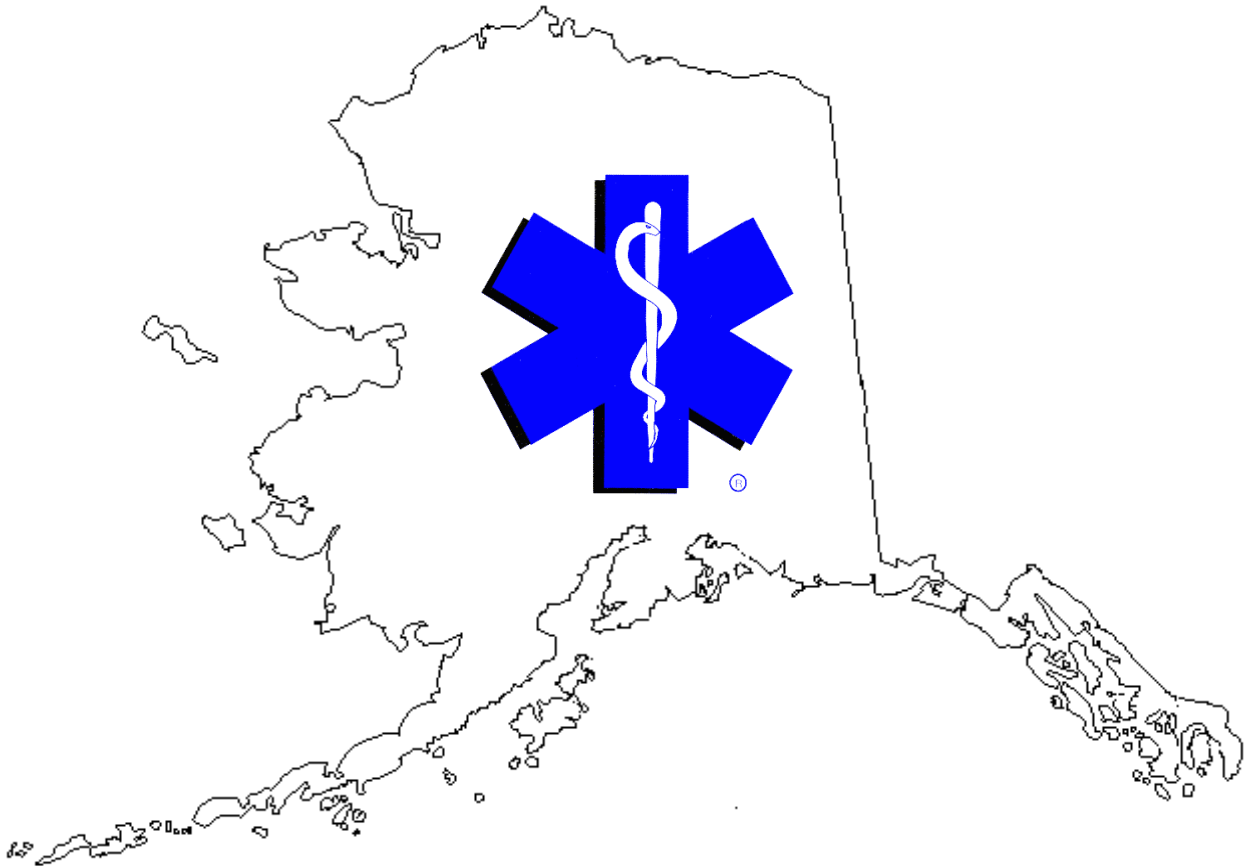


Fairbanks North Star Borough Standing Orders



**Regional Standing Orders Committee
Fairbanks North Star Borough**

Updated 1/12/24

5TH EDITION INTERIOR REGION EMS COUNCIL AND FAIRBANKS NORTH STAR BOROUGH REGIONAL STANDING ORDERS REVISED 10/2016; UPDATED 1/2017; UPDATED 6/2019; UPDATED 3/2021; 6/2022

It is with great appreciation that we recognize the following members of the FNSB Standing Orders Committee that contributed countless hours to help make this document as accurate and up to date as possible with current practices in emergency medicine:

Original Standing Orders Committee:

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Scott Learned, Paramedic, Steese Fire Department
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Dr. Maria Mandich, ER Physician, Chena Goldstream Fire and Rescue Medical Director
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Original Proofreaders:

Besides the great help of the Committee members, the following are to be thanked for their assistance in proofreading and assisting with ensuring accuracy and consistency:

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2019 Update By:

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Signature Page

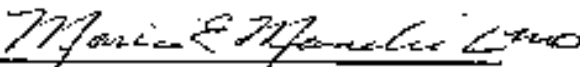
Fairbanks North Star Borough Combined Medical Standing Orders

This revision, dated 12/02/2020, of the Fairbanks North Star Borough Combined Medical Standing Orders has been approved by the following EMS Medical Directors:

**Chena Goldstream Fire & Rescue
Department**

Ester Volunteer Fire

University of Alaska Fire Department



Maria Mandich M.D.

