Revised 10/19/2021

SYSTEM PROTOCOLS

The "Denver Metro Prehospital Protocols" have been implemented for all levels of EMTs, AEMTs, EMT-Is and Paramedics. Any reference in the protocols to the medical acts allowed, procedures, or operations at any level is not to be construed as authorization to act beyond the scope of certification of any provider.

Specific protocols and polices for St. Anthony agencies are included in this section and are to be followed by all St. Anthony agencies. These protocols are policies to supplement the Denver Metro Prehospital Protocols.

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Medical Directors

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***Note:** * denotes Waiver-Specific Protocols.

ADMINISTRATIVE

FIELD PRONOUNCEMENTS

Field Pronouncements (Highest level available on scene)	B	IV	A	I	P
	X	X	X	X	X

The Denver Metro EMS Medical Directors Protocols pertaining to field pronouncements provides for the Medical Director to determine circumstances in which it may be appropriate for the prehospital provider to not establish base station contact **(0050 General Guidelines: Termination of Resuscitation and Field Pronouncement Guidelines)**

All St. Anthony prehospital agencies are encouraged to contact the base station on any pulseless and apneic patient including those listed on the Termination of Resuscitation and Field Pronouncement Guidelines Protocol. Only in unequivocal circumstances is base station contact not required, including patients found in any of the following conditions:

- Physician orders as specified on the Colorado Medical Orders for Scope of Treatment (MOST) form: "No CPR. Do Not Resuscitate/DNR/Allow Natural Death", present with the patient
- A valid CPR directive present with the patient
- Dependent lividity or rigor mortis
- Decomposition
- Decapitation
- Evidence of massive blunt head, chest, or abdominal trauma
- Third degree burns over more than 90% of the total body surface area

The determination of death is to be accomplished in accordance with accepted medical practice. This means there must be a determination that death is irreversible. In some circumstances, this is obvious to the prehospital provider. Base station contact for "pronouncement" is not necessary and can be performed under standing order in Dr. W. Peter Vellman's name.

REPORTABLE DISEASES & CONDITIONS

Reportable Diseases & Conditions	B	IV	A	I	P
	X	X	X	X	X

Scope
This policy applies to Infection Prevention with regard to the process and procedure for follow-up for EMS agencies that transport patients to Centura hospitals in the Mountain North Denver Operating Group. These include: St. Anthony Hospital, St. Anthony North Hospital, St. Anthony North Medical Pavilion, Avista Adventist Hospital, and St. Anthony Summit Medical Center.

Purpose
To Comply with State and Federal laws mandating the reporting of specific communicable diseases or situations, including those involving potential exposure of first responders.

PROCEDURE
Emergency Services Designated Officer (DO)

1. **Respiratory**
   a. When Infection Prevention is alerted to a respiratory communicable disease in a patient that was transported by an Emergency Medical Services Agency (EMS) (e.g. Flight For Life Colorado, municipal / county / private ambulance service or Fire department, etc.), Infection Prevention will notify the Director of PreHospital Services, facility EMS Coordinator, or designee.
   b. The Director of PreHospital Services, facility EMS Coordinator or their designee will determine which EMS agency / agencies were involved and make an initial notification to the agency Emergency Services DO. The DO will investigate and proceed with notification and follow-up with their staff per agency policy.
2. **Blood and Body Fluids**
   a. Documented exposure to blood, body fluids, or other potentially infection material (OPIM) will be handled via Centura policy.
   b. EMS providers working under the medical direction of St Anthony PreHospital Services will be treated as employee's in the ED.
   c. The Charge Nurse or Team lead to the Centura facility will obtain an exposure packet and process the EMS provider according to policy.
   d. If possible, source blood will also be processed and the patient identifier linked to the EMS provider involved in the exposure.

SECURITY AND STORAGE OF CONTROLLED DRUGS

Security and Storage of Controlled Drugs	B	IV	A	I	P
			X	X	X

General Principles

EMS agencies that utilize ALS providers are required to have an approved policy regarding security and storage of controlled medications. In the event that an agency does not have an approved internal policy this one shall be utilized.

ALS providers may be authorized to administer Controlled Substances to include: Morphine Sulfate, Diazepam, Midazolam, Ketamine and Fentanyl only within the established indications of the Medical Directors protocols. The EMS Agency is responsible for the storage and security measures. This is an extension of the Medical Director, because the drugs are stored on ambulances, rescue/fire response vehicles or agency premises rather than at the office of the Medical Director. All controlled drugs must be obtained from an authorized Centura facility.

Procedure Requirements for Storage and Security

A. The ALS provider, as an extension of the Medical Director and the EMS Agency, must provide effective controls to guard against theft or diversion of controlled drugs.

B. Any ALS provider or Agency which has reasonable cause to believe that any amount of controlled drugs have been diverted, stolen, or that an amount was administered outside the scope of protocols (including standing orders) **must report this to the Medical Director or his designee immediately.** An Unusual Circumstances Report must be completed and submitted within 24 hours. Included in this UCR should be information detailing the date of the loss, the individuals involved in identifying the loss, a police or law enforcement case number if applicable and available, the details surrounding the loss, and measures taken to prevent further loss.

C. All controlled drugs must be stored in a securely locked, substantially constructed case or cabinet.

D. Under no circumstances may the controlled drugs be handled by any person who has been convicted of a felony relating to controlled drugs.

E. It is the policy of the Federal Drug Enforcement Administration (DEA) that employers determine if any employee has been convicted of a crime or unauthorized use of controlled drugs. The DEA also expects that any person, who engages in illicit use of controlled drugs, be investigated by the employer regarding continued employment.

F. The adequacy of storage and security of controlled drugs are determined by the:

1. Location the controlled drugs are stored (ambulance, locked cabinet).

2. Type of enclosure (substantially constructed: plastic or metal, tamper-proof).

3. Type of closure, key system, or lock.

4. Limitation of access to the drugs by non-paramedics (patients, students, others). **The ALS provider on duty is to be the <u>only person</u> to have access.** If individuals handling controlled substances are not ALS providers, prior approval must be made by the medical director or their representative.

5. Each agency shall establish an electronic tracking system that monitors use/ access, security and available amounts of controlled substances. These systems shall be available for access at anytime by the Medical Director of their representative.

