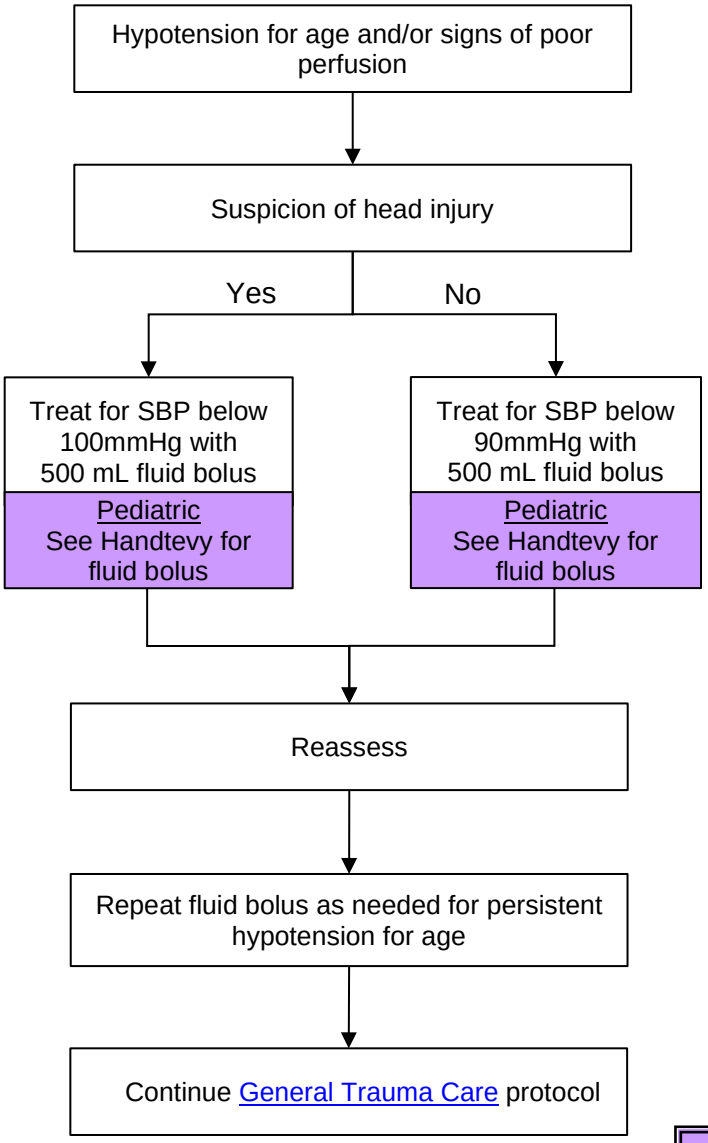
- Ongoing assessment, including full head-to-toe
- Complete other care / interventions according to appropriate trauma protocol
  - o Head
  - o Face/Neck
  - o Spinal
  - o Chest
  - o Abdominal/Pelvic
  - o Extremity
- Re-assess for changes in patient condition and treat accordingly
- Prepare patient for transfer of care

8010 TRAUMATIC ARREST



Approved by DHPD Medical Directors February 2024

8020 TRAUMATIC SHOCK



EMT-IV	Paramedic

Consider Non-Hypovolemic Causes of Shock

- Other causes of traumatic shock may include:
  - Tension Pneumothorax
  - Pericardial Tamponade
  - Neurogenic
- Treat other causes as indicated (e.g. needle decompression)
- Rapid treatment and transport to a trauma facility remains priority in all cases of traumatic shock

Hypotension for Age

Age	Blood Pressure
<1 year	<70 mmHg
1-10 years	<70 + (2 x age in years)
>10 years	<90 mmHg
≥65 years	<110 mmHg

Tachycardia for Age

Age	Heart Rate
<1 year	>160 bpm
1-2 years	>150 bpm
2-5 years	>140 bpm
5-12 years	>120 bpm
>12 years	>100 bpm

Pediatric Minimum Blood Pressure with TBI

Age	Minimum SBP (mmHg)
0-23 months	75
2-5 years	80
6-8 years	85
9-12 years	90

Pediatric Fluid Administration

- For children <40 kg or not longer than length-based tape, hand pull/push fluid with a 60 mL syringe (or largest available)
- Hypotension is a late sign in pediatric shock patients

Pediatric Shock

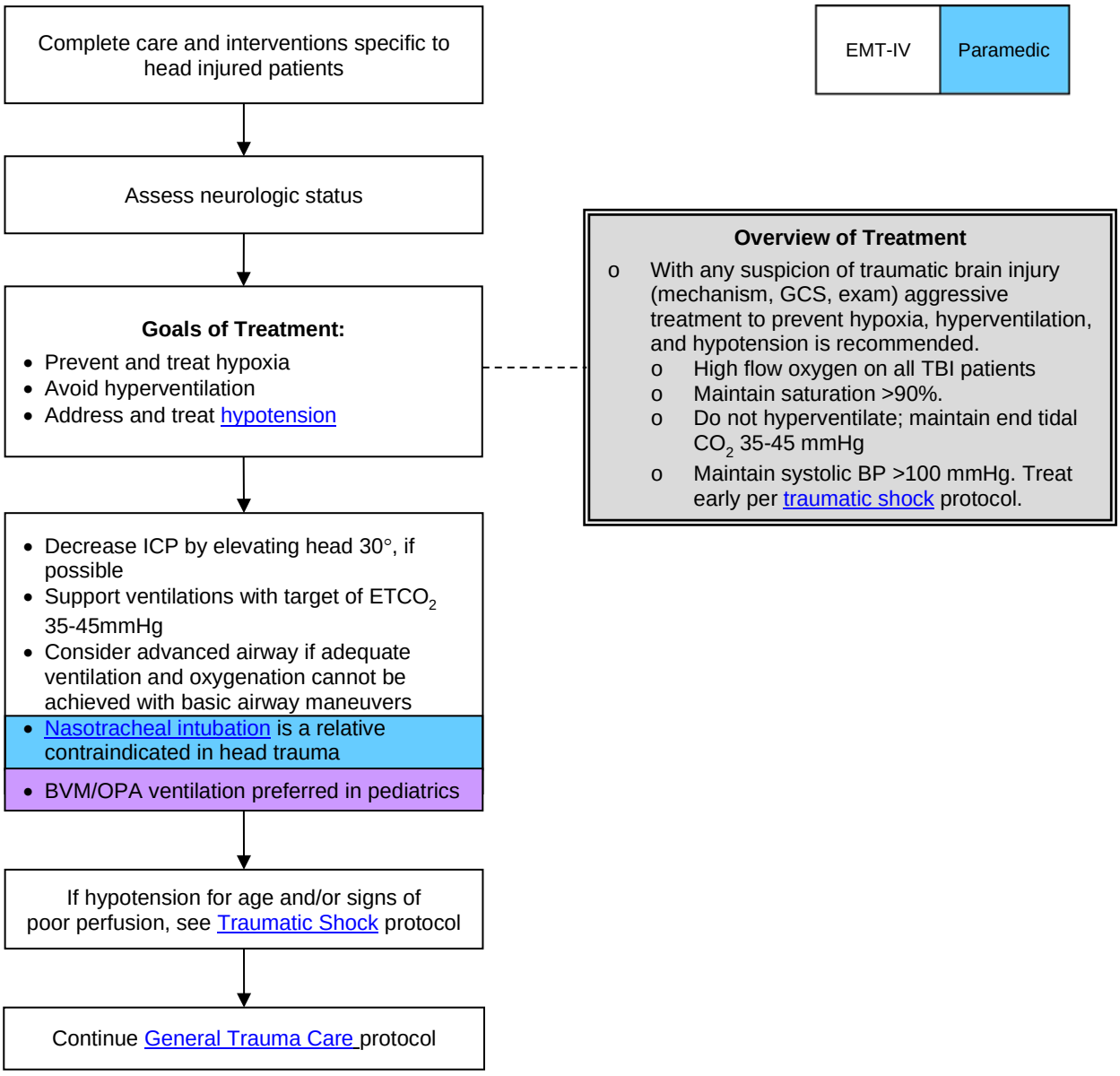
Signs of Compensated Shock

- Normal mental status
- Normal systolic blood pressure
- Tachycardia
- Prolonged (>2 seconds) capillary refill
- Tachypnea
- Cool and pale distal extremities
- Weak peripheral pulse

Signs of Decompensated Shock

- Decrease mental status
- Weak central pulses
- Poor color
- Hypotension for age

8030 HEAD TRAUMA



8040 FACE AND NECK TRAUMA

EMT-IV	Paramedic

Complete care and interventions specific to face and neck trauma

- Clear airway
- Rapid trauma assessment
- Consider spinal motion restriction
- Assess for need for airway management

If laryngeal trauma, avoid intubation if patient can be oxygenated by less invasive means

For severe airway bleeding:

- Use direct pressure if able without obstructing airway
- Consider advanced airway if adequate ventilation and oxygenation cannot be achieved with basic airway maneuvers
- BVM/OPA ventilation preferred in pediatrics

- Complete neuro exam
- Assess for subcutaneous air
- Cover/protect eyes as indicated
- Do not try to block drainage from ears, nose

- Rapid transport to appropriate Trauma Center
- Suction airway as needed

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

Consider pain management

Continue General Trauma Care protocol

Facial Injury Considerations:

- Nasotracheal intubation is contraindicated in grossly unstable mid-face trauma and relatively contraindicated in suspected head trauma
- Orbital area fractures should be of high concern for serious ocular injury and sequela
- Save avulsed teeth in moist gauze, if possible
- Be attentive to airway and suctioning, as bleeding, avulsed teeth, or other tissue can become an airway obstruction, especially with supine positioning

Eye Injury Considerations:

- Cover and protect eyes as indicated by injury type; do not apply pressure to eyes
- Orbital area fractures should be of high concern as they can result in ocular muscle entrapment and ocular compartment syndrome

Neck Injury Considerations:

- Spinal motion restriction is not routinely indicated for penetrating neck injury, but should be placed in the presence of neurologic deficit
- Laryngeal trauma should be suspected with the following:
  - Voice changes and stridor
  - Respiratory distress
  - External signs of bruising, swelling, or bleeding

8050 SPINAL TRAUMA

EMT-IV	Paramedic

Complete care and interventions specific to spinal trauma

Does patient have any of the following:

- Midline C/T/L spine tenderness on palpation
- Neurologic complaints or deficits. This includes sensory changes, weakness.
- Other injuries which are potentially distracting
- Alteration in mentation or under influence of drugs or EtOH
- Barrier to evaluate for spinal injury (*e.g., language or developmental barrier*)
- Elderly patient with head injury
- The provider feels there is a potential spinal injury (see Spinal Motion Restrictions Considerations)

Signs of Spinal Cord Injury:

- Sensory loss, weakness, and/or paralysis
- Typically bilateral, but may be asymmetrical
- Sensory changes typically have a level, corresponding to the level of the injury
- Numbness, tingling, or painful burning in arms, legs
- **Central cord syndrome** is an incomplete spinal cord injury and causes painful burning or sensory changed in shoulders and upper extremities bilaterally and spares the lower extremities. It may be subtle

Yes / **No**

Place c-collar on patient and ask them to not move neck

- If **NONE** of above criteria, and you do not think patient has a spinal injury, cervical collar and other SMR may be omitted
- Continue General Trauma Care protocol

Refer to next page for spinal motion restriction and pediatric considerations

Is there an objective neurological deficit?

No → Patient is ambulatory on scene at time of EMS arrival **AND** able to comfortably lay still and comply with instructions

Yes → Transport patient in position of comfort on stretcher with c-collar

No → Full spinal motion restrictions are indicated

Yes → Full spinal motion restrictions are indicated

- Document neuro assessments before and after spinal motion restriction
- Rapid transport to trauma center
- Monitor for status changes and progression of sensory level changes

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

Consider pain management

See General Trauma Care protocol

8050 SPINAL TRAUMA

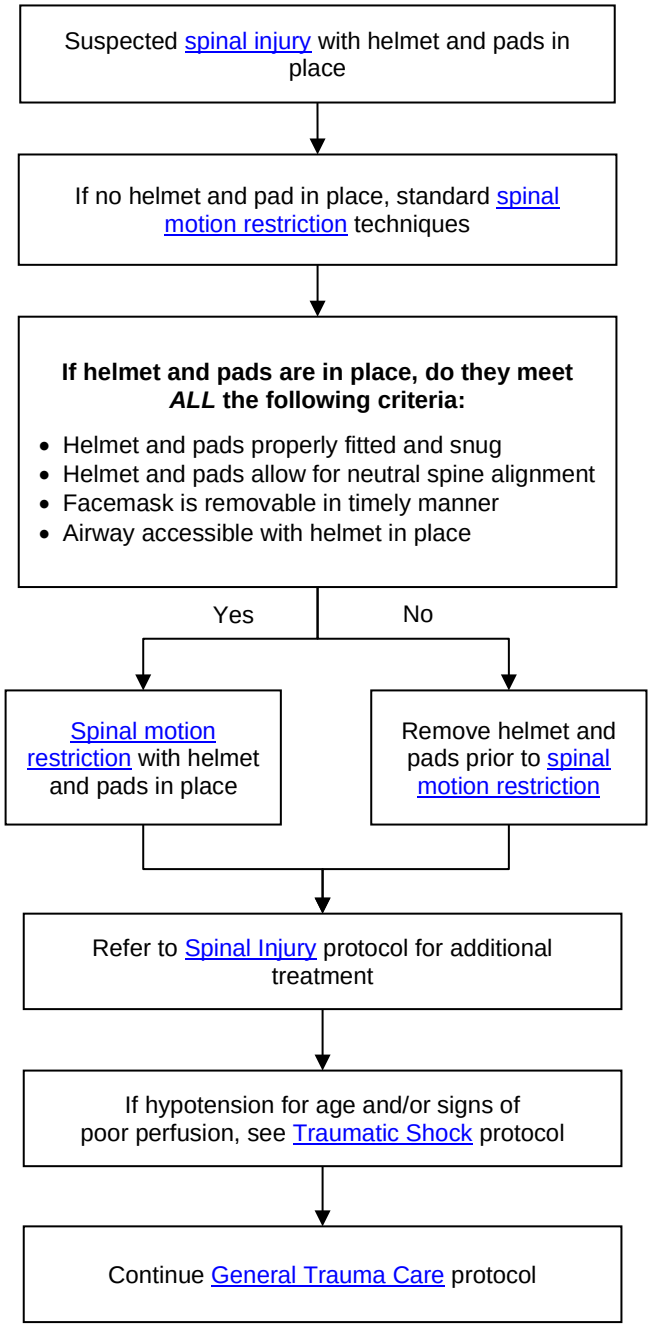
Spinal Motion Restriction (SMR) Considerations

- If patient in athletic safety equipment, refer to Suspected Spinal Injury with Athletic Equipment protocol
- If for any reason you suspect the patient has a spinal injury, then take measures to prevent inadvertent movement of the spine utilizing spinal motion restriction
- Patients over the age of 65 are at higher risk of spinal injuries, even from ground-level falls
- Use caution when assessing for spinal injury in elderly patients, who are at much higher risk and may have minimal or even no symptoms of neck pain despite c-spine injury
- Consider spinal motion restriction for patients with high-risk mechanism
- Communicate to receiving facility spinal motion restriction is in place
- Neurological exam documentation is MANDATORY in ALL patients with potential spinal trauma.
- Cervical collar is not indicated in isolated penetrating neck trauma
- If a standard cervical collar device cannot be used for some reason, consider use of alternative devices for cervical motion restriction (e.g. foam, towels, etc.)