Stæsse Volunteer Fire

North Pole Fire Department

**North Star Volunteer Fire
Department**

Saicha Fire and Rescue



Stanley W Robinson (Jan 15, 2021 16:35 AKST)
Stan Robinson, M.D.

Fairbanks Fire Department



Marc Dumas, MD (Jan 15, 2021 16:43 AKST)
Marc Dumas, M.D.

Introduction

These standing orders are the culmination of many hours of work by Interior Alaska EMS medical directors and providers dedicated to providing the highest quality care to people in the communities they serve.

It is the intent of this document to provide you, the providers, with sufficient guidance to adequately perform your duties and to allow you to provide the best possible care to your patients, and to establish a uniform standard of care throughout the Fairbanks North Star Borough. It is important that you are familiar with the content of this document and that you are compliant with all training and membership requirements of your department.

These orders only apply to members whose certification or license is current, who are in good standing in their department and who have met the training and check-off requirements of their departments. If for any reason a member is no longer in good standing, even though his or her EMT or paramedic certificate may still be current, that member may not operate under these guidelines or the authorization of the department's physician sponsor.

These are multilevel orders that include advanced procedures and drugs not covered in the basic State of Alaska EMT curricula. Before you may exceed the basic level of care for any state certification you hold, you must complete the required training and have written authorization from your department and medical director. Each individual using these orders will be authorized to practice at a particular level, for example, EMT-1, Paramedic or EMT-3. It is imperative that you know your level of authorization and do not exceed it. Just because a drug or procedure is mentioned in this document does not automatically mean you are authorized to perform it. You are to provide care to the standard of your certification and authorization. The drugs and procedures authorized for each level of certification and advanced training are listed in the Scope of Practice section.

At no time should you substantially deviate from these standing orders unless you have physician authorization by direct radio, telephone or physician contact. Whenever significant deviation occurs, complete documentation on your run report is required. The exception to this is when the Standing Orders as listed in this document become obsolete or are no longer considered sound medical practice by organizations such as American Heart Association or the National Association of EMT's and there is a time lag between these treatment changes and a revision in the Standing Orders. At that time, an addendum letter from the regional Medical Directors will be sufficient to allow deviation until such time as this document is revised to meet those standards.

These orders are to be used in conjunction with all other departmental policies, which may govern your behavior or operation at any incident requiring your services as a department member. These orders are in effect whenever you are performing duties for your department, outside your response area on mutual aid, or as a Good Samaritan. They are not in effect for operations not related to your duties as a member of your department, when volunteering or working with other organizations, or when you are receiving pay for your services outside your department - unless you have specific written authorization from the chief of your department and your medical director.

Goals of the present revision were to:

1. Make the orders easier to use. We have written most orders for patient care in flow-chart form, and noted the minimum training required for each medication or skill. E.g., a skill labeled EMT-2ES may be practiced by EMT-2ES, EMT-3ES, AEMT or PARAMEDIC. An unlabeled skill or medication may be practiced by EMT-1 and higher. **“Expanded scope” medications and skills are outside the state EMT-1, 2 and 3 curricula are guided by 7AAC 26.670 and require additional training, and authorization from your department, your physician sponsor and the state, per 7AAC 26.670.**
2. We have made the orders as consistent as possible with State of Alaska treatment guidelines, Alaska EMT class curricula and American Heart Association guidelines.
3. We have listed the medications that pertain to the treatment protocol in order of preferred use and by class (ie, Opiates, Benzodiazepines, etc.)
4. We have tried to make format and presentation consistent throughout the orders. If you find a typographical error, please contact your training officer so that actions can be taken to correct it at the next revision.