6. Written documentation is required for **<u>any</u>** controlled drug administered during patient care by the ALS provider. Documentation must, at minimum, included the following information: trip/call number, patient name, amount given, time administered, the administering paramedic's signature, and the name of the physician ordering the drug or if the drug was administered according to standing orders.

7. Written documentation is required for **<u>any controlled drug that is wasted</u>** and must, at minimum, include the following information: trip/call number, patient name, amount given, amount wasted, time, and **<u>two</u>** signatures. **<u>Wasted amount must be witnessed</u>**.

G. All documentation, as outlined above, must be retained for a minimum of two (2) years and be made available to the Medical Director or his/her designee at any reasonable time.

H. The storage and security system implemented by an Agency, including any modifications, must be in writing and approved by the Medical Director.

SPECIAL EVENT DOCUMENTATION REQUIREMENTS

Special Event Document Requirements	B	IV	A	I	P
	X	X	X	X	X

It is the purpose of this protocol to provide guidance and outline documentation and base contact requirements for agencies and personnel that oversee medical coverage for special events.

I. PATIENT TRACKING:

A. OTC Log: All patient contacts and first aid assists will be entered in the Event Patient Contact Log. This Log maybe via paper or on the Centura App on the special events electronic devises

B. Patient Care Report (PCR)/ Patient Contact Log. PCR's are not required for the following:

1. Isolated Soft tissue injuries in the adult and minor
2. General self -managed complaints including but not limited to: headache, mild allergies, splinters, isolated abrasions, etc.
3. OTC medication administration
4. Agency specific policies may apply

C. BASE CONTACT is required for refusals not meeting the Standing Order refusal criteria as defined in the Denver Metro Prehospital Protocols (General Guidelines 0080)

UNUSUAL CIRCUMSTANCE REPORTS (UCR):

UNUSUAL CIRCUMSTANCE REPORT	B	IV	A	I	P
	X	X	X	X	X

Purpose

The purpose of this protocol is to provide a guideline for prehospital providers and field instructors to:

A. Inform the Medical Director or his/her staff about an unusual incident.
B. Initiate an inquiry into an event or incident.
C. Report patient encounters to the Medical Director in which base station contact could not be made as required by protocol.
D. Any concern relating to the quality of care of a patient in the St. Anthony system.
E. Any additional documentation required regarding Medical Director waivers that are in effect for the EMS agency.

The Unusual Circumstance & Field Agency Incident Report is intended to provide a uniform reporting form for the St. Anthony system. It should be used for both positive reporting of commendable conduct as well as problems or difficult encounters because all of these are considered important for quality improvement of the EMS system. Documentation of an unusual circumstance does not equate to a complaint or necessarily reflect a negative criticism of an event (the implications and result of a report are to be determined by the Medical Director). It serves as a means to resolve issues, identify areas for system improvement and commendation, and avoid the ineffectiveness of verbal complaints, statements and compliments.

Procedure

A. **INCIDENTS REQUIRING UCR**. The following are instances when an unusual circumstance report is required to be submitted to the Medical Director or his / her designee:
   - **ABSENCE OF BASE CONTACT**: When the prehospital provider has a patient encounter in which base station contact could not be made as required by protocol. In such cases, the run report must accompany the report.
     - Reasonable attempts MUST be made to make base station contact with online medical control prior to an EMT, AEMT, EMT-Intermediate or Paramedic administering medication to a patient that requires BASE CONTACT per protocol.
     - In the event that online medical control cannot be made, the EMT, AEMT, EMT-Intermediate or Paramedic shall provide patient care and medication administration in accordance with the appropriate written protocol and fill out an Unusual Circumstance Report (UCR), to be submitted to the Medical Director or Their representative within 48 hours of the call.
     - A copy of the patient care report must accompany the UCR
     - During transport, as soon as online medical contact can be made, the EMT, AEMT, EMT-Intermediate or Paramedic should call report and confirm medication administration.

- **CRICOTHYROTOMY:** In the event a cricothyrotomy is performed a UCR must be submitted, with the run report, to the office of the Medical Director within 48 hours of patient encounter. The Paramedic who performed or attempted to perform the procedure is responsible for completion of the UCR form and reporting.
- **Ketamine ;** Please report use of Ketamine for Pain through email or UCR so we can get the PCR and report in state required data base.

- **TXA:** In the event of a TxA administration, a UCR must be submitted with a run report to the office of the Medical Director within 48 hours of patient encounter. The Paramedic who administered the TxA is responsible for completion of the UCR for and reporting.

B. The UCR should not be submitted with the copy of the run report that is left with the Emergency Department when a patient is transported.

C. This can be submitted with any written or electronic correspondence that includes all of the information contained in section E.

D. UCR's shall include the following:
- A copy of the pertinent run report/PCR must be attached to the UCR.
- Reporting person's name, agency, and telephone number(s).
- Identification of the data, time, location, and agency/agencies and personnel involved.
- The receiving facility, if the patient was transported.
- In cases of deviation from protocol, such as an emergency when base station contact could not be established, an explanation of the events which prevented base station contact.
- The reporting person's source of information (personal observation or from person who has first hand knowledge.)

F. All UCRs will be reviewed, and where appropriate, the author of the report will be provided feedback from the Medical Director, EMS Coordinator, or the PreHospital staff.

OPERATIONAL

ADULT INTRAOSSEUS (IO) PLACEMENT: EMT-IV AUTHORIZATION WHEN SUPERVISED BY EMT-I OR PARAMEDIC

ADULT IO PLACEMENT FOR EMT-IV	B	IV	A	I	P
		X	X	X	X

Note: This protocol authorizes a trained EMT with IV authorization (EMT-IV) to perform/place an IO when directly supervised (actively present) by an EMT-I or Paramedic.