Pediatric Considerations:

- Age alone should not be a factor in decision-making for prehospital spinal care, both for the young child and the child who can reliably provide a history
- Spinal motion restriction should be applied if the patient has any of the following in addition to the algorithm:
  - Patient not moving neck
  - Numbness and weakness
  - Torso injury or pelvic instability
  - High impact diving injury
- Additional padding under the shoulders is needed for infants and young children up to age 8 to avoid flexion of the neck
- A car seat is not acceptable for spinal motion restriction. If spinal motion restriction is deemed necessary, the child should be removed from the car seat and placed supine

8055 SPINAL TRAUMA WITH ATHLETIC EQUIPMENT

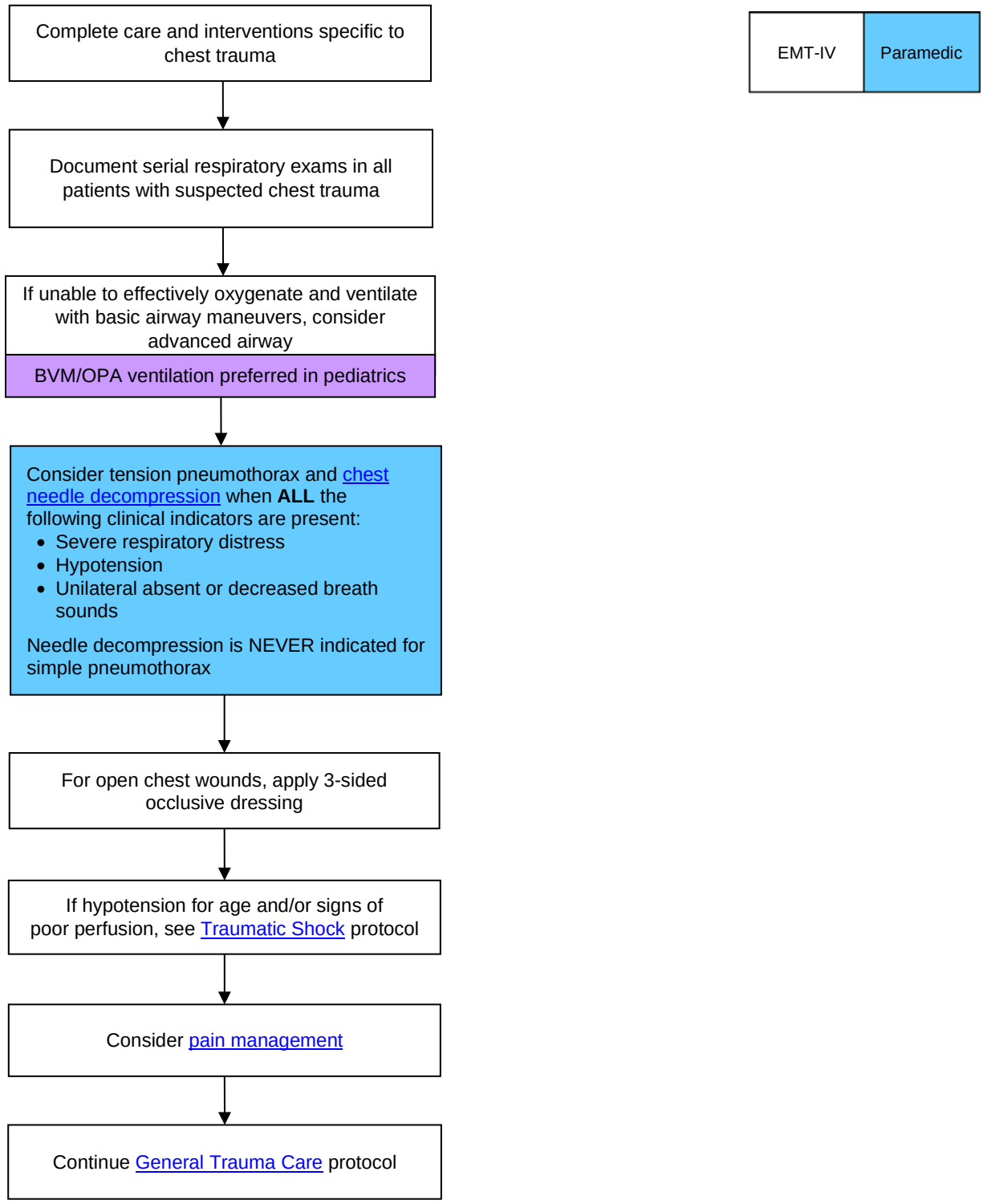


EMT-IV	Paramedic

Overview

- Do not remove helmet or shoulder pads prior to EMS transport unless they are interfering with the management of acute life-threatening injuries
- 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 spine alignment
- All athletic equipment is not the same. Athletic Trainers on scene should be familiar with equipment in use and be able to remove facemask prior to, or immediately upon, EMS arrival

8060 CHEST TRAUMA



8070 ABDOMINAL AND PELVIC TRAUMA

Complete care and interventions specific to abdominal / pelvic trauma

↓

If concern for blunt pelvic trauma with hypotension, apply pelvic binder or wrap

↓

For penetrating or eviscerating trauma:

- Cover wounds, viscera with saline moistened gauze dressing
- Do not attempt to repack exposed viscera

↓

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

↓

Consider pain management

↓

Continue General Trauma Care protocol

EMT-IV	Paramedic

Pediatric patients are more vulnerable to blunt abdominal injury due to:

- Relatively compact torsos
- Larger viscera, especially liver and spleen, which extend below the costal margin
- Less overlying fat and weaker abdominal musculature

Pelvic Trauma Considerations:

- Pelvic injuries from high-energy trauma can cause concomitant injuries, such as: hemorrhage, intra-abdominal injury, GI/GU injury, and neurologic injury
- Elderly patients may sustain significant pelvic injury from seemingly low-energy trauma
- Unstable pelvic injuries, such as open book fractures, can be associated with severe retroperitoneal hemorrhage
- Providers should have a low threshold to apply a pelvic binder or wrap in hemodynamically unstable blunt trauma patients
- Pelvic binders/wraps should be placed around the greater trochanters; over-tightening can worsen injuries



8080 EXTREMITY TRAUMA

EMT-IV | Paramedic

Complete care and interventions specific to extremity trauma and appropriate exposure of injury as indicated

Apply tourniquet for life-threatening bleeding

Fracture / Dislocation

Control bleeding with direct pressure to area or vessel

- Splint in position of comfort and best anatomic position
- Assess for circulation and neurologic function before and after splinting

Amputation

Total Amputation

Amputated part:

- Cover with moist, sterile dressing
- Place in sealed plastic bag
- Keep part cool for transport, if possible
- Do not allow freezing of part

Stump:

- Cover with moist, sterile dressing covered by dry dressing

Partial Amputation

- Cover with moist, sterile dressing
- Splint near-amputated part in anatomic position to preserve intact function

Control bleeding with direct pressure to area or vessel

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

Consider pain management

Continue General Trauma Care protocol

Fracture / Dislocation Considerations:

- Vascular compromise is an emergent concern; rapid transport to a trauma center is priority
- Consider potential for internal hemorrhage with any femur fracture
- Apply traction splint to suspected mid-shaft femur fracture when overall patient condition allows for procedure in field
- If open fracture, avoid allowing the bone ends to retract back into the wound during stabilization, splint in place. If time/condition allows, consider Cefazolin administration.

Amputation Considerations:

- Limb preservation and reattachment is an emergent concern; rapid transport to a trauma center is priority
- Perform and report neurologic findings for affected limb
- Maintain awareness for associated exposed fractured bone that could compromise hemorrhage control or cause provider injury

Approved by DHPD Medical Directors June 2026

8090 BURNS

EMT-IV	Paramedic

Complete care and interventions specific to burns once active burning is stopped

If airway involvement:

- Administer high flow oxygen
- Manage airway and assist ventilations as indicated

- Consider carbon monoxide (CO) / cyanide (CN) with closed space involvement
- If patient is unconscious or in pulseless arrest, initiate resuscitation and administer hydroxocobalamin

- Evaluate degree and body surface area (BSA) involved
- If determined to be a critical burn:
  - Administer fluids per ABA recommendations
  - Consider transport to burn center

- Remove all clothing and jewelry as soon as possible
- Protect patient from hypothermia
- Dress burns with dry sterile dressings

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

Consider pain management

Continue General Trauma Care protocol

Burn Considerations:

Critical Burn:

- 2º > 30% BSA
- 3º > 10% BSA
- Respiratory injury, facial burn
- Associated injuries, electrical or deep chemical burns, underlying PMH (cardiac, DM), age < 10 or > 50 yrs.

Types of Burns:

- Thermal: remove from environment
- Chemical: brush off or dilute chemical. Consider HAZMAT
- Electrical: make sure patient is de-energized and suspect internal injuries

ABA Recommended Prehospital Fluid Therapy

Age	Fluid Amount
14 and older	500 mL/hr NS or LR
5 - 13 years	250 mL/hr NS or LR
Younger than 5	125 mL/hr D5W, NS or LR

If no signs of clinical hypovolemia or shock, large volume of IV fluid not needed. See Handtevy for pediatric dosing

Burn Transport Considerations:

- If there is a higher concern for trauma, transportation to an appropriate trauma center is the priority
- Consider direct transport of isolated burns to designated burn center if time and condition allows

8100 SPECIAL TRAUMA SCENARIOS PROTOCOL

Coordinate transport destination with law enforcement

EMT-IV | Paramedic

See General Trauma Care protocol

Sexual Assault

Confine history to pertinent medical needs (when assault occurred, where)

- Trauma focused, victim centered care
- Respect patient's emotional needs

Don't judge, accuse, or confront victim

Protect evidence: No washing, changing clothes. Keep NPO

Coordinate transport destination with law enforcement

Abuse/neglect

Watch out for:

- Injury inconsistent with stated mechanism
- Delayed treatment
- Spreading blame
- Conflicting stories
- Prior/ healing injuries

Don't judge, accuse, or confront victim or suspected assailant

Transport patient if suspected abuse or neglect, no matter how apparently minor the injury

For reporting, refer to the Paramedic Division Mandatory Reporting policy

Mandatory Reporters:

- EMS providers provide a critical layer of protection to vulnerable adults and children who have been abused
- C.R.S. 19-3-304 passed in 2014 extends the role of mandated reporters to EMS providers in Colorado
- Mandated reporters are to "report their suspicion" of abuse. This is not considered a direct accusation if acting in good faith
- Informing providers at the receiving facility of suspicions for **DOES NOT** meet the requirements of a mandated reporter - EMS providers **ARE REQUIRED** to register their suspicion with the appropriate authorities per the Paramedic Division Mandatory Reporting policy. For children, the Colorado Child Abuse and Neglect Hotline is 1-844-CO-4-KIDS (844-264-5437)

8110 TRAUMA IN PREGNANCY

EMT-IV | Paramedic

- Complete care and interventions specific to trauma in pregnancy
- Treatment priority is the mother
- Transport all patients with any thoracic, abdominal, or pelvic injury / complaint

Estimated Gestational Age (EGA) < 20 weeks

- Transport in position of comfort or spinal motion restriction as indicated

Estimated Gestational Age (EGA) ≥ 20 weeks

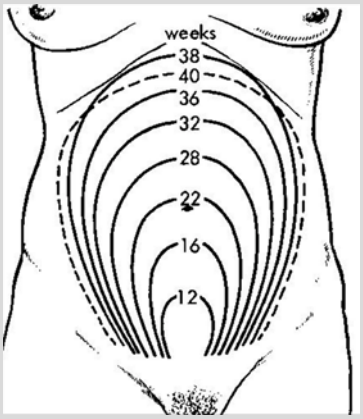
- Avoid supine position:
  - Place in left lateral recumbent position if possible
  - If immobilized, tilt backboard 15 to 30 degrees to the left side
- Assure receiving trauma center is aware of pregnancy and EGA
- Non-transport is a high-risk refusal, base contact is strongly recommended even for seemingly minor mechanisms

If hypotension for age and/or signs of poor perfusion, see Traumatic Shock protocol

Continue General Trauma Care protocol

Estimated Gestational Age (EGA)

If EGA ≥ 20 weeks, consider two patients: mother and fetus. Estimation of gestational age may be made based on fundal height by palpating for top of uterus:



If uterus is at umbilicus, then EGA > 20 weeks

Estimation by Last Menstrual Period:
Due Date = LMP + 9 months + 7 days
EGA = current date - date of last menstrual period
If available, utilize pregnancy wheel to determine EGA

9000 GENERAL GUIDELINES: MEDICATION ADMINISTRATION

Purpose:

A. Provide guidance to EMS providers in the principles of administration, delivery, and safety of approved medications.

General Principles:

A. The appropriate procedure for safe medication administration includes:
    1. Verification of the "Six Rights" of medication administration: right patient, right drug, right dose, right route, right time, right documentation
        - Look Alike; Sound Alike medications are defined as those medications when written or verbally pronounced that have the potential to lead to a medication error by mimicking the appearance or sound of another medication (e.g. Olanzapine and Ondansetron). A second check of drug names should be performed before administration.
    2. Medication administration cross-check with practice partner verifying the Six Rights prior to drug administration. This should include verbal repeat-back of the order by the practice partner.
    3. Obtain repeat vital signs after any intervention.