Indications (must meet all criteria):

- Rescue or primary vascular access device in a patient with critical illness defined as:
  - Cardiopulmonary arrest or impending arrest
  - Profound shock with severe hypotension and poor perfusion
- Utilization of IO access for all other patients requires base station contact
- E.g.: Hypoglycemia with severe symptoms (e.g. unresponsive) and no venous access
- IO placement may be considered prior to peripheral IV attempts in critical patients without identifiable peripheral veins

Technique:

- Site of choice – tibial plateau: 2 fingerbreadths below the tibial tuberosity on the anteromedial surface of tibia.
- Alternative sites (e.g. humeral head in adults) are device-specific and require authorization from the agency Medical Director.
- Clean skin with povidone-iodine.
- Place intraosseous needle perpendicular to the bone.
- Follow manufacturer's guidelines specific to the device being used for insertion.
- Entrance into the bone marrow is indicated by a sudden loss of resistance.
- Flush line with 10 cc saline. Do not attempt to aspirate marrow
  - If patient conscious, administer lidocaine for pain control before infusing any other fluids.
  - Adult and Pediatric Dose:
    - 0.5 mg/kg IO bolus, slowly, maximum dose is 50 mg
- Secure line
- 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.
- Observe for signs of limb swelling, 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.
- A person should be assigned to monitor the IV at the scene and en route to the hospital.
- Do not make more than one IO placement attempt per bone.
- Do not remove IO needles in the field.
- Notify hospital staff of all insertion sites/attempts and apply patient wristband included with kit to identify IO patient.

ADULT IO PLACEMENT FOR EMT-IV CONT	B	IV	A	I	P
		X	X	X	X

Complications:

- Fracture
- Compartment syndrome
- Infection

Contraindications:

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

Side Effects and Special Notes:

- Aspiration of marrow fluid is not recommended for field procedures, as it increases the risk of plugging the needle.
- Expect flow rates to be slower than peripheral IVs. Pressure bags may be needed. Any drug or IV fluid may be infused.
- Slow administration of Lidocaine can assist in numbing the marrow space, reducing pain from infusion pressures in this relatively closed space.

ALTERNATIVE SITES for INTRAOSSEUS (IO) CATHETER PLACEMENT

Alternative Sites for IO Placement	B	IV	A	I	P
				X	X

Indication

A. Rescue or primary vascular access device when peripheral IV access not obtainable in a patient with critical illness defined as any of the following:

1. Cardiopulmonary arrest or impending arrest
2. Profound shock with severe hypotension and poor perfusion
3. Hypoglycemia with severe symptoms (e.g. unresponsive) and no venous access

A. Utilization of IO access for all other patients requires base station contact

Humeral Head Technique:

A. Place the patient's hand on the patient's abdomen near the umbilicus.
B. Expose the shoulder and adduct the humerus.
C. Locate the humeral head (greater tubercle).
D. Clean the skin
E. Place intraosseous needle perpendicular to the bone.
F. Follow manufacturer's guidelines specific to the device being used for insertion.
G. Entrance into the bone marrow is indicated by a sudden loss of resistance
H. Flush line with 10 cc saline. Do not attempt to aspirate marrow.
   a. If patient conscious, administer lidocaine for pain control before infusing any other fluids
I. Secure line.
J. Observe for signs of limb swelling.
K. A person should be assigned to monitor the IV at the scene and en route to the hospital.
L. Do not make more than one IO placement attempt per bone.
M. Do not remove IO needles in the field.
N. Notify hospital staff of all insertion site/attempts and apply patient wristband included with kit to identify IO patient.

Pediatric (1-12 years old) Distal Femur Technique:

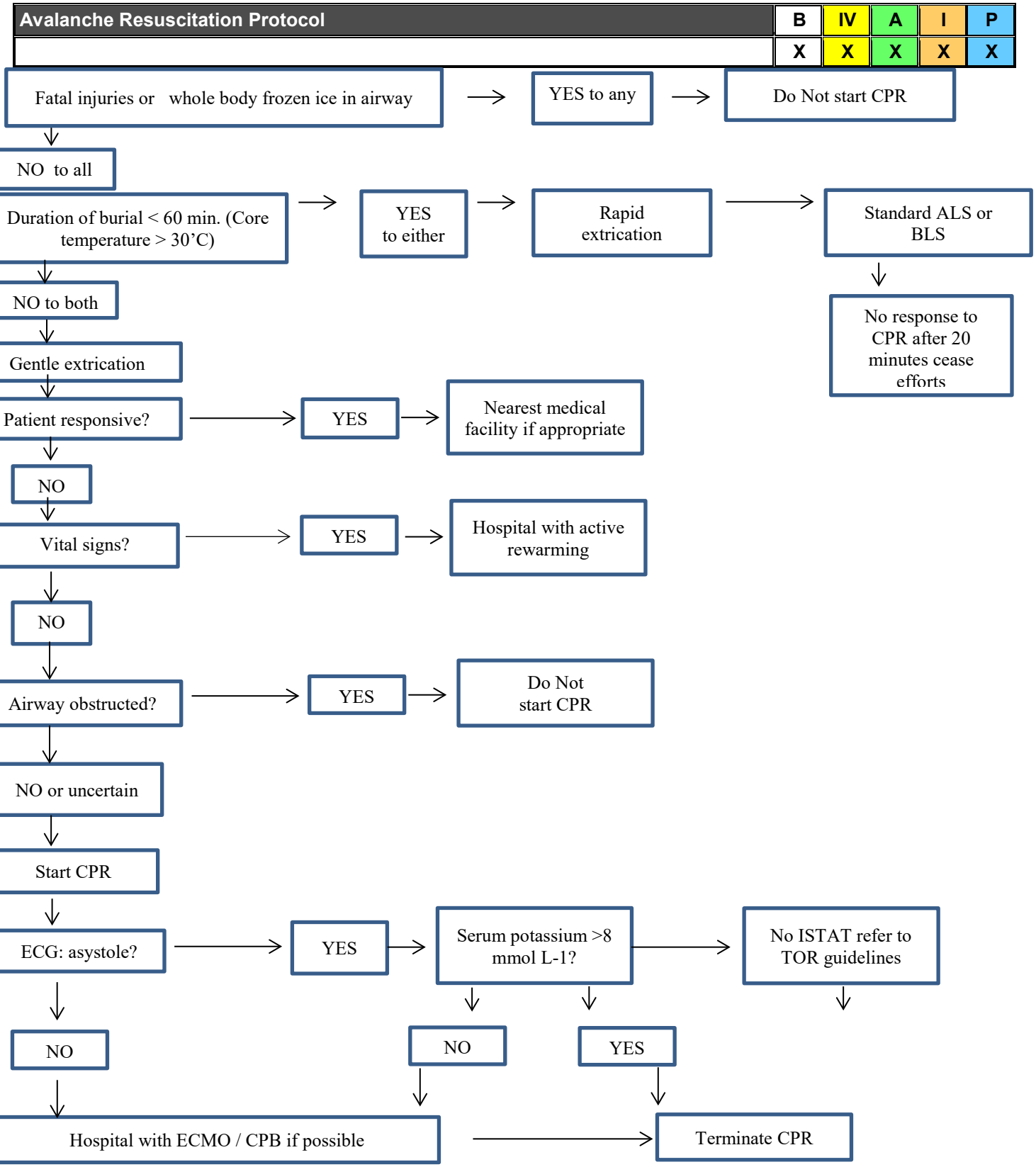
A. Secure the selected leg in the outstretched position to ensure the knee does not bend
B. Identify the patella by palpation
C. The insertion site is just proximal to the patella (maximum 1cm) and approximately 1-2 cm medial to the midline
D. Clean the skin
E. Place intraosseous needle perpendicular to the bone.
F. Follow manufacturer's guidelines specific to the device being used for insertion
G. Entrance into the bone marrow is indicated by a sudden loss of resistance
H. Flush line with 10 cc saline. Do not attempt to aspirate marrow. If patient conscious, administer lidocaine for pain control before infusing any other fluids

I. Secure line.
J. Observe for signs of limb swelling.
K. A person should be assigned to monitor the IV at the scene and en route to the hospital.
L. Do not make more than one IO placement attempt per bone.
M. Do not remove IO needles in the field
N. Notify hospital staff of all insertion site/attempts and apply patient wristband included with kit to identify IO patient.
0. **Department training is mandatory prior to utilization of this site**.

Contraindications:

A. Fractures
B. Previous orthopedic procedures near insertion sight
C. Infection at the insertion site
D. Inability to locate landmarks or excessive tissue

AVALANCHE RESUSCITATION PROTOCOL



Adopted from the Alaska Cold Injuries Guidelines 2014
Updated with new time, temperature and serum potassium from Truhar et al., 2015

St. Anthony Hospital Protocols
Operational Protocols
COVID-19 SCREENING

COVID-19 Screening	B	IV	A	I	P
	X	X	X	X	X

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

Negative Screen

Positive Screen

Do Not rely solely on EMD personnel to identify a potential exposure patient:
- EMS may be constrained by time and caller information
- Obtain your own history and assess for clinical signs and symptoms
- Limit the number of providers to those necessary for care

- One Provider enters the room in defined full PPE and assess the need for additional resources
- If the patient can self-apply a mask, give pt.one from a distance. Otherwise assist with mask application.
- When possible, minimize procedures that may generate droplets. (Minimize sputum exposures)

SCREENING CRITERIA

Does the patient have:
- Fever (or hot to the touch)

OR
- Cough
- Difficulty Breathing or Shortness of Breath

Additional Question:
- Travel in last 14 days to CDC identified High Risk area
- (Community acquired cases are not travel dependent)

- Use caution with equipment placement and contamination.
- Tablets should remain in vehicle. Do not obtain Pt signatures.
- Do not hand tablet to hospital personnel for information exchange.
- Unstable patient (AMS, severe respiratory distress, signs of septic shock) require utilizing enough diagnostics to develop an appropriate treatment plan including but not limited to the following:
  - **-mandatory pulse ox and pulse documented**
  - -breath sounds with respiratory distress
  - -IV fluids if hemodynamically unstable
  - -Blood glucose
- No lung sounds are necessary if the pulse ox is normal
- If radial pulses present, and patient otherwise stable BP and EKG monitoring is not necessary.

DOES THE PATIENT MEET SCREENIING CRITERIA?

NO

Risk Low treat patient as needed

YES

Personal Protective Equipment

PERSONAL PROTECTIVE EQUIPMENT

Patient:
- Standard Surgical Mask
- Use of NRB as needed

Providers utilize contact, droplet, airborne precautions:
- Eye protection (goggles or face shield)
- N95 Mask (or higher) or PAPR (maybe used multiple times)
- Gloves
- Disposable Gown
- Personnel in ambulance cab use N95 (or higher) or PAPR
- Turn on cab vent and box exhaust systems to create exhausting air flow

Transport Decision

- Decision to transport will need to be done on a case by case basis.
- If patient is stable, pulse oximetry is within normal limits and patient is negative for signs of shock or sepsis; **home isolation and care is best. Stable SNF patients should remain at facility. Contact base for consult on all high risk patients.**
- Refer to local health department or participating facility for testing.

Early Hospital Notification

- Notify receiving facility as soon as possible to allow for room and equipment preparation. Remain in the ambulance bay until escorted to a room by facility staff. You may be asked to use alternative entrances to reduce exposure within the facility.
- Facilities may produce internal individual patient reception procedures.

St. Anthony Hospital Protocols
Operational Protocols
EPINEPHRINE IM ADMINISTERED BY EMT'S FOR ALLERGY/ANAPHYLAXIS

Epinephrine IM administration for EMT's	B	IV	A	I	P
		X	X	X	X

Allergic reaction, anaphylaxis or angioedema

- 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's

Generalized or Systemic Reaction
Multisystem involvement: skin, lungs, airway, etc

Does patient have any of the following signs or symptoms?

- Hypotension
- Signs of poor perfusion
- Bronchospasm, stridor
- Altered mental status

No → Consider diphenhydramine if significant discomfort

Transport and reassess for signs of deterioration

Yes

- Give epinephrine IM, then:
- Start IV & give IV bolus per medical shock protocol
- Give diphenhydramine
- Give methylprednisolone
- Consider addition of Albuterol if wheezing

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

If persistent signs of severe shock with hypotension not responsive to IM epinephrine and fluid bolus:

- Contact base
- Consider IV epinephrine drip
- Or Epi push pressor dosing (epi 1:100,000 for pediatrics.) *must be trained.
- Base contact for 1;100,000 required

Localized Reaction
Including isolated tongue, airway

Airway involvement?
Tongue or uvula swelling, stridor

No → Consider diphenhydramine if significant discomfort

Transport and reassess for signs of deterioration

Yes

Impending airway obstruction?