B. The risk of dosing error is high in children. Handtevy should be utilized on every pediatric patient to guide medication dosing and equipment size.

C. Optional routes of medication administration are vast, and appropriateness given the clinical situation should be considered. Specific considerations include:
    1. Especially in children, intranasal (IN) administration may be faster and more efficacious with less pain compared to IV or intramuscular (IM) administration.
    2. IM drug absorption and onset of action is erratic and unpredictable.

D. A DHPD EMT-IV may administer and monitor ALS cardiac arrest medications only when the patient is in cardiac arrest and when under the direct visual supervision of a Paramedic. ALS cardiac arrest medications are considered those approved for Paramedic use in settings of cardiac arrest.

E. Ideally, expired medications should never be utilized for patient care. However, the nation is increasingly faced with the challenge of critical or potentially life-saving medication shortages. As such, the Denver Metro EMS Medical Directors have issued guidelines for the appropriate response to a national medication crisis; the Denver Health Paramedic Division utilizes these guidelines as needed. Approved medications required for potentially emergent conditions, and for which no reasonable substitution is available, may be used after the posted expiration date with the following restrictions:
    1. Medication should be approved for use by the agency's EMS Medical Director.
    2. Expired medications will be used only after the supply of non-expired medications have been exhausted.
    3. Standard medication storage, inspection and delivery practices should be maintained. Reference information regarding shortages may be found at FDA or ASHP websites.

F. EMS agencies should work to establish a system of Just Culture. This is an approach to workplace safety that assumes humans, despite their best intentions to do the right thing, will make errors. Change and care improvement does not happen without accurate, honest reporting of error. A report of error should be treated with respect and examination of root cause and not punitive action.

EMT-IV	Paramedic

ACETAMINOPHEN (TYLENOL)

Description

Acetaminophen elevates the pain threshold and readjusts hypothalamic temperature-regulatory center.

Onset & Duration

- Onset of analgesia: oral 20-30 minutes
- Peak effect: 1 hour
- Duration: 4 hours

Indications

- Mild, moderate, or severe pain
- Fever (>38.3°C/101°F)

Contraindications

- History of allergy to acetaminophen
- Chronic liver disease
- Therapeutic dose of acetaminophen within past 6 hours or greater than 3 g in last 24 hours

Adverse Reactions

- Acetaminophen has a wide therapeutic window. Recommended maximum therapeutic doses are less than half the toxic dose.
  - Single toxic dose in a 70 kg adult is greater than 7 g
  - Single toxic dose in a child is greater than 150 mg/kg
  - Chronic supratherapeutic acetaminophen poisoning is possible as many medications contain acetaminophen
- Liver injury (hepatotoxicity) can occur from either a single large overdose or repeated supratherapeutic ingestion of acetaminophen. Therefore, it is important to determine if your patient has already taken a therapeutic dose of acetaminophen within past 6 hours before you administer it.
- Hypersensitivity and allergic reactions have been reported but are rare.

Drug Interactions

- Avoid concomitant administration with other acetaminophen-containing medication, such as many prescription opioids (e.g. Percocet) or OTC cough and cold medications.

Dosage and Administration

Adult:

1000 mg PO

Pediatric:

15 mg/kg PO – ***See Handtevy***

Protocol

- Pain management

Paramedic

ADENOSINE (ADENOCARD)

Description

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

- Onset: almost immediate
- Duration: 10 sec

Indications

- Narrow-complex supraventricular tachyarrhythmia after obtaining 12 lead ECG (This may be the only documented copy of the AVRNT rhythm)
- Pediatric administration requires call in for direct verbal order

Contraindications

- Any irregular tachycardia. Specifically, never administer to an irregular wide-complex tachycardia, which may be lethal
- Heart transplant

Adverse Reactions

- Chest pain
- Shortness of breath
- Diaphoresis
- Palpitations
- Lightheadedness

Drug Interactions

- Methylxanthines (e.g. caffeine) antagonize adenosine, a higher dose may be required
- Dipyridamole (persantine) potentiates the effect of adenosine; reduction of adenosine dose may be required
- Carbamazepine may potentiate the AV-nodal blocking effect of adenosine

Dosage and Administration

Adult:

12 mg IV bolus, rapidly, followed by a normal saline flush.
CONTACT BASE for additional dose of 12 mg IV bolus, rapidly, followed by a normal saline flush.
Contact medical control for further considerations.

Pediatric:

Children who are stable with AVNRT generally remain so and transport is preferred over intervention.

CONTACT BASE for direct verbal order. **See Handtevy** for dose.

(0.1 mg/kg IV bolus (max 6 mg), rapidly followed by normal saline flush. Additional dose of 0.2 mg/kg (max 12 mg) rapid IV bolus, followed by normal saline flush.)

Protocol

- Tachyarrhythmia with Poor Perfusion

Special Considerations

- Reliably causes short lived but very unpleasant chest discomfort. Always warn your patient of this before giving medication and explain that it will be a very brief sensation
- May produce bronchospasm in patients with asthma
- Transient asystole and AV blocks are common at the time of cardioversion
- Adenosine is not effective in atrial flutter or fibrillation
- Adenosine is safe in patients with a history of Wolff-Parkinson-White syndrome if the rhythm is regular and QRS complex is **narrow**
- A 12-lead EKG should be performed and documented, when available
- Adenosine requires continuous EKG monitoring throughout administration

EMT-IV	Paramedic

ALBUTEROL SULFATE (PROVENTIL, VENTOLIN)

Description

- 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 inside cells. This lowers serum potassium concentration and makes albuterol an effective temporizing treatment for unstable patients with hyperkalemia.

Onset & Duration

- Onset: 5-15 minutes after inhalation
- Duration: 3-4 hours after inhalation

Indications

- Bronchospasm

Paramedic Only:

- Known or suspected hyperkalemia with ECG changes (i.e.: peaked T waves, QRS widening)
- Crush or suspension injury with suspected hyperkalemia (requires **BASE CONTACT**)

Contraindications

- Severe tachycardia is a relative contraindication.

Adverse Reactions

- Tachycardia
- Palpitations
- Dysrhythmias

Drug Interactions

- Sympathomimetics may exacerbate adverse cardiovascular effects.
- ß-blockers may antagonize albuterol.

How Supplied

MDI: 90 mcg/metered spray (17-g canister with 200 inhalations)
Pre-diluted nebulized solution: 2.5 mg in 3 ml NS (0.083%)

Dosage and Administration

Adult:

MDI with Spacer:
6 puffs into spacer, then inhaled by patient. May repeat every 5 minutes as needed.
Single Neb dose
Albuterol sulfate solution 0.083% (one unit dose bottle of 3.0 ml), by nebulizer, at a flow rate (6-8 lpm) that will deliver the solution over 5 to 15 minutes. May be repeated twice (total of 3 doses).
Continuous Neb dose
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.

Pediatric:

MDI with Spacer:
See Handtevy for dose (identical to adult dosing, not indicated < 2 years of age). May repeat every 5 minutes as needed.

Single Neb dose
See Handtevy (identical to adult dosing)

Continuous Neb dose for more severe cases
See Handtevy (identical to adult dosing)

Protocol

- Adult Wheezing
- Pediatric Wheezing
- Allergy and Anaphylaxis
- General Trauma Care

Special Considerations

- Occasionally, pediatric patients may have difficulty utilizing the MDI with spacer. In this case, remove the mask from the pediatric BVM and discard BVM. Use the mask with MDI and spacer for easier delivery.
- MDI and spacer should be delivered with the transported patient and handed over to hospital staff. In the rare instance that a patient is treated with an MDI and then refuses transport, discard MDI and spacer after use.
- Consider inline nebs for patients requiring endotracheal intubation or CPAP.
- May precipitate angina pectoris and dysrhythmias
- Should be used with caution in patients with suspected or known coronary disease, diabetes mellitus, hyperthyroidism, prostatic hypertrophy, or seizure disorder
- Wheezing associated with anaphylaxis should first be treated with epinephrine IM.

Paramedic

AMIODARONE (CORDARONE)

Description

Amiodarone has multiple effects showing Vaughn-Williams Class I, II, III and IV actions with a quick onset. The dominant effect is prolongation of the action potential duration and the refractory period.

Indications

- Pulseless arrest in patients with shock-refractory or recurrent VF/VT
- Wide complex tachycardia not requiring immediate cardioversion due to hemodynamic instability

Precautions

- Wide complex irregular tachycardia
- Sympathomimetic toxidromes, i.e. cocaine or amphetamine overdose
- NOT to be used to treat ventricular escape beats or accelerated idioventricular rhythms

Contraindications

- 2nd or 3rd degree AV block
- Cardiogenic shock

Adverse Reactions

- Hypotension
- Bradycardia

Dosage and Administration

Adult:

- **Pulseless Arrest (Refractory VT/VF):**
  - 300 mg IV bolus.
  - Administer additional 150 mg IV bolus in 3-5 minutes if shock refractory or recurrent VF/VT.
- **Symptomatic VT and undifferentiated wide complex tachycardia with a pulse:**
  - **CONTACT BASE** 150 mg IV bolus infusion over 10 minutes.

Pediatric:

- **Pulseless Arrest (Refractory VT/VF):**
  - See Handtevy for dose (5mg/kg IV bolus).
  - **CONTACT BASE** for additional doses.

Special Considerations

- A 12-lead EKG should be performed and documented, when available.
- Amiodarone is preferred to adenosine for treatment of undifferentiated WCT with a pulse.

Protocol

- Universal Pulseless Arrest Algorithm
- Tachyarrhythmia with Poor Perfusion

EMT-IV	Paramedic

ANTIEMETICS: ONDANSETRON (ZOFRAN)

Description

- Ondansetron is a selective serotonin 5-HT3 receptor antagonist antiemetic. Ondansetron is the preferred antiemetic, if available.

Indications

- Nausea and vomiting

Contraindications

- Ondansetron: No absolute contraindication. Should be used with caution in first trimester of pregnancy and should be reserved for only those patients with severe dehydration and intractable vomiting

Adverse Effects:

- Ondansetron: Very low rate of adverse effects, very well tolerated.

Dosage and Administration

Ondansetron

Adult:
4 mg IV/IM/PO/ODT. May repeat x 1 dose as needed.

Pediatric ≥ 4 years old:
See Handtevy for dose (4 mg IV/PO/ODT)

Pediatric 6 months to 4 years old:
See Handtevy for dose (2 mg IV/PO/ODT)

Pediatric < 6 months:
BASE CONTACT required.

Droperidol (Paramedic Only)

Droperidol should be considered for second line treatment for intractable vomiting that is not resolved after Zofran administration – see droperidol protocol

Protocol

- Abdominal Pain/Vomiting
- Altitude Illness

ANTIPSYCHOTICS

BUTYROPHENONES including DROPERIDOL and HALOPERIDOL
OLANZAPINE (ZYPREXA)

Description

- Butyrophenones are antipsychotic medications. They produce a dopaminergic blockade, a mild alpha-adrenergic blockade, and causes peripheral vasodilation. Its major actions are sedation and tranquilization. Droperidol also has a potent anti-emetic effect.
- Olanzapine is a second-generation antipsychotic. It acts through combination of dopamine and serotonin type 2 receptor site antagonism.

Onset & Duration

- Droperidol
  - Onset: IM within 10 minutes. IV within 5 to 10 minutes. Peak effect within 30 minutes
  - Duration: 2 to 4 hours (may be longer in some individuals)
- Haloperidol
  - Onset: IM within 15 to 30 minutes. IV within 10 to 20 minutes.
  - Duration: 2 to 6 hours
- Olanzapine
  - Onset: IM within 10 minutes. IV within 5 to 10 minutes. PO/ODT around 10 minutes.
  - Duration: 2 hours

Indications

- Patient is agitated and combative, routine EMS care impossible, and IMC-RASS +3 or +4.
- Droperidol specific indications:
  - Second line medication for management of intractable vomiting.
  - Combative head injured patients
- Olanzapine specific indications:
  - For ODT administration, consider for treatment of agitation in a cooperative patient who is able to self-administer the medication and is at high risk for deterioration during transport. These patients will commonly be hearing voices or having paranoid thoughts, often after noncompliance with taking their psychiatric medications

Contraindications

- Suspected acute myocardial infarction/acute coronary syndrome
- Systolic blood pressure under 100 mmHg, or the absence of a palpable radial pulse
- Signs of respiratory depression
- Known QTc prolongation
- Pregnancy
- Olanzapine specific contraindications:
  - Dementia related psychosis
  - Ondansetron co-administration (QT prolongation)
  - Age <12

Side Effects

- Due to the vasodilation effect, butyrophenones can cause a transient hypotension that is usually self-limiting and can be treated effectively with IV fluids. Droperidol may cause tachycardia which usually does not require pharmacologic intervention.
- Butyrophenones may cause prolonged QT interval.
- Some patients may experience unpleasant sensations manifested as restlessness, hyperactivity, or anxiety following butyrophenone administration. Extra-pyramidal reactions have been noted hours to days after treatment. This is called akathisia and is treated with diphenhydramine.
- Rare instances of neuroleptic malignant syndrome have been known to occur following treatment using butyrophenones.
- Olanzapine and benzodiazepines coadministration has a potential synergistic effect leading to significant sedation.

Dosage and Administration

DROPERIDOL:

Patient is agitated and combative, routine EMS care impossible, and (IMC-RASS +3 or +4)

Adult:

IV/IO/IM route: 5 mg slow IV or IM administration.

- If patient still agitated and disruptive 5 minutes after first butyrophenone dose (IMC-RASS +3 or +4), repeat butyrophenone dose or switch to benzodiazepine.
- If additional sedation medication needed **CONTACT BASE.**

Pediatric 8 to 11 years old:

IV/IO/IM route: See Handtevy for dose (0.025 mg/kg; maximum single dose of 1.25 mg)

Pediatric <8 years old:

- **Not indicated.** Refer to benzodiazepines.