No

- Start IV
- Give diphenhydramine
- Give methylprednisolone

Yes

Give immediate IM epinephrine & manage airway per Obstructed Airway Protocol

EMT may use Epi 1:1,000 instead of EpiPen auto injector if available whenever epinephrine IM indicated
St. Anthony Specific

Definitions:

- **Anaphylaxis**: severe allergic reaction that is rapid in onset and potentially life-threatening. Multisystem signs and symptoms are present including skin and mucus membranes
  - **Mainstay of treatment is epinephrine**
- **Angioedema**: deep mucosal edema causing swelling of mucus membranes of upper airway. May accompany hives
  - **Mainstay of treatment is methylprednisolone. Epinephrine indicated for any impending airway obstruction.**

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.

Note: This St Anthony-specific protocol supplements DM Protocol 4090 by authorizing properly trained EMTs operating under St Anthony Medical Direction to administer Intramuscular (IM) Epi in lieu of EpiPen auto injector when indicated.)

EXTREMELY COMBATIVE PATIENTS UNCONTROLLED BY OTHER MECHANISMS

(Agitated/Combative Patient Protocol 6010)

Extremely Combative Patient	B	IV	A	I	P
	X	X	X	X	X

Patient is agitated and a danger to self or others
- Attempt to reasonably address patient concerns
- Assemble personnel

Assume the patient has a medical cause of agitation and treat reversible causes

Does patient have signs of the Extreme agitation or NMS?

Yes

No

Patient does not respond to verbal de-escalation techniques

Restraint Protocol
Obtain IV access as soon as may be safely accomplished

Still significantly agitated?

Sedate
- Consider cause of agitation
- Options: benzodiazepine or butyrophenone

Still significantly agitated?

- Repeat sedation dose
- If still significantly agitated 5 minutes after 2nd dose sedative, **Contact Base**

General Guideline:

Emphasis should be placed on scene safety, appropriate use of restraints and aggressive treatment of the patient's agitation.

Extreme Agitation or NMS

These patients are truly out of control and have a life-threatening medical emergency they will have some or all of the following sx:

Paranoia, disorientation, hyper-aggression, hallucination, tachycardia, increased strength, hyperthermia, muscle stiffness

Restraints
Do not transport in hobble or prone position. Do not inhibit patient breathing, ventilations

Patient Restraint Protocol

- Reassess ABCs post sedation
- High flow O_2
- Monitor for laryngospasm
- If needed, provide suction and BVM for respiratory support
- Start 2 large bore IVs as soon as may be safely accomplished
- Administer 2 liters NS bolus

- Full cardiac, SpO_2, $EtCO_2$ monitoring and rapid transport
- Start external cooling measures

Consider Cause of Agitation:

Both benzodiazepines and butyrophenones (e.g. inapsine) are acceptable options for agitated patients. In certain clinical scenarios individual medications may be preferred

- EtOH (butyrophenone)
- Sympathomimetic (benzo)
- Psych (butyrophenone)
- Head injury (butyrophenone)

HELICOPTERS - GUIDANCE FOR USE OF HELICOPTERS

Helicopters	B	IV	A	I	P
	X	X	X	X	X

The use of a medical helicopter should be considered:

A. When the helicopter can, in an appropriate time frame, arrive at the scene and provide necessary medical care not already available from the first responding agency.

B. When the helicopter can transport the patient to the appropriate hospital in less time than a ground ambulance.

C. To provide additional prehospital care givers to the scene of multiple patients.

D. For effective dispersal of multiple patients to tertiary care centers.

E. For prolonged extrication of patients.

F. When the level of care provided by a flight crew will be the best benefit to the patient.

NOTE: Medical helicopters can be a life-saving resource when utilized properly. The decision to request, or not request, a medical helicopter may be the most important decision made at a scene. Understand your agency, systems and resources, understand the helicopter system, and make the decision that is in the best interests of your patient.

Pain Management	B	IV	A	I	P
	X	X	X	X	X

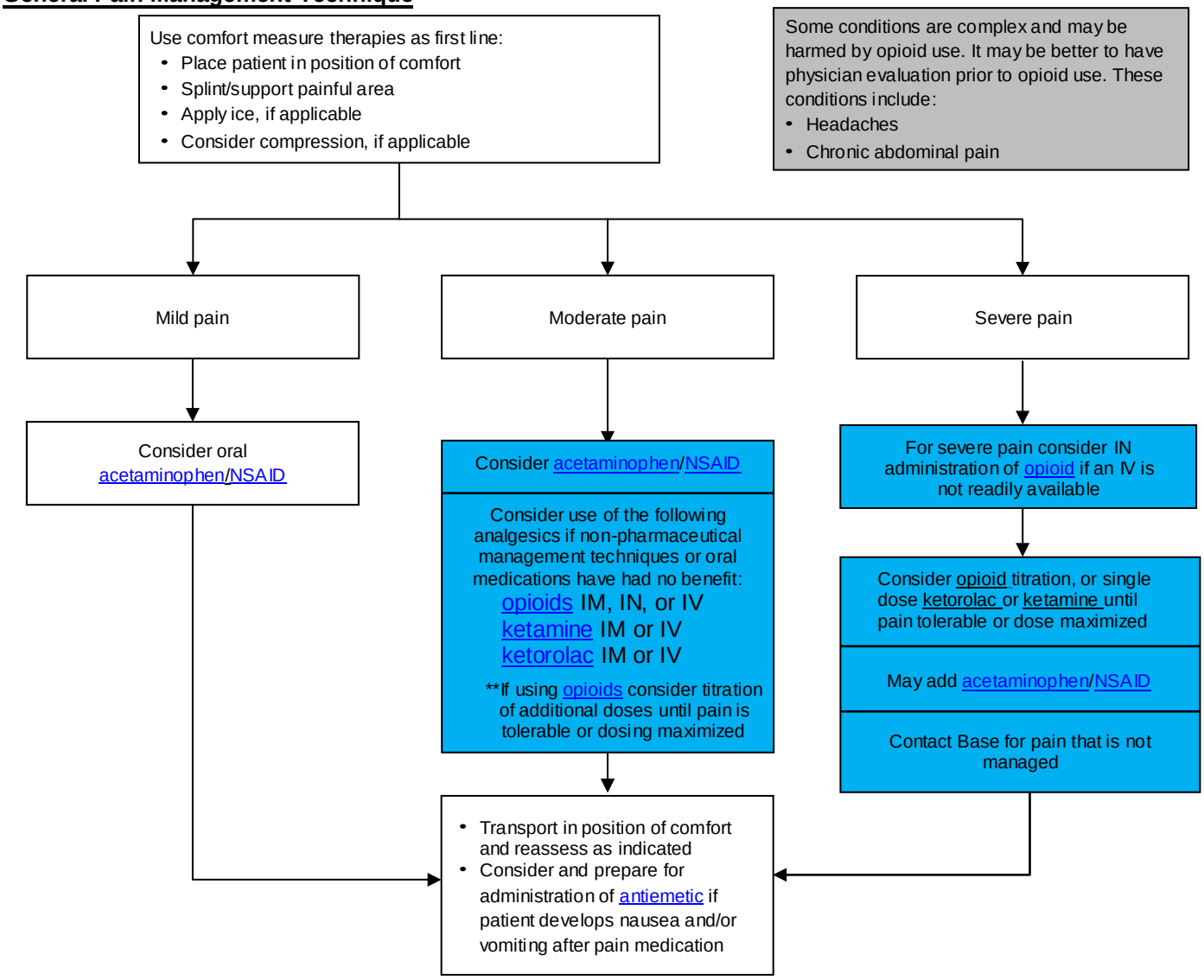
Goal of Pain Management

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.			

Recommended Pain Scale for Ages 4-12 Years

Faces Pain Scale – Revised (FPS-R)

0 2 4 6 8 10

Notes/Educational Pearls

1. Overall, opioids are effective agents for use with patients having acute pain and are preferred for patients with traumatic injuries, chest pain, and abdominal pain who have no history of opioid tolerance or opioid allergy.
2. Opioids are the preferred agent in patients with extremes of age (over 80 years old and pediatrics).
3. Administer the ketamine dose in a 50 ml bag as a slow infusion and titrate to effect. May use a 100 or 250 ml bag if the 50 ml bag is not available. Push or rapid administration of ketamine has been associated with increased psychotropic adverse side effects.
4. Consider use of ketamine as a first line medication for patients with acute on chronic pain (ie chronic back pain), patients who are on chronic opioid medication therapy, or patients who have stated allergy, adverse reactions, or preference to avoid opioid medications.
5. Ketorolac is preferred in patients with history of kidney stones unless severe dehydration is appreciated.

Key Documentation Elements

- Vital signs with pulse oximetry, capnography, and cardiac monitoring are required.
- Confirm the "six rights of safe medication administration" including the patient's allergies, medication name, expiration date, correct concentration, and the route of administration with correct dose prior to administration. Document time each medication is administered
- Pain severity should be recorded before and after analgesic medication administration and upon arrival at destination

PEDIATRIC FEVER

Pediatric Fever	B	IV	A	I	P
	X	X	X	X	X

Indications & Specific Information Required

A. Age: Patients must be **minimum age 6 months**.
B. Patient must have the ability to swallow or suckle without assistance and have an age-appropriate mental status.
C. History: Accurate temperature with fever of 38.3°C (101F) or higher noted with duration of fever, time frame since last dose, accurate weight in kilograms and what, if any, medications were administered prior to EMS arrival.
D. Past history: previous seizures, current medications, chronic illness specifically liver or renal disease, oncologic diagnosis, history of transplant, ulcers or gastritis, post-operative within two weeks, bleeding, asthma, drug sensitivity or allergy.

Treatment

A. Consider one of the two medications for patients with fever with no relief from previous administrations of anti-pyretics:
    1. Ibuprofen
    OR
    2. Acetaminophen
B. Document completely on PCR.
C. Any deviations require base contact.

Specific Precautions

A. Febrile seizures occur in normal children between 6 months and 6 years. Such seizures are usually short, lasting less than 5 minutes, generalized, and usually do not require anti-seizure drug therapy.
B. Oncology patients should not receive Ibuprofen or other NSAIDS due to the risk of increased bleeding associated with these medications.
C. Fever may be the result of a toxic ingestion such as Benadryl and other anticholinergics. Risk of toxic ingestion should be considered in all febrile pediatric patients.

Vaccine Administration

Vaccine Administration	B	IV	A	I	P
		X	X	X	X

Indications:

A. State or local order for administration of vaccines during a pandemic event
B. Annual administration of influenza vaccines for employee health at local agency
C. New or booster vaccines for employee health at local agency

Contraindications:

A. Administration that is not recommended per manufacturers recommendation for known allergy to ingredients in vaccine.

B. Known significant reaction to previously administered like vaccine. Have patient/employee consult with primary care physician

C. Contraindications indicated by specific manufacturer recommendations.

Procedure:

A. MUST FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR SPECIFIC VACCINE
B. Identify site (usually deltoid area of the arm) for administration and clean with alcohol prep or chlorhexidine swab.
C. Have patient relax arm
D. Insure syringe is clear of air bubbles
E. Insert need in muscle at a 90 degree angle
F. Pull back slightly to confirm needle is not in a blood vessel
G. Push plunger and deliver vaccine
H. Withdraw needle and apply gentle pressure with gauze or band aid
I. Watch for or give instructions for signs of allergic reaction or site reactions and after care (some vaccines may require that patients be watched for reaction if known allergy risks exist)
J. Document administration and appropriately store in employee health file

MEDICATIONS

ACETAMINOPHEN (TYLENOL)

Acetaminophen (tylenol ®)	B	IV	A	I	P
	X	X	X	X	X

Description

Acetaminophen is a clinically proven analgesic/antipyretic. Acetaminophen is thought to produce analgesia by elevation of the pain threshold and antipyresis through action on the hypothalamic heat-regulating center. Acetaminophen is similar to aspirin in analgesic and antipyretic effectiveness and it is unlikely to produce many of the side effects associated with aspirin and aspirin-containing products.

Indications-

Fever

Adverse Reactions

- Severe liver damage may occur if more than 5 doses are administered in 24 hours, which is the maximum daily dose.

Contraindications:

- If patient has had medication containing acetaminophen within last four (4) hours.
- If patient is allergic to acetaminophen

Dosage and Administration

Pediatrics- Oral dose of 16 mg/kg not to exceed 1000 mg. Dosing must be four (4) hours apart.