Adult patient who is agitated and combative, routine EMS care impossible, IMC-RASS +4, AND imminent risk of bodily harm to self/others

Adult Only

IM route: 10 mg IM administration. **CONTACT BASE** for additional sedation orders.

Antiemetic

Adult:

- **IV/IM route:** 1.25 mg slow push.

Pediatric:

- **Not indicated** for pediatric

HALOPERIDOL:

Patient is agitated and combative, routine EMS care impossible, and (IMC-RASS +3 or +4)

Adult:

IV/IO/IM route: 5 mg slow IV/IO or IM administration.

- If patient still agitated and disruptive 5 minutes after first butyrophenone dose (IMC-RASS +3 or +4), repeat butyrophenone dose or switch to benzodiazepine.
- If additional sedation medication needed **CONTACT BASE.**

Pediatric 8 to 11 years old:

IM route: See Handtevy for dose (0.05 mg/kg; maximum single dose of 2.5 mg)

Pediatric <8 years old:

- **Not indicated.** Refer to benzodiazepines.

OLANZAPINE:

Adult:

- 10mg ODT
- If additional sedation medication needed **CONTACT BASE**.

Special Considerations

- If known Parkinsonian disease, benzodiazepines are the preferred first line medication.
- Due to butyrophenone's potential effect on QT interval prolongation, all patients receiving them should be placed on the cardiac monitor. Though it is understood that obtaining an ECG on the combative or agitated patient may be difficult, every effort should be made to do so.
- All patients receiving sedation must receive oxygen and have pulse oximetry, cardiac monitoring, and continuous waveform capnography during transport. Though it is understood that obtaining this monitoring on the combative or agitated patient may be difficult, every effort should be made to do so.
- Elderly patients have an increased risk of over-sedation as well as increased risk of hypotension. If it must be given, administer half typical dose.

- Rare instances of neuroleptic malignant syndrome (NMS) have been known to occur following treatment using butyrophenones. If patient deterioration and suspicion of NMS, **CONTACT BASE**.
- Olanzapine specific considerations:
    - Relative to other prehospital sedatives, Olanzapine is generally less sedating. However, coadministration with other CNS depressants can lead to deeper sedation. In any case of CNS depression, post-sedation monitoring is required. In all administrations, a RASS score should be documented, and post-sedation monitoring should be initiated if safe to do so.
    - In the event a patient requires further sedation after Olanzapine administration, benzodiazepines are preferred. Butyrophenone coadministration may increase the risk of QT prolongation.
    - Patients with known schizophrenia or bipolar disorder that are symptomatic (i.e., hearing voices, paranoid thoughts) may benefit most for symptom management. May be administered safely for undifferentiated agitation.

Protocol

- Agitated/Combative Patient
- Antiemetics

EMT-IV	Paramedic

ASPIRIN (ASA)

Description

Aspirin 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. It is also an analgesic and antipyretic.

Indications

- Suspected acute coronary syndrome

Contraindications

- **Active** gastrointestinal bleeding
- Aspirin allergy
- Less than 16 years old

How Supplied

Chewable tablets 81mg

Dosage and Administration

- 324 mg PO

Protocol

- Chest Pain

Special Considerations

- Patients taking vitamin K antagonists (warfarin), heparins (enoxaparin, etc.), direct oral anticoagulants (Xarelto, Eliquis, etc.), or other anticoagulant medications should still receive aspirin if suspected of having an acute coronary syndrome.

Paramedic

ATROPINE SULFATE

Description

Atropine is a naturally occurring antimuscarinic, anticholinergic substance. It is the prototypical anticholinergic medication with the following effects:

- Increased heart rate and AV node conduction
- Decreased GI motility
- Urinary retention
- Pupillary dilation (mydriasis)
- Decreased sweat, tear, and saliva production (dry skin, dry eyes, dry mouth)

Indications

- Symptomatic bradycardia
- 2nd and 3rd degree heart block
- Organophosphate poisoning

Precautions

- Should not be used without medical control direction for stable bradycardias
- Closed angle glaucoma

Adverse Reactions

- Anticholinergic toxidrome in overdose: think “blind as a bat, mad as a hatter, dry as a bone, red as a beet”

Dosage and Administration

Hemodynamically Unstable Bradycardia

Adult:

- 1 mg IV/IO bolus.
- Repeat if needed at 3-5 minute intervals to a maximum dose of 3 mg. (Stop at ventricular rate which provides adequate mentation and blood pressure.)

Pediatric:

- **See Handtevy for dose** (0.02 mg/kg IV/IO bolus. Minimum dose is 0.1mg, maximum single dose 0.5mg.)

Poisoning/Overdose

Adult:

- **BASE CONTACT** required. 40kg and up: 2mg IV/IM for signs of moderate/severe toxicity. Contact base for additional doses.

Pediatric:

- **BASE CONTACT** required. Under 40kg: **See Handtevy for dose** for signs of moderate/severe toxicity (0.02 mg/kg IV/IM. Minimum dose is 0.1mg.).

Protocol

- Bradyarrhythmia with poor perfusion
- Poisoning/Overdose

Special Considerations

- Atropine causes pupil dilation, even in cardiac arrest settings

Paramedic

BENZODIAZEPINES (MIDAZOLAM)

Description

- Benzodiazepines are sedative-hypnotics that act by increasing GABA activity in the brain. GABA is the major inhibitory neurotransmitter, so increased GABA activity *inhibits* cellular excitation. Benzodiazepine effects include anticonvulsant, anxiolytic, sedative, amnestic, and muscle relaxant properties. Each individual benzodiazepine has unique pharmacokinetics related to its relative lipid or water solubility.

Onset & Duration

- Any agent given IV will have the fastest onset of action. Typical time of onset 2-3 minutes.
- Intranasal administration has slower onset and is less predictable compared to IV administration. However, it may still be preferred if an IV cannot be safely or rapidly obtained. Intranasal route has faster onset compared to intramuscular route.
- IM administration has the slowest time of onset.

Indications

- Status epilepticus
- Sedation for cardioversion or transcutaneous pacing (TCP)
- Patient is agitated and combative, routine EMS care impossible, and IMC-RASS +3 or +4.
- Adjunctive agent for treatment of severe anxiety with extrication, packaging, or transport in adults that is uncontrolled by other interventions – **WITH CALL IN ONLY**

Contraindications

- Hypotension
- Respiratory depression

Adverse Reactions

- Respiratory depression, including apnea
- Hypotension
- In patients >65 years old or small adults <50kg, lower doses may be sufficient and effective. Consider ½ dosing in these patients

Dosage and Administration

MIDAZOLAM:

Seizure:

Adult:

IN/IM route (IN preferred over IM): 10 mg

- Dose may be repeated x 1 after 5 minutes if still seizing. **Contact Base** for more than 2 doses.

IV/IO route: 5 mg

- Dose may be repeated x 1 after 5 minutes if still seizing. **Contact Base** for more than 2 doses.

Pediatric:

IN/IM route (IN preferred over IM): **See Handtevy** for dose (0.2mg/kg up to 10mg)

- Dose may be repeated x 1 after 5 minutes if still seizing. **Contact Base** for more than 2 doses.

IV/IO route: **See Handtevy** for dose (0.1mg/kg up to 5mg)

- Dose may be repeated x 1 after 5 minutes if still seizing. **Contact Base** for more than 2 doses.

Sedation for cardioversion or transcutaneous pacing

Adult:
IN/IM route: 5 mg
- Dose may be repeated x 1 after 5 minutes if additional sedation needed. **Contact Base** for more than 2 doses.

IV/IO route: 2.5 mg
- Dose may be repeated x 1 after 5 minutes if additional sedation needed. **Contact Base** for more than 2 doses.

Pediatric:
IN/IM route: **See Handtevy** for dose (0.2mg/kg up to 5mg)
- Dose may be repeated x 1 after 5 minutes if additional sedation needed. **Contact Base** for more than 2 doses.

IV/IO route: **See Handtevy** for dose (0.1mg/kg up to 2mg)
- Dose may be repeated x 1 after 5 minutes if additional sedation needed. **Contact Base** for more than 2 doses.

Patient is agitated and combative, routine EMS care impossible, and IMC-RASS +3 or +4

Adult:
IV/IO/IM route: 5 mg
- If patient still agitated and disruptive 5 minutes after first benzodiazepine dose, (IMC-RASS +3 or +4), switch to butyrophenone.
- If additional sedation medication needed **CONTACT BASE**.

Pediatric 8 to 11 years old:
IV/IO/IM route: **See Handtevy** for dose (0.1mg/kg; maximum single dose of 5 mg)

Pediatric 6-7 years old:
- **Contact Base**. (0.1mg/kg recommend dose to be discussed with base)

Pediatric <6 years old:
- **Not indicated.**

Adult patient who is agitated and combative, routine EMS care impossible, IMC-RASS +4, AND imminent risk of bodily harm to self/others

Adult:
- **IM route**: 10 mg. **Contact Base** for additional sedation orders.

Protocol
- Synchronized Cardioversion
- Transcutaneous Pacing
- Seizure
- Poisoning/Overdose
- Agitated/Combative Patient

Special Considerations
- All patients receiving benzodiazepines must receive oxygen and have cardiac monitoring, pulse oximetry, and continuous waveform capnography during transport.
- Sedative effects of benzodiazepines are increased in combination with opioids, alcohol, or other CNS depressants.
- Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order.
- In patients >65 years old or small adults <50kg, lower doses may be sufficient and effective. Consider ½ dosing in these patients.

CALCIUM

Description

- Cardioprotective agent in hyperkalemia.
- Calcium chloride contains 3 times the amount of elemental calcium contained in the same volume of calcium gluconate. Therefore, 1 g (10 mL) vial of calcium chloride 10% solution contain 273 mg of elemental calcium, whereas 1 g (10 mL) of 10% calcium gluconate contains 90 mg of elemental calcium. For this reason, larger doses of calcium gluconate are required.
- Doses below refer to dose of calcium solution, not elemental calcium.

Indications

- Adult pulseless arrest associated with any of the following clinical conditions:
  - Known or suspected hyperkalemia
  - Renal failure with or without hemodialysis history
  - Calcium channel blocker overdose
  - **Not indicated for routine treatment of pulseless arrest**
- Renal failure with known or suspected hyperkalemia
- Known or suspected hyperkalemia with ECG changes
- Crush or suspension injury with known or suspected hyperkalemia (requires **BASE CONTACT**)
- Calcium channel blocker overdose with hypotension and bradycardia (requires **BASE CONTACT**)

Contraindications

- Known or suspected hypercalcemia
- Known or suspected digoxin toxicity (i.e. digoxin overdose)

Side Effects/Notes

- Extravasation of calcium chloride solution may cause tissue necrosis.
- Because of the risk of medication error, if calcium chloride is stocked, consider limiting to 1 amp per medication kit to avoid accidental overdose. Calcium gluconate solution will require 3 amp supply for equivalent dose.
- If administering in same IV/IO line with sodium bicarbonate, flush IV/IO line with at least 10 mL of fluid between medications.
- In setting of digoxin toxicity, may worsen cardiovascular function.

Dosage and Administration

Calcium Gluconate 10% Solution

Adult:

- **Pulseless arrest assumed due to hyperkalemia**
  - 3 g (30 mL) slow IV/IO push.
- **Renal Failure with known or suspected hyperkalemia**
  Crush or suspension injury with known or suspected hyperkalemia (with **BASE CONTACT**)
  - 3 g (30 mL) IV/IO over 5 minutes.
- **Calcium channel blocker overdose with hypotension and bradycardia**
  - **CONTACT BASE** for order. 3 g (30 mL) IV/IO over 5 minutes. Dose may be repeated every 5 minutes for total of 3 doses.

Pediatric:

- **Calcium channel blocker overdose with hypotension for age and bradycardia**
  - **CONTACT BASE** for order. **See Handtevy for dose** (60 mg/kg (0.6 mL/kg), not to exceed 1 g, IV/IO over 5 minutes. May repeat every 5 minutes for total of 3 doses.)

Protocol

- Universal Pulseless Arrest
- Poisoning/Overdose
- Hyperkalemia
- General Trauma Care

Paramedic

CEFAZOLIN (ANCEF)

Description

Cefazolin is a first-generation cephalosporin antibiotic that is used to treat bacterial infections. Cefazolin is often used pre-operatively to reduce the risk of surgical infections

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Onset & Duration

- Onset: rapid, within 1 hour of IV administration
- Duration: 6 hours

Indications

- Suspected open extremity fracture

Contraindications

- Known allergy to penicillin or cephalosporins

Dosage and Administration

Adult:

2g IV slow push

Pediatric:

See Handtevy for dosing. 25-50mg/kg IV slow push, with a cumulative max dose of 2gm

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Protocol

- Extremity trauma

Special Considerations

- If allergic reaction occurs, stop any remaining infusion and treat per Allergy/Anaphylaxis protocol
- Ensure the receiving ED team is notified of antibiotic administration including time, medication, and dose
- Suspect open fracture in cases of visible bone or angulation/crepitus with laceration over the fracture site

EMT-IV	Paramedic

DEXTROSE

Description

Glucose is the body's basic fuel and is required for cellular metabolism. A sudden drop in blood sugar level will result in disturbances of normal metabolism, manifested clinically as a decrease in mental status, sweating, and tachycardia. Further decreases in blood sugar may result in coma, seizures, and cardiac arrhythmias. Serum glucose is regulated by insulin, which stimulates storage of excess glucose from the blood stream, and glucagon, which mobilizes stored glucose into the blood stream.

Indications

- Hypoglycemia
- The unconscious or altered mental status patient with an unknown etiology

Precautions

- None

Dosage and Administration

Adult:

25 g (250 mL of a 10% solution) IV/IO infusion, titrating dose to clinical effect

Pediatric:

- >Newly born to <50 kg: **See Handtevy for dose** (5 mL/kg of 10% solution, maximum of 250 mL)
- Newly born
  - o If neurologically altered and/or unable to feed, treat with D10W (**see Handtevy for dose** – 5mL) and recheck after 15 min
  - o In neurologically stable (alert and able to suck), allow to breast feed or give formula

Protocol

- Hypoglycemia
- Universal Altered Mental Status
- Seizures
- Poisoning/Overdose
- Psych/Behavioral
- Neonatal Resuscitation

Special Considerations

- The risk to the patient with ongoing hypoglycemia is enormous. With profound hypoglycemia and no IV access, consider IO insertion.
- Draw blood sample before administration, if possible.
- Use glucometer before administration, if possible.
- Extravasation may cause tissue necrosis; use a large vein and aspirate occasionally to ensure route patency.
- Dextrose can be irritable to the vein and the vein should be flushed after administration.