Weight in pounds	Weight in KG	Tylenol dose 16mg/ kg	mL's of Suspension
11	5	80mg	2.5
22	10	160mg	5
33	15	240 mg	7.5
44	20	320 mg	10
55	25	400mg	12.5
66	30	480mg	15
77	35	560 mg	17.5
88	40	640 mg	20
99	45	720 mg	22.5
110	50	800mg	25
121	55	880 mg	27.5
132	60	960 mg	30
143	65	1000mg	31.25 MAX Dose

Specific Precautions

D. Febrile seizures occur in normal children between 6 months and 6 years. Such seizures are usually short, lasting less than 5 minutes, generalized, and usually do not require anti-seizure drug therapy.
E. Fever may be the result of a toxic ingestion such as Benadryl and other anticholinergics. Risk of toxic ingestion should be considered in all febrile pediatric patients.
F. Acetaminophen should not be utilized to facilitate treat and release situations. Administration should only be performed if transport is initiated.

Note: This St Anthony-specific protocol authorizes EMTs to administer Acetaminophen as an antipyretic in accordance with the St-Anthony specific protocol for PEDIATRIC FEVER.

ALBUTEROL SULFATE (PROVENTIL, VENTOLIN)

Albuterol Sulfate	B	IV	A	I	P
	X	X	X	X	X

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 (Including difficulty breathing In known or suspected CoVid-19 Infections)
- Known or suspected hyperkalemia with ECG changes (i.e.: peaked T waves, QRS widening)

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) (Use with spacer)
Pre-diluted nebulized solution: 2.5 mg in 3 ml NS (0.083%)

Dosage and Administration

Adult:

MDI (For use in CoVid-19 Suspected or confirmed patients)
2-4 puff with the use of a spacer. May repeat dose if transport time is greater than 30 minutes.
MDI canister is reusable when spacer is used, wipe down with commercial anti-bacterial/microbial/viral wipe and allow to dry.
Spacer is single patient use and should be left with the patient.

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). Consider use of HEPA filter on the end of the t-piece corrugated tubing

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 (For use in CoVid-19 Suspected or confirmed patients)
2 puff with the use of a spacer. May repeat dose if transport time is greater than 30 minutes.
MDI canister is reusable when spacer is used, wipe down with commercial anti-bacterial/microbial/viral wipe and allow to dry.
Spacer is single patient use and should be left with the patient.

Single Neb dose
Albuterol sulfate 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 5-15 minutes. May be repeated twice during transport (total of 3 doses). Consider use of HEPA filter on the end of the t-piece corrugated tubing.

Associated Denver Metro Protocol

- Adult Wheezing
- Pediatric Wheezing
- Allergy and Anaphylaxis

Special Considerations

- 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.

ATROPINE SULFATE

Atropine Sulfate	B	IV	A	I	P
					X

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

- Hypersalivation secondary to Ketamine administration

Dosage

- 0.5mg IV/IO

Protocol

- Extremely agitate patient
- Ketamine Use

DIPHENHYDRAMINE (BENADRYL) OTC

Diphenhydramine (Benadryl ® OTC)	B	IV	A	I	P
			X	X	X

Description
Diphenhydramine blocks action of histamine released from cells during an allergic reaction. Direct CNS effects, which may be stimulant or, more commonly, depressant, depending on individual variation. Also has anticholinergic, antiparkinsonian effects, which is used to treat acute dystonic reactions to antipsychotic drugs (Haldol, Thorazine, Compazine, etc.) These reactions include oculogyric crisis, acute torticollis, and facial grimacing.

Indications
- Moderate allergic reactions
- Second line for anaphylaxis and severe allergic reactions
- Control extrapyramidal effects, Co administration with Inapsine

Precautions
- Lower respiratory diseases such as asthma or COPD
- Narrow-angle glaucoma
- Bladder obstruction

Side effects
- Dose-related drowsiness
- Dilated pupils
- Dry mouth and throat
- Flushing
- May potentiate with alcohol usage

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, By Mouth (2 tablets or capsules), IV bolus, or IM if vascular access has not been obtained
  - When co-administering with inapsine, 50mg IM or IV. Reduce to 25mg IM or IV in patients over 65.
- <8 years: 25mg- By Mouth (1-25 mg tablet or capsule) or oral suspension (2x 12.5mg/5ml), 1-2 mg/kg slow IV bolus/IM (not to exceed 50 mg),
- 1-8 years 1mg/kg oral suspension (12.5mg/5ml)

Protocol
- Allergic Reaction
- Extreme Agitation

EPINEPHRINE (ADRENALIN)

Epinephrine (Adrenalin)	B	IV	A	I	P
		X	X	X	X

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

Indications
- Severe Allergy
- Anaphylaxis

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

Dosage
- **Epinephrine 1:1000 Systemic allergic reaction:**
- Adult: 0.3 mg IM
- Pediatric: 0.15 mg IM
- Pediatric dose (1-12 years old) for hypotension refractory to fluid challenge (anaphylactic shock)
    - 1:100,000 push dose pressor
        - 1mL 1-3 minutes, max 10mL titrate to age appropriate blood pressure

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

IBUPROFEN

Ibuprophen (Motrin ® Advil ®)	B	IV	A	I	P
	X	X	X	X	X

Description

Nonprescription ibuprofen is used to reduce fever and to relieve mild pain from headaches, muscle aches, arthritis, menstrual periods, the common cold, toothaches, and backaches. Ibuprofen is in a class of medications called NSAIDs.

Indications

- Fever

Adverse Reactions

- Ibuprofen may cause a severe allergic reaction, especially in people allergic to aspirin
- Ibuprofen may cause stomach bleeding

Dosage and Administration

Pediatrics-

- Oral dose of 10mg/kg per dose not to exceed 800 mg. Dosing must be six (6) hours apart.

Specific Precautions

- Febrile seizures occur in normal children between 6 months and 6 years. Such seizures are usually short, lasting less than 5 minutes, generalized, and usually do not require anti-seizure drug therapy.

- Oncology patients should not receive Ibuprofen or other NSAIDS due to the risk of increased bleeding associated with these medications.

- Fever may be the result of a toxic ingestion such as Benadryl and other anticholinergics. Risk of toxic ingestion should be considered in all febrile pediatric patients.

- Ibuprofen should not be utilized to facilitate treat and release situations. Administration should only be performed if transport is initiated.

KETAMINE

Ketamine 200mg/20cc	B	IV	A	I	P
					X

Description

Ketamine is a non-competitive NMDA receptor antagonist and dissociative, amnestic, analgesic anesthetic agent.