Paramedic

DIPHENHYDRAMINE (BENADRYL)

Description

Antihistamine for treating histamine-mediated symptoms of allergic reaction. Also, anticholinergic and antiparkinsonian effects used for treating dystonic reactions caused by antipsychotic and antiemetic medications (e.g.: haloperidol, droperidol, reglan, compazine, etc).

Indications

- Allergic reaction
- Dystonic medication reactions or akathisia (agitation or restlessness)

Precautions

- Asthma or COPD, thickens bronchial secretions
- Narrow-angle glaucoma
- Patients over 65 years old are at greater risks of serious side effects including confusion, urinary retention, and dizziness that could lead to fall risk. For these reasons, half dosing is recommended

Side effects

- Drowsiness
- Dilated pupils
- Dry mouth and throat
- Flushing

Drug Interactions

- CNS depressants and alcohol may have additive effects.
- MAO inhibitors may prolong and intensify anticholinergic effects of antihistamines.

Dosage and Administration

Adults:

- 50 mg IV/IO/IM. For patients over 65 years old, administer half-dose of 25 mg IV/IO/IM. For mild allergic reactions, consider PO administration if available.

Pediatrics:

- **See Handtevy for dose** (1 mg/kg slow IV/IO/IM, not to exceed 50mg). For mild allergic reactions, consider PO administration if available.

Protocol

- Allergy/Anaphylaxis

EMT-IV	Paramedic

DuoDote™ (NERVE AGENT ANTIDOTE KIT)

Description

Nerve agents can enter the body by inhalation, ingestion, and through skin. These agents are absorbed rapidly and can produce injury or death within minutes. The DuoDote™ Nerve Agent Antidote kit consists of one auto-injector for self and/or buddy administration. One Injector contains 2.1mg atropine and 600mg pralidoxime chloride (2-PAM).



Indications

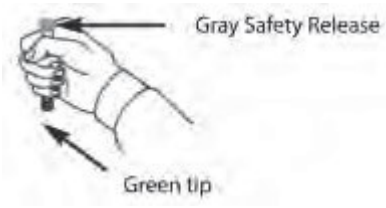
- Suspected nerve agent exposure accompanied with signs and symptoms of nerve agent poisoning

Injection sites

- Outer thigh- mid-lateral thigh (preferred site)
- Buttocks- upper lateral quadrant of buttock (gluteal) in thin individuals

Instructions

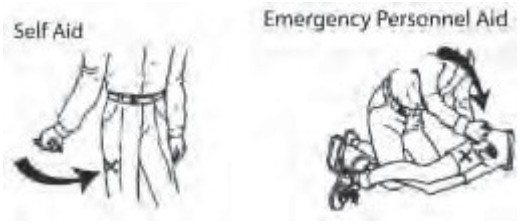
- Place the auto-injector in the dominate hand. Firmly grasp the center of the auto injector with the green tip (needle end) pointing down.



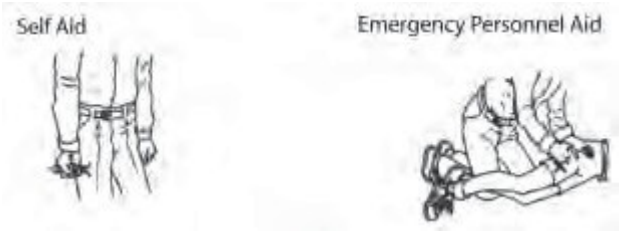
- With the other hand, pull off the gray safety release. The DuoDote™ auto-injector is now ready to be administered.



- The injection site is the mid-outer thigh. The DuoDote™ auto-injector can inject through clothing. However, make sure pockets at the injection site are empty.



- Swing and firmly push the green tip at a 90-degree angle against the mid-outer thigh. Continue to firmly push until you feel the auto injector trigger.



- No more than three (3) sets of antidotes should be administered.

Special Considerations

- Presence of tachycardia is not a reliable indicator of effective treatment due to potential nicotinic effects of nerve agent exposure. The endpoint of treatment is clear dry lung sounds.
- Attempt to decontaminate skin and clothing between injections.

Protocol:

- Overdose and Acute Poisoning

EMT-IV	Paramedic

EPINEPHRINE (ADRENALIN)

Description

Endogenous catecholamine alpha, beta-1, and beta-2 adrenergic receptor agonist. Causes dose-related increase in heart rate, myocardial contractility, and oxygen demand, as well as peripheral vasoconstriction and bronchodilation.

Indications

- Anaphylaxis

Paramedic Only:

- Pulseless Arrest
- Asthma
- Bradycardia with poor perfusion
- Hypotension for age and poor perfusion refractory to fluids or other interventions

Adverse Reactions

- Tachycardia and tachydysrhythmia
- Hypertension
- Anxiety
- May precipitate angina pectoris

Drug Interactions

- Should not be added to sodium bicarbonate or other alkaloids as epinephrine will be inactivated at higher pH

Dosage and Administration

Adult (Paramedic Only):

Pulseless Arrest:

- 1 mg (10 ml of 0.1mg/mL solution), IV/IO bolus.
- Repeat every 3 compression cycles or 6 minutes. After 3mg, additional doses are not routinely recommended.

Hypotension for age and poor perfusion refractory to other interventions:

- Administer push dose epinephrine or infusion

Adult Wheezing (CONTACT BASE for administration in COPD patients):

- 0.3 mg (0.3 ml of 1mg/mL solution) IM. May repeat dose x 1.
- If refractory, consider push dose epinephrine or infusion

Severe systemic allergic reaction (Anaphylaxis) refractory to IM epinephrine:

- Consider push dose epinephrine or infusion

ALTERNATIVE to racemic epinephrine: (for stridor at rest)

- 5 mL of 1mg/mL epinephrine via nebulizer x 1

Adult Continued (EMT-IV and Paramedic):

Systemic allergic reaction:

- 0.3 mg (0.3 ml of 1mg/mL solution) IM. May repeat dose x 1.
- **(Paramedic Only)** If refractory, consider push dose epinephrine or infusion

Epinephrine Auto-Injector (EMT-IV and Paramedic):

Systemic allergic reaction:

Adult: 0.3 mg IM with autoinjector (adult EpiPen, Auvi-Q).
Pediatric: 0.15 mg IM with autoinjector (EpiPen Jr., Auvi-Q).

Adult Push Dose (Paramedic Only):

- Mixing instructions:
    1. Start with Epinephrine 0.1mg/mL and discard 9mL
    2. Then refill with NS 9 mL
    3. Each 1 mL = 10 mcg. Apply label to syringe (epinephrine 10mcg/mL)
- Administer IV push of 10-20 mcg aliquots every 1-5 minutes as needed

Adult Infusion (Paramedic Only):

- **Mix**: inject 1 mg epinephrine into 1000 mL Normal Saline bag to achieve 1 mcg/mL concentration (This means 1 mL of 1mg/mL or 10 mL of 0.1mg/mL – either way 1 mg of drug). Use macro drip set.
- **Adult IV/IO**: Begin IV/IO infusion wide open to gravity to give small aliquots of fluid. **Typical volumes are less than 100 mL of total fluid**, as typical doses are expected to be < 100 mcg. Titrate to desired hemodynamic effect with goal BP of > 90 mmHg systolic, improved respiratory status (bronchodilation), and improved perfusion/mentation.
- **Label**: Apply label to bag noting epinephrine 1 mcg/mL

Pediatric (Paramedic Only):

Pulseless arrest:

- **See Handtevy for dose** (0.01 mg/kg IV/IO (0.1 ml/kg of 0.1mg/mL solution))
- Repeat every 3 compression cycles or 6 minutes. After 3 doses, additional doses are not routinely recommended.

Bradycardia with Poor Perfusion:

- **See Handtevy for dose** (0.01 mg/kg IV/IO (0.1 ml/kg of 0.1mg/mL solution))

Pediatric Wheezing 1 to 12 years old:

- **See Handtevy for dose** (0.15 mg (0.15 mL of 1mg/mL solution) IM for <25 kg). May repeat dose x 2 every 5 minutes.

Severe systemic allergic reaction (Anaphylaxis) refractory to IM epinephrine x3 total doses *AND* NS rapid push (CONTACT BASE):

See Handtevy for dose (if needed, mixing instructions and dose also found below)

- Mixing instructions:
    1. Start with Epinephrine 0.1mg/mL and discard 9mL
    2. Then refill with NS 9 mL, making a 10 mcg/mL (0.01 mg/mL) solution
- Administer slow push of 1 mcg/kg (0.1mL/kg) aliquots as needed

ALTERNATIVE to racemic epinephrine: (for stridor at rest)

- **See Handtevy for dose** (5 mL of 1mg/mL epinephrine via nebulizer x 1). **CONTACT BASE** for repeated dosing.

Pediatric Continued (EMT-IV and Paramedic):

Moderate to Severe Allergic Reactions:

- **See Handtevy for dose** (if needed, also found below)

    4 months to 12 years
    - 0.15 mg (0.15 mL of 1mg/mL solution) IM for <25 kg. May repeat dose x 2 every 5 minutes.

    Term to <4 months
    - 0.1 mg (0.1 mL of 1mg/mL solution) IM. May repeat dose x 2 every 5 minutes.

Protocol

- Medical Pulseless Arrest Algorithm
- Bradyarrhythmia with poor perfusion
- Neonatal Resuscitation
- Medical Shock
- Allergy and Anaphylaxis Protocol
- Adult Wheezing

- Pediatric Wheezing

Special Considerations

- May increase myocardial oxygen demand and angina pectoris. Use with caution in patients with known or suspected CAD.
- Intramuscular injection into the thigh is preferred route and site of administration. Intramuscular injection of epinephrine in the thigh results in higher concentrations of medication versus intramuscular or subcutaneous injection in the upper arm.

Paramedic

GLUCAGON

Description

Increases blood sugar concentration by converting liver glycogen to glucose. Glucagon also causes relaxation of smooth muscle of the stomach, duodenum, small bowel, and colon.

Onset & Duration

- Onset: variable

Indications

- Altered level of consciousness where hypoglycemia is suspected and IV access is unavailable.
- Hypotension, bradycardia from beta-blocker or calcium channel overdose.

Side Effects

- Tachycardia
- Headache
- Nausea and vomiting

Dosage and Administration

Adult:

Hypoglycemia:

- 1 mg IM

Beta Blocker/Calcium Channel overdose with hypotension and bradycardia:

- 2 mg IV bolus

Pediatric:

Hypoglycemia:

- < 25 kg: **See Handtevy for dose** (0.5mg IM)
- > 25 kg: **See Handtevy for dose** (1mg IM)

Beta Blocker/Calcium Channel overdose with hypotension for age, signs of poor perfusion and bradycardia:

- **BASE CONTACT** required. **See Handtevy for dose** (0.1mg/kg IV)

Protocol

- Hypoglycemia
- Poisoning/Overdose

HEMOSTATIC AGENT (QuickClot, Celox, Bloodstop, Actcel, HemCon, ChitoGauze)

Description

QuickClot Combat Gauze is a standard roller or Z-fold gauze impregnated with a clotting agent such as kaolin (a clay containing the active ingredient aluminum silicate) which works on contact with blood to initiate the clotting process (intrinsic pathway) by activating factor XII. This reaction leads to the transformation of factor XII to its' activated form XIIa, which triggers the clotting cascade.

Mucoadhesive agents such as HemCon, ChitoGauze, and Celox utilize a granular chitosan salt derived from the shells of marine arthropods (which are positively charged) to react with and bind to negatively charged red blood cells rapidly forming a cross-linked barrier clot to seal the injured vessels.

Used in conjunction with direct pressure and wound packing, these products lead to hemostasis.

Onset and Duration

- Onset of action is 3-5 minutes after wound exposure, and clotting action remains unless the dressing and/or the clot is disturbed.

Indications

- Active bleeding from open wounds with that cannot be controlled with direct pressure. Most often involving wounds to the scalp, face, neck, axilla, groin or buttocks.

Contraindications

- Not to be used to treat internal bleeding such as intra-abdominal, intra-thoracic, or vaginal bleeding.
- Not to be used for minor bleeding that can be controlled by direct pressure.

Precautions

- Bleeding control is achieved via combination of direct pressure and hemostatic gauze packing for a minimum of 3-5 minutes.
- If bleeding soaks through the dressing, apply additional dressings while continuing direct pressure. **Do not remove dressings from the injured site**. This will disrupt any clots that have already formed.
- Stabilize patient per General Trauma Care protocol.
- If a tourniquet is indicated (refer to Tourniquet protocol), it should be applied first, before application of hemostatic agent.
- **DO NOT USE LOOSE GRANULAR OR POWDERED HEMOSTATIC AGENTS**. These are out date and will produce exothermic reactions that may cause burns and additional tissue damage.

Procedure

1. Deploy the hemostatic agent via external application or wound packing directly onto the wound, and then apply direct consistent pressure for at least 3 minutes over the bleeding source. **DO NOT lift or remove the dressing once it has been applied.**
2. Wrap the hemostatic dressing with another suitable dressing such as Kerlex roller gauze, ace wraps, etc. in order to maintain direct pressure.
3. Place the empty hemostatic agent packaging onto the outer dressing to notify the receiving facility of its presence.

Paramedic

HYDROXOCOBALAMIN (CYANOKIT®)

Description

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

Indications

- Adult or pediatric patient with suspected cyanide poisoning from any route, including smoke inhalation in an enclosed space, with any of the following clinical signs:
  - Pulseless arrest
  - Coma/unresponsiveness
  - Signs of shock

Precautions

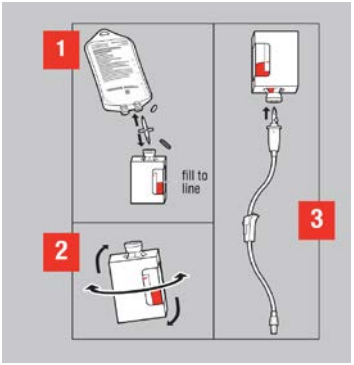
- Administer only after basic life support measures have been initiated and always in conjunction with other supportive treatment modalities.
- When possible, obtain dedicated line for hydroxocobalamin administration, as compatibility with other drugs is unknown. If this is not possible, flush line with 3-5ml NS flush before and after dose administered.

Adverse Reactions

- Hypertension
- Allergic reaction/anaphylaxis

Dosage and Administration

- Dosing
  - **Adult** dose is 5 g IV/IO.
  - **Pediatric see Handtevy for dose** (70mg/kg up to 5 gm IV/IO).
- Adult infusion instructions:
  1. Reconstitute: Place the 5 g vial of hydroxocobalamin in an upright position. Add 200 mL of 0.9% sodium chloride injection* to the vial using the transfer spike. Fill to the line.
     * 0.9% sodium chloride injection is the recommended diluent (diluent not included in the kit). Lactated Ringer's solution and 5% dextrose injection have also been found to be compatible with hydroxocobalamin.
  2. Mix: The vial should be repeatedly inverted or rocked, not shaken, for at least 60 seconds prior to infusion.
  3. Infuse Vial: Use vented intravenous tubing, hang, and infuse desired dose over 15 minutes.



- Pediatric infusion instructions:
  1. Reconstitute and mix the 5 g vial of hydroxocobalamin as noted above.
  2. Optimal: Continuous Infusion Method. Remove desired volume based on Handtevy and insert into empty infusion bag. Attach drip set and infuse at rate listed in chart above. Desired dose should be infused over 15 min.
  3. If unable to infuse continuously: Aliquot Method. Divide entire dosing volume by 3 to make 3 separate aliquots. Flush line with 3-5 mL NS, administer 1 aliquot, flush with 3-5 mL NS. Repeat every 3 minutes until entire dosing volume administered.

Special Considerations

- It is understood that Cyanokit® may not be available to all agencies at all times, and therefore, is not considered standard of care. Notify receiving facility if Cyanokit® used.

Protocols

- Carbon Monoxide Exposure
- Burns

EMT-IV	Paramedic

IPRATROPIUM BROMIDE (ATROVENT)

Description

Ipratropium is an anticholinergic bronchodilator chemically related to atropine.

Onset & Duration

- Onset: 5-15 minutes.
- Duration: 6-8 hours.

Indications

- Bronchospasm

Contraindications

- Soy or peanut allergy is a contraindication to the use of Atrovent metered dose inhaler, not the nebulized solution, which does not have the allergen contained in propellant.

Adverse Reactions

- Palpitations
- Tremors
- Dry mouth

How Supplied

Premixed Container: 0.5 mg in 2.5ml NS

Dosage and Administration

Adult

Bronchospasm:

- 0.5 mg along with albuterol in a nebulizer. May be repeated twice along with albuterol (total of 3 doses).

Pediatric (1 year – 11 years):

Moderate and Severe Bronchospasm

- **2 - 12 years:** 0.5 mg along with albuterol in a nebulizer. May be repeated twice along with albuterol (total of 3 doses).
- **1 to <2 years:** 0.25 mg along with albuterol in a nebulizer. Not indicated for repetitive dose or continuous neb use**.**

Pediatric (<1 year)

Contact Base.

Protocol

- Adult Wheezing
- Pediatric Wheezing

Paramedic

KETAMINE *(for Analgesia)*

Description

Ketamine is a non-competitive NMDA receptor antagonist and dissociative, amnestic, analgesic, anesthetic agent. Rapid administration is associated with respiratory depression. Doses higher than analgesic dosing are associated with amnesia and anesthesia.

Onset & Duration

- Onset:
  - 30 seconds after IV administration
  - 10 minutes after IM/IN administration
- Duration: 1-4 hours

Indications

- Fentanyl remains the mainstay for management of acute pain
- Consider Ketamine if:
  - Contraindication to fentanyl (allergy or intolerance)
  - Opiate dependence in acute pain
- NOT to be used for procedural sedation

Contraindications

- Known allergy
- Relative contraindication in patients with known cardiovascular disease (Ketamine causes tachycardia)
- Altered mental status
- SBP <90
- Age <18 or >65
- Known history of severe behavioral disorder

Dosage and Administration

Adults:

0.3mg/kg IV, administer in 50cc of D5W or NS over 5 minutes
Dose for typical adult is 20mg-30mg

or

0.5mg/kg IM/IN
Dose for typical adult is 30mg-50mg

May repeat after 20 minutes for a total of 2 doses, additional analgesia requires **BASE CONTACT.**

Precautions

- Potential increase in heart rate and blood pressure
- May provide hyper-salivation, typically controlled by suctioning (not usually seen at analgesic dose)
- May cause hallucinations, euphoria, and dysphoria

Considerations

- Use with caution in third trimester pregnancy
- Complications (or no complications) must be documented in the appropriate drop down field
- The following patient monitoring requirements are required by the State of CO must be adhered to and documented in the patient care record:
  - Pain scale

- Cardiac monitoring
- Systolic blood pressure
- Heart rate
- Pulse oximetry
- Respiratory rate
- End-tidal carbon dioxide ($ETCO_2$)

Protocol

- Amputations
- Burns
- Face and Neck Trauma
- Chest Trauma
- Abdominal Trauma
- Spinal Trauma

Paramedic

LIDOCAINE 2% SOLUTION

Description
Local anesthetic for relief of pain during intraosseous fluid administration.

Indications
- Analgesic for intraosseous infusion

Side Effects
- Seizures
- Drowsiness
- Tachycardia
- Bradycardia
- Confusion
- Hypotension

Precautions
- Lidocaine is metabolized in the liver. 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.

Dosage and Administration
Adult:
- 50 mg slow IO push (2-3 minutes) and using 2.5mL of 2% solution

Protocol
- Intraosseous Procedure

Special Notes
- Seizure from lidocaine toxicity likely to be brief and self-limited. If prolonged, or status epilepticus, treat per Seizure protocol.
- Treat dysrhythmias according to specific protocol.

Lidocaine Jelly 2%:

- Indication – Anesthetic lubricant for Nasotracheal Intubation
- Contraindication – Known history of hypersensitivity to local anesthetics
- Dosage and Administration
  - Apply a moderate amount of jelly to the endotracheal tube shortly before use
  - Avoid introducing the jelly into the lumen of the tube
  - If jelly has dried before insertion, reapply

MAGNESIUM SULFATE

Description

Magnesium sulfate reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction. In cardiac patients, it stabilizes the potassium pump, correcting repolarization. It also shortens the Q-T interval in the presence of ventricular arrhythmias due to drug toxicity or electrolyte imbalance. In respiratory patients, it may act as a bronchodilator in acute bronchospasm due to asthma or other bronchospastic diseases. In patients suffering from eclampsia, it controls seizures by blocking neuromuscular transmission and lowers blood pressure, as well as decreases cerebral vasospasm.

Indications

Antiarrhythmic

- Torsade de pointes associated with prolonged QT interval

Respiratory

- Severe bronchospasm unresponsive to continuous albuterol, ipratropium, and IM epinephrine

Obstetrics

- Eclampsia: Pregnancy ≥20 weeks gestational age or up to 6 weeks post-partum with seizures

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Precautions

- Bradycardia
- Hypotension
- Respiratory depression

Adverse Reactions

- Bradycardia
- Hypotension
- Respiratory depression

Dosage and Administration

- **Torsades de Pointes suspected caused by prolonged QT interval:**
  - **Adult:**
    Hemodynamically stable with intermittent Torsades de Pointes: 2 gm diluted in 50 mL of normal saline (0.9% NS) or D5W, IV/IO drip over 15 minutes
    Hemodynamically unstable/peri-arrest: 2 gm IV push over 2 min
    Cardiac arrest: 2 gm, IV/IO push
  - **Pediatric:**
    Cardiac arrest: – ***See Handtevy for dose (***25 mg/kg (max 2 gm), IV/IO push)
- **Refractory Severe Bronchospasm:**
  - **Adult:**
    2 gm diluted in 50 mL of normal saline (0.9% NS) or D5W, IV drip over 15 minutes
  - **Pediatric:**
    See Handtevy for dose (50 mg/kg (max 2 gm) diluted in 50mL of normal saline (0.9% NS) or D5W, IV drip over 30 minutes)
- **Eclampsia:**
  IV/IO: 6 gm diluted in 50 mL of normal saline (0.9% NS) or D5W, IV/IO drip over 15 minutes.
  IM: 10 gm IM, administered as 5 gm in each buttock. Max volume per site is 10 mL.

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Protocol

- Medical Arrest Algorithm
- Adult Wheezing
- Obstetric Complications

Paramedic

METHYLPREDNISOLONE (SOLU-MEDROL)

Description

Methylprednisolone 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.

Indications

- Anaphylaxis
- Severe asthma
- COPD
- Suspected Addisonian crisis (cardiovascular collapse in patient at risk for adrenal insufficiency)

Precautions

- Evidence of active GI bleed

Adverse Reactions

Most adverse reactions are a result of long-term therapy and include:

- Gastrointestinal bleeding
- Hypertension
- Hyperglycemia

Dosage and Administration

Adult:

125 mg, IV/IO bolus, slowly, over 2 minutes.

Pediatric:

See Handtevy for dose (2 mg/kg, IV/IO bolus, slowly, over 2 minutes to max dose of 125 mg).

Protocol

- Adult Wheezing
- Pediatric Wheezing
- Allergy and Anaphylaxis
- Medical Hypotension/Shock
- Adrenal Insufficiency

Special Considerations

- Must be reconstituted and used immediately
- The effect of methylprednisolone is generally delayed for several hours
- Methylprednisolone is not considered a first line drug. Be sure to attend to the patient's primary treatment priorities (i.e. airway, ventilation, beta-agonist nebulization) first. If primary treatment priorities have been completed and there is time while in route to the hospital, then methylprednisolone can be administered. Do not delay transport to administer this drug

EMT-IV	Paramedic

NALOXONE (NARCAN)

Description

Naloxone is a competitive opioid receptor antagonist.

Onset & Duration

Onset: Within 5 minutes
Duration: 1-4 hours

Indications

- For reversal of suspected opioid-inducted CNS and respiratory depression
- Coma of unknown origin with impaired airway reflexes or respiratory depression

Adverse Reactions

- Tachycardia
- Nausea and vomiting
- Pulmonary Edema

Dosage and Administration

Adult:

0.5 mg IV/IO/IM/IN and titrate to desired effect, up to 2 mg total.
In cases of severe respiratory compromise or arrest, 2 mg bolus IV/IO/IM/IN is appropriate, otherwise drug should be titrated.

With some newer synthetic opioid formulations, higher doses of naloxone may be required. In rare cases of confirmed or strongly suspected opioid overdose with insufficient response to 2mg, higher doses may be used, titrate to effect. Routine use of high dose naloxone should be avoided.

Pediatrics:

See Handtevy for dose (0.5 mg IV/IO/IM/IN and titrate to desired effect, up to 2 mg total)

Protocol

- Universal Altered Mental Status
- Drug/Alcohol Intoxication
- Poisoning/Overdose

Special Considerations

- Not intended for use unless respiratory depression or impaired airway reflexes are present. Reversal of suspected mild-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.
- Patients receiving EMS administered naloxone **should** be transported to a hospital.
- In the State of Colorado, bystanders, law enforcement, and other first responders can administer naloxone if they feel a person is experiencing an opiate-related drug overdose event (Colorado Revised Statutes §12-36-117.7).

(**Continued next page**)

- There are significant concomitant inherent risks in patients who have received naloxone, including:
    - Recurrent respiratory/CNS depression given short half-life of naloxone.
    - Co-existing intoxication from alcohol or other recreational or prescription drugs.
    - Acetaminophen toxicity from combination opioid/acetaminophen prescriptions.
    - Non-cardiogenic pulmonary edema associated with naloxone use.
    - Acute psychiatric decompensation, overdose, SI/HI, or psychosis requiring ED evaluation.
    - Sudden abrupt violent withdrawal symptoms, which may limit decision-making capacity.
- Given the above risks, it is strongly preferred that patients who have received naloxone be transported and evaluated by a physician. However, if the patient clearly has decision-making capacity, he/she does have the right to refuse transport. If adamantly refusing, patients must be warned of the multiple risks of refusing transport.
- If the patient is refusing transport, **CONTACT BASE**. If any concerns or doubts about decision-making capacity exist, err on the side of transport.

EMT-IV	Paramedic

NITROGLYCERIN (NITROSTAT, NITROQUICK, etc.)

Description
Short-acting peripheral venodilator decreasing cardiac preload and afterload.

Onset & Duration
Onset: 1-3 min.
Duration: 20-30 min.

Indications
- Pain or discomfort due to suspected Acute Coronary Syndrome
- Pulmonary edema due to congestive heart failure

Contraindications
- Suspected right ventricular ST-segment elevation MI (Inferior STEMI pattern plus ST elevation in right sided-precordial leads)
- Hypotension SBP < 100
- Recent use of erectile dysfunction (ED) medication (e.g. sildenafil (Viagra, Revatio), tadalafil (Cialis, Adcirca), vardenafil (Levitra, Staxyn), avanafil, (Stendra)

Adverse Reactions
- Hypotension
- Headache
- Syncope

Dosage and Administration

Paramedic Only:
- **Chest Pain:** 0.4 mg (1/150 gr) sublingually, every 5 minutes.
  PRN up to a total of 3 doses for persistent CP.
- **Pulmonary Edema:** 0.4 mg (1/150 gr) sublingually, every 5 minutes PRN titrated to symptoms and blood pressure.
- **Nitropaste**: 1 inch of Nitropaste on the patient's left anterior chest for CHF/Pulmonary Edema.

Paramedic and EMT-IV:
- **Chest Pain**: (**BASE CONTACT** required for EMT-IV) assist patient in self-administration of the patient's prescribed Nitroglycerin: 0.4 mg (1/150 gr) sublingually, every 5 minutes.
  PRN up to a total of 3 doses for persistent CP.