Onset & Duration

- Onset: 1-5 minutes after administration.
- Duration: 10-15 minutes

Indications

- Analgesia for moderate to severe pain to be used as a first line agent or as an adjunct to opioid administration in situations where extreme pain has been unrelieved with appropriate opioid treatment.

Contraindications

Relatively contraindicated in penetrating eye trauma

Side Effects

Laryngospasm: this very rare adverse reaction presents with stridor and respiratory distress. After every administration of ketamine:

- Prepare to provide respiratory support including bag-valve-mask ventilation and suction which are generally sufficient in rare cases of laryngospasm.
- Institute cardiac monitoring, pulse oximetry and continuous waveform capnography
- Establish IV or IO access, check blood glucose
  a. Establish and maintain physical restraint.

Emergence reaction: presents as anxiety, agitation, apparent hallucinations or nightmares as ketamine is wearing off. For severe reactions, consider benzodiazepine.

Nausea and Vomiting: always have suction available after ketamine administration. Give antiemetic as needed.

Hypersalivation: Suction usually sufficient. If profound hypersalivation causing airway difficulty, administer atropine 0.5 mg IV.

Ketamine (Cont)	B	IV	A	I	P
					X

Dosage and Administration

Analgesia Adjunct

- Adults:
  - 0.25 mg/kg placed in a 50ml,100 mL or 250mL bag, drip in, titrating to effect.
  - **(Note: IV prep is 200mg/20cc concentration)**
  - 0.5 mg/kg IM split into 2 doses
  - Contact base for additional doses
- Pediatric:
  - 0.25 mg/kg Slow IV Push
  - 0.5 mg/kg IM split into 2 doses
  - Contact base for additional doses
  -

Special Considerations

- Ketamine is provided for IM/ IV for analgesia in **10mg/mL concentration.**
- Ketamine for analgesia as a first line adjunct is appropriate in chronic opioid users and those undergoing opioid/ alcohol abuse therapies.
- May be used as first line analgesia in pediatric patients with fractures
- All cases of ketamine use will be reviewed by the Medical Director.
- Submit an Unusual Circumstance Report within 48 hours

LIDOCAINE 2% SOLUTION

Lidocaine 2% Solution	B	IV	A	I	P
		X	X	X	X

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 and Pediatric:
0.5 mg/kg IO bolus, slowly, maximum dose is 50 mg

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

NITROGLYCERINE PASTE

Nitroglycerine Paste	B	IV	A	I	P
			X	X	X

Description, Pharmacology & Actions
Nitroglycerine ("Nitro") Paste delivers nitroglycerin in a slower sustained dose. It is meant as follow-up to sublingual nitroglycerin.
Nitro Paste is absorbed through the skin.

- Absorption is much slower than sublingual.
- Delivers a lower dose over a long period of time.
- Onset of action is delayed due to absorption through the skin (20 to 30 minutes).

Cardiovascular effects include:

- Decreases venous tone and venous return to heart; causes blood-pooling in peripheral veins.
- Decreased peripheral resistance.
- Dilatation of coronary arteries (if not already at maximum) and relief of coronary artery spasm.

Generalized smooth muscle relaxation.

Indications

- Cardiac chest pain; AFTER first dose of sublingual nitroglycerine; when nitro called for in accordance with Denver Metro Prehospital Protocol 3060 ADULT CHEST PAIN

Contraindications

- Patients taking medication for erectile dysfunction should **not** receive any nitrate preparations including nitro paste. Contact base if unsure.
- Systolic BP <100 mm Hg.

Precautions

- Nitro paste is absorbed through the skin. Prevent nitro paste from contacting caregiver's skin.
- Generalized vasodilatation may cause profound hypotension and reflex tachycardia.
- Use with caution in hypotensive patients.
- Use with caution in patients that have 12-lead evidence of a RV infarct.

Dosage & Administration

- 1st Nitro dose is Sub Lingual (spray or tab). Then apply 1" nitro paste on application paper.
- Place the paper—nitro paste toward patient—on the anterior chest wall of the patient.
- **Contact Base** for use without sublingual nitroglycerin.
- **Contact Base** for direct physician order to increase dosage for larger patients.

Blood pressure to be checked at least every 15 minutes.
Remove application paper and wipe the patient's skin if (a) systolic blood pressure less than 100 mm Hg, (b) signs of hypotension or (c) signs of allergic reaction.

Side effects and special notes

- Since absorption is through the skin, effects of the drug may continue for 20 to 30 minutes following removal of the application paper.
- Sublingual nitroglycerin may be used to augment nitro paste. This may be necessary during the first 30 minutes of application.
- Common side effects are the same as sublingual nitroglycerin. They include headache, orthostatic hypotension, flushing, dizziness, and syncope.
- The patient's skin may react to nitro paste with rash or pruritus. Remove nitro paste if necessary.
- May be used with patients using disks or oral long-acting nitrate preparations.

Tranexamic Acid (TxA) (only for agencies trained and included on the waiver list)

Tranexamic Acid (TxA)	B	IV	A	I	P
					X

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

Duration and Onset

Onset: 5 to 15 minutes IV/IO Duration: 3 Hours

Indication

- Compensated / Uncompensated hemorrhagic shock less than 3 hours old due to trauma or post partum hemorrhage (as evidenced by tachycardia, hypotension, and/or signs of poor perfusion)
- Sustained heart rate greater than 110
- Systolic blood pressure less than 90
- Modified Shock index < 0.7 or > 1.3 in the setting of above indications

Contraindications

- <13 years old
- Isolated head injury (May be administered if associated with multi-system trauma)
- Time of injury greater than (>) 3 hours
- Known allergy

Adverse Reactions

- CNS: Impaired color vision and other visual disturbances
- Body as a whole: Allergic reactions, thrombotic events
- Cardiovascular: Hypotension (particularly with rapid injection)
- GI: Nausea, vomiting, diarrhea

Dosage and Administration

- Adult: Mix 1 gram TXA in 50 ml NS and infuse over 10 minutes IV / IO. **DO NOT REPEAT**
  *Administer **slowly** to avoid hypotension*
- Pediatric Less than 13 years old: **NOT ALLOWED**

Special Considerations

- Pregnancy Category B
- Activate Trauma Alert and notify receiving facility of administration prior to arrival
- Ensure receiving facility has been notified of administration of TXA and document appropriately
- Time of insult / injury MUST BE documented