Protocol
- Chest Pain
- CHF/Pulmonary Edema

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS: IBUPROFEN (ADVIL, MOTRIN), KETOROLAC (TORADOL)

Description

NSAIDs decrease pain and inflammation by several mechanisms. Their primary action is to inhibit the family of cyclooxygenase (COX) enzymes resulting in blockade of prostaglandin synthesis. COX inhibition also impacts renal blood flow and stomach acid secretion. NSAIDs may also inhibit chemotaxis, alter lymphocyte activity, decrease proinflammatory cytokine activity, and inhibit neutrophil aggregation, further contributing to anti-inflammatory activity.

Onset & Duration

- Onset of analgesia: oral 30-60 minutes, IV within 5 minutes
- Peak effect: 1 hour
- Duration: 4 hours

Indications

- Acute treatment of mild, moderate, or severe pain. Consider IV ketorolac for moderate to severe pain
- Pain due to suspected kidney stones, acute exacerbations of chronic pain, musculoskeletal pain
- Fever (>38.3°C/101°F) – Ibuprofen only

Contraindications

- Allergy to NSAIDs including aspirin and naproxen (Naprosyn, Aleve)
- Pregnancy or breast feeding
- History of GI bleeding or active stomach ulcer
- History of chronic kidney disease or kidney transplant
- Anticoagulation/antiplatelet (patient taking blood thinners) or history of a blood clotting disorder
- In setting of multisystem trauma
- Acute head trauma or suspected intracranial bleed
- Ketorolac is contraindicated for ages less than 8-years-old and over 65-years-old
- Severe dehydration

Adverse Reactions

- Allergic reactions: anaphylaxis, urticaria, angioedema, bronchospasm, rash, hypotension, etc.
- Nausea and vomiting
- GI bleeding with chronic use
- Acute kidney injury

Drug Interactions

- Avoid concomitant administration with other NSAIDS or anticoagulant/antiplatelet medications such as apixaban (Eliquis), aspirin, dabigatran (Pradaxa), enoxaparin (Lovenox), heparin, rivaroxaban (Xarelto), warfarin (Coumadin).

Dosage and Administration

Ibuprofen (Paramedic or EMT-IV)

Adult:
600 mg PO

Pediatric 6 months – 11 years old:
See Handtevy for dose (10 mg/kg PO)

Pediatric <6 months
Not indicated

Ketorolac (Paramedic Only)

Adult:
15mg IV or IM

Pediatric 8-11 years old:
See Handtevy for dose (10mg IV or IM)

Pediatric <8 years old:
Not indicated

Protocol

- Pain management

Paramedic

OPIOIDS (FENTANYL)

Description

Opioid analgesics with desired effects of analgesia, euphoria and sedation as well as undesired effects of respiratory depression and hypotension. A synthetic opioid, fentanyl is 100 times more potent than morphine and is less likely to cause histamine release.

Indications

- Treatment of hemodynamically stable patients with moderate to severe pain due to traumatic or medical conditions.

Contraindications

- Hemodynamic instability or shock
- Respiratory depression

Caution/Comments:

- Opioids should only be given to hemodynamically stable patients and titrated slowly to effect.
- The objective of pain management is not the removal of all pain, but rather, to make the patient's pain tolerable enough to allow for adequate assessment, treatment, and transport.
- Respiratory depression, including apnea, may occur suddenly and without warning, and is more common in children and the elderly. **Start with ½ traditional dose in the elderly**.
- Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order.
- Chest wall rigidity has been reported with rapid administration of fentanyl.

Dosage and Administration

FENTANYL:

- **Adult doses may be rounded to nearest 25 mcg increment**
- **Initial dose in adults typically 100 mcg**
- **Strongly consider ½ typical dosing in elderly or frail patient**

Adult:

IV/IO/IM route: 1-2 mcg/kg.

- Dose may be repeated after 5 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg.
- Additional analgesia requires **BASE CONTACT**.

IN route: 1-2 mcg/kg.

- Administer a **maximum of 1 ml of fluid** per nostril.
- Dose may be repeated after 10 minutes after initial IN dose to a maximum cumulative dose of 4 mcg/kg. IV route is preferred for repeat dosing.
- Additional analgesia requires **BASE CONTACT**.

Pediatric (1-12 years):

IV/IO/IM route: See Handtevy for dosing (1-2 mcg/kg up to a maximum cumulative dose of 3 mcg/kg).

- Dose may be repeated after 5 minutes and titrated to clinical effect.
- Additional dosing requires **BASE CONTACT**.

IN route: See Handtevy for dosing (2 mcg/kg up to a maximum cumulative dose of 4 mcg/kg).

- Administer a **maximum of 1 ml of fluid** per nostril.
- Dose may be repeated after 10 minutes after initial IN dose. IV route is preferred for repeat dosing.

Pediatric < 1 year: BASE CONTACT.

NOTE: IV route is preferred for all opioid administration because of more accurate titration and maximal clinical effect. IO/IM for all listed opioids and additionally IN for fentanyl are acceptable alternatives when IV access is not readily available. Repeat doses of IN Fentanyl can be given if IV access cannot be established. However greater volumes and repeat IN administration are associated with greater drug run off and may therefore be less effective. Institute continuous pulse oximetry for all administrations. In medically complex patients or with repeated dosing, institute cardiac monitoring and capnography as soon as it is possible to do so. Emergency resuscitation equipment and naloxone must be immediately available.

Protocol

Extremity Injuries
Chest Pain
Post Resuscitation Care with ROSC
Abdominal Pain
Amputations
Burns
Bites/Stings
Snake Bites
Face and Neck Trauma
Chest Trauma
Abdominal Trauma
Spinal Trauma

EMT-IV	Paramedic

ORAL GLUCOSE (GLUTOSE, INSTA-GLUCOSE, ORAL GLUCOSE TABLETS)

Description
Glucose is the body's basic fuel and is required for cellular metabolism.

Indications
- Known or suspected hypoglycemia and able to take PO

Contraindications
- Inability to swallow or protect airway
- Unable to take PO meds for another reason
    - Tablets are recommended for children 4 years of age and older, when the ability to safely chew and swallow solid tablets is typically established

Administration
- Oral Glucose Gel
    - One full tube 15g buccal
- Oral Glucose Tablets
    - 15g PO (1 tablet equals 3.75g for a total of 4 tablets)

Protocol
- Universal Altered Mental Status
- Hypoglycemia

OXYGEN

Description

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. Conversely, hyperoxia has been linked with worsened outcomes in acute coronary syndromes and stroke. Therefore, oxygen should not be viewed as a harmless drug where more is better. EMS personnel should add additional oxygen when hypoxia, shock or respiratory distress are present titrating to a normal pulse oximetry reading above 90%.

Indications

- Hypoxemia or respiratory distress
- Hypotension/shock states
- Suspected carbon monoxide poisoning
- Obstetrical complications, childbirth
- Pre-intubation oxygenation

Precautions

- If the patient is not breathing adequately, the treatment of choice is assisted ventilation, not just oxygen.
- Do not withhold oxygen from any patient in respiratory distress, including COPD patients.

Administration

- Use the appropriate oxygen delivery method and flow rate to achieve SpO2 of 90-96% when oxygen therapy is indicated.

Special Notes

- Do not use permanently mounted humidifiers. If the patient warrants humidified oxygen, use a single patient use device.
- Adequate oxygenation is assessed clinically and with the SpO_2 while adequate ventilation is assessed clinically and with waveform capnography.

EMT-IV	Paramedic

PHENYLEPHRINE (INTRANASAL)

Description

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

Indications

- Prior to nasotracheal intubation to induce vasoconstriction of the nasal mucosa (**Paramedic Only**)
- Nosebleed (epistaxis)

Precautions

- Avoid administration into the eyes, which will dilate pupil

Dosage and Administration

- (**Paramedic Only**) Instill two drops of 1% solution, or 2 sprays, in the nostril prior to attempting nasotracheal intubation.
- For patients with active nosebleed, first have patient blow nose to expel clots. Then, administer 2 sprays into affected naris(es).

Protocol

- Nasotracheal intubation
- Epistaxis

Paramedic

RACEMIC EPINEPHRINE

Description

Racemic epinephrine 2.25% is an aqueous solution that delivers 11.25 mg of racemic epinephrine per 0.5mL for use by **inhalation only**. 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.

Onset & Duration

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

Indications

- Stridor at rest

Side Effects

- Tachycardia
- Palpitations
- Muscle tremors

Dosage and Administration

0.5 ml racemic epinephrine (acceptable dose for all ages) mixed in 3 mL saline, via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes.

Protocol

- Pediatric Stridor/Croup

Special Considerations

- Racemic epi is heat and photo sensitive.
- Once removed from the refrigerator, the unopened package is stable at room temperature until the expiration date stated on the package.
- Do not confuse the side effects with respiratory failure or imminent respiratory arrest.
- If no racemic epinephrine is available, consider 5 mL of 1mg/mL epinephrine x 1 via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes.

Paramedic

SODIUM BICARBONATE

Description

Sodium bicarbonate is an alkalinizing solution used to treat metabolic acidosis, sodium channel poisoning, and hyperkalemia. Sodium bicarbonate is no longer recommended for routine use in prolonged cardiac arrest.

Indications

- Suspected hyperkalemic pulseless arrest: consider in patients with known renal failure/dialysis.
- Renal failure with known or suspected hyperkalemia
- Known or suspected hyperkalemia with ECG changes
- Crush or suspension injury with known or suspected hyperkalemia (**BASE CONTACT** required).
- Sodium bicarbonate therapy is indicated in patients with sodium channel blocker poisoning who develop widening of the QRS interval >120 msec, hypotension, or a ventricular arrhythmia.
    - Examples of sodium channel blockers include tricyclic antidepressants (TCA) such as amitriptyline, also other medications like diphenhydramine, phenytoin, lidocaine, procainamide, or carbamazepine.

Contraindications

- Metabolic and respiratory alkalosis
- Hypocalcemia
- Hypokalemia

Adverse Reactions

- Metabolic alkalosis
- Paradoxical cerebral intracellular acidosis
- Sodium bolus can lead to volume overload

Drug Interactions

- If administering in same IV/IO line with calcium, flush IV/IO line with at least 10 mL of fluid between medications.
- Alkalization of urine may increase half-lives of certain drugs.
- Vasopressors may be deactivated.

Dosage and Administration: 8.4% sodium bicarbonate solution

Adult:

- **Pulseless arrest suspected due to hyperkalemia** (e.g., typically patient with dialysis, end-stage renal disease)
    - 1 mEq/kg slow IV push. Repeat if needed x 2 every 5 minutes.

- **Renal failure with known or suspected hyperkalemia**
  Known or suspected hyperkalemia with ECG changes
  Crush or suspension injury with known or suspected hyperkalemia (with **BASE CONTACT**)
  Sodium channel blocker poisoning with wide QRS >120 msec or ventricular arrhythmia
    - 1 mEq/kg slow IV push. Repeat if needed x 2 every 5 minutes or until QRS is narrowed.

Pediatric:

- **Pulseless arrest suspected due to hyperkalemia** (e.g., typically patient with dialysis, end-stage renal disease)
    - **See Handtevy for dose** (identical to adult dosing)

- **Renal failure with known or suspected hyperkalemia**
  Known or suspected hyperkalemia with ECG changes

  Crush or suspension injury with known or suspected hyperkalemia (with **BASE CONTACT**)
  Sodium channel blocker poisoning with wide QRS >120 msec or ventricular arrhythmia
  - **See Handtevy for dose** (identical to adult dosing)

Protocol

- Medical Pulseless Arrest
- Poisoning/Overdose
- Hyperkalemia

Paramedic

TOPICAL OPHTHALMIC ANESTHETICS

Description

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

Indications

- Pain secondary to eye injuries and corneal abrasions.
- Topical anesthetic to facilitate eye irrigation.

Contraindications

- Known allergy to local anesthetics.
- Globe lacerations or rupture.

Precautions

- Transient burning/stinging when initially applied.

Dosage and Administration

- Instill 2 drops into affected eye. **CONTACT BASE** for repeat dosing.

Special Considerations

- This is single patient use. Unused portions should be discarded, and only new bottles may be used.
- Do not administer until patient consents to transport and transport has begun.
- Topical ophthalmic anesthetics should never be given to a patient for self-administration.

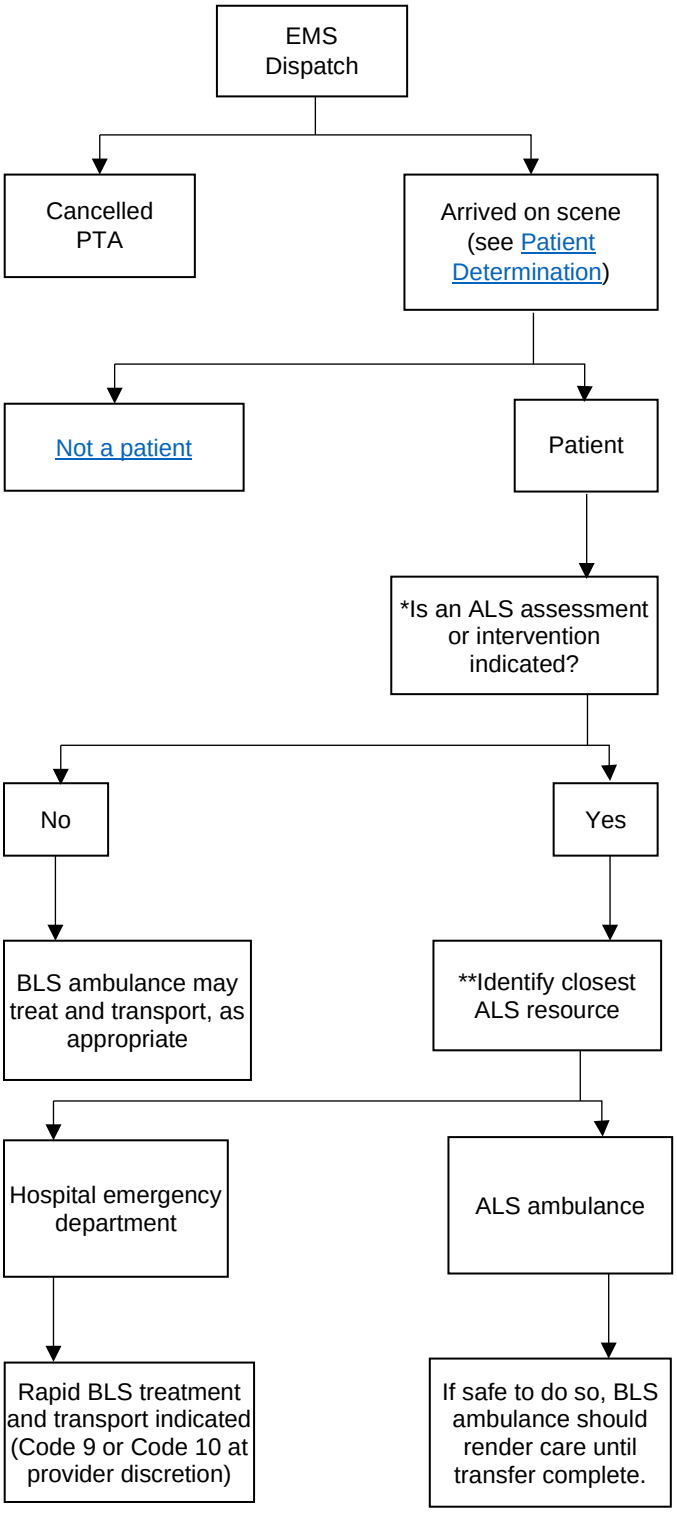


BLS Ambulance Guidelines

The following protocols are intended for EMT-IV providers working together on a 911 ambulance.

10000 GENERAL GUIDELINES: BLS AMBULANCE TRANSPORT

EMT-IV



*** When considering whether ALS assessment or intervention is indicated, BLS providers need to rely on patient history and presentation.**

Concerning patient conditions include but are not limited to:

- Abnormal vital signs
- Abnormal skin signs
- Altered level of consciousness
- Allergic reaction with difficulty breathing or swallowing, altered level of consciousness, or known previous reaction; hives within 5 minutes of exposure
- Cardiac symptoms
- Cardiac arrest
- Diabetic problem (not responding to treatment)
- Multi-system trauma or severe single system trauma
- OB/GYN (imminent delivery, 2nd or 3rd trimester bleeding or miscarriage)
- Overdose/poisoning (associated with any other categories on this list)
- Respiratory distress
- Respiratory arrest/failure
- Seizures/convulsions (Status or trauma related)
- Severe blood loss
- Shock (Hypoperfusion)
- Stroke/CVA symptoms with airway compromise
- Syncope (associated with any other categories on this list or cardiac history)
- Unsafe agitation

****There are instances when transfer to an ALS ambulance is in the patient's best interest, regardless of hospital proximity, including:**

- Medical cardiac arrest
- Unsafe agitation

Similarly, there are instances when rapid BLS transport is in the patient's best interest, regardless of ambulance proximity, including:

- Multi-system trauma or severe single system trauma

In all cases, provider discretion is necessary.



Sep Car Guidelines

The following protocols are intended for EMT-IV and paramedic providers working together on a 911 ambulance.

11000 EMT-IV Attend Guidelines

EMT-IV	Paramedic

Purpose

A. To provide guidelines for patients appropriate for an EMT attend on ambulances with both an EMT-IV and a paramedic certified provider.
B. These guidelines are not intended to be exhaustive in nature. In general, the default position should be that a paramedic attends on patients calling 911 in our system. EMT attends should be limited to patients in which there is no reasonable potential for decompensation or compromised care. Deviation from these guidelines may reasonably occur (during an MCI, for example), but should always be accompanied by sufficient justification.

General Principles

A. Whenever possible, a paramedic assessment should be performed on **every** patient contact. This assessment should also subsequently be explicitly and correctly documented in the PCR when an EMT is attending during transport. Once a working differential has been established, the paramedic should determine the next appropriate steps for care (initiation of treatments, discussion of dispositions, etc.). If the paramedic determines BLS care is appropriate, there should be a clear communication between the paramedic and EMT about those next steps prior to their initiation.
B. EMS transports - After an ALS assessment has been completed, a paramedic may determine that it's appropriate for an EMT to continue care on the way to the hospital. Prior to departure, there should be clear communication about the patient's current status and an understanding that the EMT should immediately relay to the paramedic any change in patient condition during transport. Along these lines, any medication administration made by the EMT should be discussed with the paramedic, as it could be indicative of a change in patient condition.
C. Alternative Dispositions – Paramedics should be directly involved in **ALL** alternative dispositions in our system. The paramedic is responsible for the patient/no-patient determination and decision-making capacity assessments, as well as all 'left with PD'-type dispositions. There is also a standard expectation that the paramedic speaks to the patient about any potential life-threatening risks and precautions prior to any refusal. Base consultation prior to any high-risk refusal should generally be made by the attending paramedic.

Paramedic Attends

A. The paramedic should attend if any of the following are present:
    a. Any emergent return
    b. Any significantly abnormal vital sign
        i. For adults:
            1. Systolic blood pressure (SBP) <90mmHg or >180mmHg; diastolic blood pressure (DBP) >110mmHg
            2. Heart rate (HR) <50bpm or >120bpm
            3. (Pathologic) respiratory rate (RR) <10bpm or >30bpm
        ii. For pediatrics:
            1. Varies, but any significant deviation from the normal range. Reference Handtevy.
    c. Any concern that the patient's condition could decline and require ALS assessment or intervention during transport
    d. Any high-risk presentation or complaint, including but not limited to:
        i. Concern for acute coronary syndrome (ACS)
        ii. Respiratory distress
        iii. Syncope
        iv. First-time seizure, or complex seizure presentation or history
        v. AMS not related to ETOH
        vi. Any suspected neurologic emergency (e.g. TIA, CVA)
        vii. Any major hemorrhage
        viii. Penetrating trauma to the head/face, neck, or torso
        ix. Blunt trauma with high kinetic force and evidence of significant injury to the head/face, neck, or torso
        x. Any toxic ingestion or overdose
        xi. Any suspected metabolic, endocrine, or electrolyte emergency (e.g. DKA, HHS, hyperkalemia)

xii. Pregnancy involving heavy bleeding, trauma in patients with a potentially viable fetus, active labor in patients with a potentially viable fetus

e. Any patient with the following high-risk factors:
   i. Extremes of age: due to assessment challenges, potential for occult injuries, and comorbidities in the elderly, patients aged <36 months or >70 years should generally result in paramedic attend.
   ii. Language barrier, if it impedes provider ability to complete a comprehensive assessment

f. Any patient requiring ALS monitoring or interventions: see 0990 QuickReference and other specific, applicable protocols as needed for EMT-IV and paramedic scopes of practice and allowable acts



Grant Funded Projects and Trials

The following protocols are intended for EMT-IV and paramedic providers participating in current grant funded projects and patient care trials.

12000 NALOXONE LEAVE BEHIND

The following protocol will remain in place during our participation in The Naloxone Project to leave behind naloxone kits for our at-risk patients and communities.

Leave behind naloxone kits are separate from the naloxone stocked for provider use. Only designated leave behind naloxone kits should be distributed to the public.

EMT-IV	Paramedic

Recipient meets all the following criteria:

- Be alert and oriented
- Understand how to recognize opioid overdose and administer naloxone
- Meet at least one criterion for leave-behind naloxone

Criteria for distribution of leave-behind naloxone:

- Individual at risk of opioid overdose
- Individual in a position to assist those at risk of opioid overdose
- Law enforcement or first responder

Provider actions:

- Distribute naloxone kit and explain contents
- Provide written or verbal opioid overdose education, including:
    - Risk factors for opioid overdose
    - Recognition of opioid overdose
- Provide written or verbal directions for use of naloxone, including:
    - Onset and duration of naloxone
    - Steps for use – if overdose is suspected:
        - Administer naloxone according to instructions
        - **Call 911**
        - (If not breathing) consider CPR
        - Repeat doses every three minutes, if needed
- If applicable to the recipient, encourage addiction treatment and utilization of services provided in leave-behind kit
- While at the site of distribution, scan and complete the naloxone leave behind form utilizing the provided QR code (i.e. badge buddy, ambulance, protocol QR codes)

DHPD Leave Behind Form:



Approved by DHPD Medical Directors August 2024

12020 CAlcium and VAsopressin following Injury Early Resuscitation trial (CAVALIER)

The following protocol will remain in place during our participation in the CAlcium and VAsopressin following Injury Early Resuscitation trial (**CAVALIER**).

Paramedic

Evaluate an eligible participant**:**

Inclusion Criteria**:**

- Adult trauma Patient Transported to Denver Health
- SBP ≤ 90 mmHg **AND** HR ≥ 108 **OR** SBP ≤ 70mmHg
- No exclusion criteria

Exclusion Criteria**:**

- Wearing opt out bracelet
- Age >90 or <18
- Known Prisoner
- Known Pregnancy
- Isolated fall from standing
- Traumatic arrest w/ >5 consecutive min of CPR without ROSC
- Brain matter exposed or penetrating brain injury
- Isolated drowning
- Isolated hanging
- Objection voiced by subject or family
- No IV or IO access

Administer the study drug**:**

- Open Cavalier Study Kit
- Draw provided blood tube (red gel top), if time allows
- Administer study drug (full vial) slowly over 2-5 min, IV/IO

Transfer the patient**:**

- Transport the patient to Denver Health
- Inform staff of patient enrollment during handoff

Scan and Document study enrollment:

- Scan the QR code and complete the form
- Document in ESO under medication flowchart, “Study Drug, including kit #
- Drop off the study bag and red top blood tube in a designated CAVALIER drop box (located at the nurses’ station and EMS lounge)

CAVALIER QR Code

Also available on badge buddy

Approved by DHPD Medical Directors July 2025

Denver Health Paramedic Division Protocol Change Log

November 2026

Protocol Updates

New Protocols

- **0070: Lift Assist/Medical Assist**: see details below
- **9085: Cefazolin (Ancef)**: see details below

0110 Introduction

- Updated language to reflect that protocols are consensus based clinical guidelines

0030 Consent

- New flow
- Removed "involuntary" consent language
- Added scene safety considerations

0031 Patient Determination

- Protocol # updated from 0070 to 0031
- Added lift assist criteria
- Added duty to respond/forcing entry considerations

0032 Patient Non-Transport or Refusal

- Protocol # updated from 0080 to 0032
- If unable to safely assess and provide care to a patient, AND the patient has eloped from the scene, base consult is no longer required
- Language added to refusal considerations: remind patient they may reengage EMS at any time and list the name of the Base Contact physician authorizing the refusal, if applicable

0050 Field Pronouncement

- Added non-survivable injury: GSW to the head with brain matter exposed
- Non-viable birth definition added

0051 Termination of Resuscitation

- Added viable birth termination considerations

0070 Lift Assist

- New protocol addressing approach to lift assist, including patient v. no patient considerations, expanded screening questions, and functional mobility assessment

1030 Cricothyrotomy

- Removed note about tracheal hook, since we don't carry this equipment

1060 Continuous Positive Airway Pressure (CPAP)

- Respiratory rate indication changed from >24/min to *tachypnea per age*
- Hypotension contraindication changed from <90mmHg to *hypotension for age*
- Updated technique to start with the patient holding the mask firmly to their face while assessing for tolerance/leaks
- Added note: this procedure may be performed on a patient with active Do Not Resuscitate

1090 Synchronized Cardioversion

- Generally, sedation and analgesia are contraindicated in the setting of hypotension. However, in cases of arrythmia, hypotension is expected to resolve with treatment. Administration of sedation or analgesia may allow for a more comfortable treatment experience and may be considered with the following precautions:

a. Consider sedation with Versed if SBP >90mmHg, OR
b. Consider Fentanyl administration if SBP <90mmHg
c. Benzodiazepines and opiates should not be coadministered. CONTACT BASE for additional considerations

1100 Transcutaneous Pacing

- Generally, sedation and analgesia are contraindicated in the setting of hypotension. However, in cases of arrythmia, hypotension is expected to resolve with treatment. Administration of sedation or analgesia may allow for a more comfortable treatment experience and may be considered with the following precautions:
  a. Consider sedation with Versed if SBP >90mmHg, OR
  b. Consider Fentanyl administration if SBP <90mmHg
  c. Benzodiazepines and opiates should not be coadministered. CONTACT BASE for additional considerations

1110 Intraosseous Catheter Placement

- Added new site: distal femur
- Added preferred v. alternative site chart for adults and pediatrics
- Removed reference to length-based tape in pediatrics

2040 Pediatric wheezing

- Updated recommendation for albuterol trial in young peds – can consider in children > 3 months of age with a strong family history of asthma
- Added consideration of saline bolus in ≤ 2 years old
- In children > 2 years old, may repeated albuterol neb x3, then given continuous albuterol for severe respiratory distress

3020 Neonatal Resuscitation

- Refers TOR criteria back to TOR protocol

3040 Tachyarrhythmia with Poor Perfusion

- In irregular/stable rhythm, can consider IV fluids for distributive or hypovolemic shock if not showing signs of fluid overload

3080 Hypertension

- Removed note about considering 12 lead for all patients who present with hypertension; providers should use clinical judgment

4010 Universal Altered Mental Status

- Format change only

4070 Drug/Alcohol Intoxication

- Flow updated to emphasize decision making capacity and patient consent
- Added “evidence of other substance abuse” to acute illness/injury definition, as polypharm overdoses should be transported for evaluation

6000 Psych-Behavioral Protocol

- Added language about transportation holds (M-0.5); *DHPD providers do not write holds*
- Updated involuntary consent language to implied consent
- Added considerations for when EMS may withdraw or disengage, even when the patient is on a mental health hold

8080 Extremity Trauma

- Added consideration for Cefazolin administration in the setting of open fracture

9085 Cefazolin (Ancef)

- New medication formulary allowing for prehospital administration of antibiotics in the setting of suspected open extremity fracture

9170 Ipratropium

- Repeat doses (total of 3 doses administered with albuterol) allowed for adults and pediatrics (≥ 2 years old)

9180 Lidocaine

- Added time frame for “slow” administration and clarified volume to administer

9200 Methylpredisolone

- GI bleed moved from contraindication to precaution