SCOPE OF PRACTICE

The following are the skills and drugs which are appropriate and authorized for each medical level. Skills and medication added per **7AAC 26.670** will herein be referred to as “Advanced” level skills and drugs. These Advanced skills and medications may be used only after the medic has been adequately trained and with written authorization from their medical director. Although some drugs have multiple uses as indicated in the drug section of this document, the EMT is only authorized to use them in the situations indicated on their individual authorization form or as indicated in these orders. EMT 1s, 2s and 3s are considered basic level until they have received authorization from their department to operate at the Advanced level as delineated in these orders. Each department is responsible to ensure its paperwork is sent in to the State EMS Unit in compliance with 7AAC 26.670. Those items listed as “optional” may be added to a provider’s scope of practice at the discretion of the individual departments.

Emergency Trauma Technician-Basic Level

1. Blood pressure measurement
2. Pulse measurement/assessment
3. Respiratory measurement/assessment
4. Trauma assessment
5. Medical assessment
6. Bleeding control by direct pressure, tourniquet, wound packing
7. Basic shock treatment
8. Spinal Motion Restriction (SMR)
9. Seated spinal stabilization and patient extrication
10. Bandaging and splinting
11. CPR (must have current AHA BLS for Healthcare Providers card or equivalent)
12. Manual clearing of an obstructed airway
13. Automatic External Defibrillation (AED) (must have current AHA BLS for Healthcare Providers CPR card or equivalent)
14. Bag-Valve-Mask
15. Basic oral suctioning

Emergency Trauma Technician - Expanded Scope

1. Administering supplemental oxygen
2. Inserting oropharyngeal (oral) and nasopharyngeal (nasal) airways
3. Traction splinting.
4. Flow Restricted Oxygen Powered Ventilation Device
5. Spinal Clearance Protocol

Emergency Medical Technician 1

All ETT basic and Expanded Scope skills plus:

1. Administration of positive pressure oxygen
2. Pulse Oximetry and CO monitoring
3. Intubation using supraglottic airway
4. CPAP
5. Use of a glucometer to determine blood sugar levels
6. Assisted delivery (childbirth)
7. Mechanical CPR device – with training and performance metrics
8. Cardiac Monitoring – 12 lead ECG acquisition and transmission
9. Defibrillation- automated and semi-automated
10. Telemetric monitoring devices and transmission of clinical data, including video data
11. Eye irrigation
12. Administer the following medications:
 - a. Assist with the patient’s own prescribed nitroglycerin.
 - b. Assist with the patient’s own prescribed metered dose inhaler.
 - c. Bronchodilators such as but not limited to albuterol and ipratropium
 - d. Assist with the patient’s own prescribed epinephrine auto injector.
 - e. Epinephrine 1mg/1ml IM admin- anaphylaxis no single dose greater than 0.3mg administered with a 1ml syringe
 - f. Oral Glucose
 - g. Aspirin
 - h. Chemical Hazardous Materials auto-injector antidote
 - i. Intranasal Opioid antagonist

Emergency Medical Technician 2

All EMT-1 skills and drugs plus:

1. Initiating, maintaining and discontinuing intravenous lines (all peripheral veins)
2. Initiating, maintaining, and discontinuing intraosseous lines (tibia, humerus or manubrium)
3. Obtain blood for laboratory analysis
4. Infusion of crystalloid solutions for the treatment of shock and to maintain venous access
5. End tidal CO₂ monitoring and interpretation of waveform capnography
6. Administer the following medications:
 - a. Dextrose
 - b. Diphenhydramine
 - c. Epinephrine 1mg/10ml- cardiac arrest only
 - d. Glucagon
 - e. Lidocaine (analgesic) for IO flush only
 - f. Ondansetron
 - g. Nitroglycerin – Sublingual
 - h. Tranexamic Acid (TXA) – with evidence of service coordination with medical facility

Emergency Medical Technician 3

All EMT-1 and EMT2 basic skills and drugs plus:

1. Cardiac Monitoring
2. 12 lead interpretation core rhythms 2012 and STEMI
3. Synchronized Cardioversion – unstable symptomatic tachycardia only
4. Transcutaneous pacing
5. Defibrillation of ventricular fibrillation or pulseless ventricular tachycardia
6. Vagal maneuvers
7. Administer the following medications:
 - a. Atropine
 - b. Amiodarone (as an antiarrhythmic)
 - c. Epinephrine 1MG/1ML
 - d. Epinephrine 1MG/10ML
 - e. Lidocaine (as an antiarrhythmic)
 - f. Opioid analgesic Intravenous maintenance –medicated IV fluids containing medications within SOP

Emergency Medical Technician 3 Expanded Scope

All EMT 3 basic skills and drugs plus:

1. Needle chest decompression
2. Administer the following drugs:
 - a. Adenocard (Adenosine)
 - b. Benzodiazepines- Seizures only, for all other uses EMTs must contact med control
 - i. Lorazepam (Ativan)-
 - ii. Midazolam (Versed)-
 - c. Sodium bicarbonate
 - d. Solu-Medrol

Alaska Advanced Emergency Medical Technician

All EMT1- 3 skills and drugs plus:

Administer the following drugs:

- a. Adenosine
- b. Ketamine- excited delirium only
- c. Magnesium Sulfate – asthma, eclampsia, torsade's de pointe only
- d. Benzodiazepines – Seizures only, for all other uses AEMTs must contact med control

Alaska Advanced Emergency Medical Technician Expanded Scope

All AEMT basic skills and drugs plus:

1. *Needle Chest Decompression*
2. *Solu-Medrol*

Paramedic

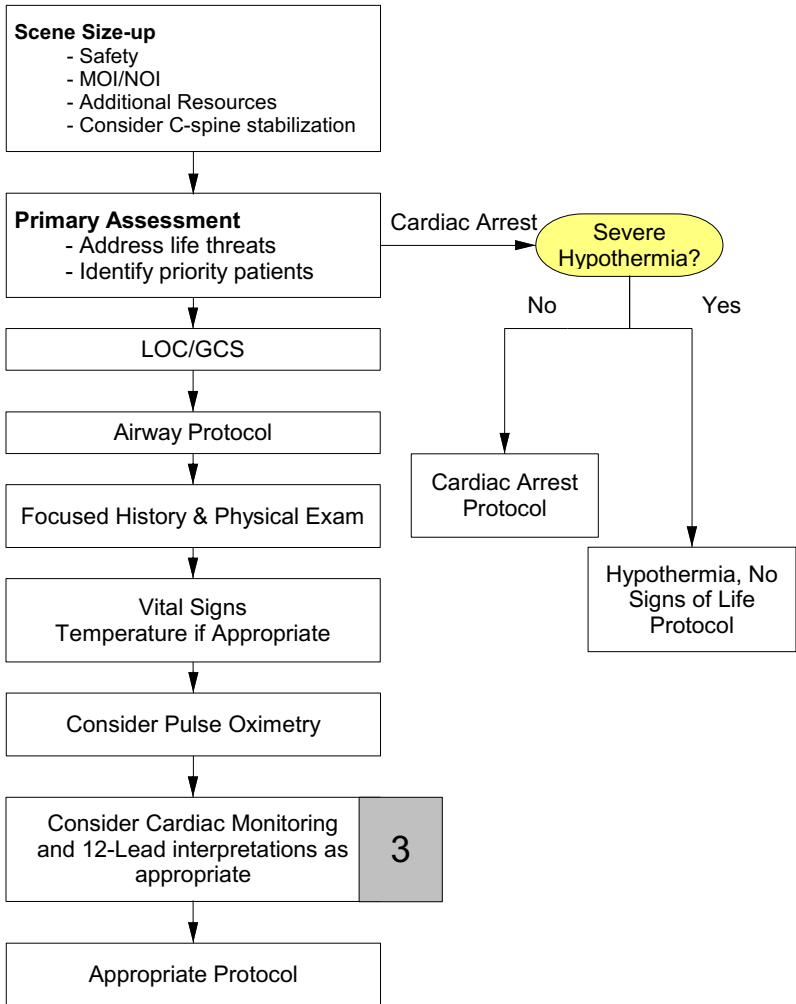
All EMT-1, EMT-2, EMT-3, and AEMT basic and advanced skills and drugs plus:

1. Intubation
2. Nasal intubation
3. Cricothyrotomy
4. Access in-dwelling IV ports
5. Administer the following medications:
 - a. Ketamine (Ketalar)
 - b. Magnesium Sulfate
 - c. Metoprolol Tartrate (Apo-Metoprolol, Betaloc, Lopressor, Toprol XL)
 - d. Midazolam (Versed)

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Treatment Protocols

Universal Patient Care



History Helpers

SAMPLE
 Signs and symptoms
 Allergies
 Medications
 Pertinent past history
 Last oral intake
 Events leading to present illness

Associated
 Symptoms
 Pertinent
 Negatives

OPQRST
 Onset - activity at onset
 Provokes - makes it better or worse
 Quality - sharp, dull, crushing etc.
 Radiation - to other parts of body
 Severity - scale of 1-10
 Time - onset, duration

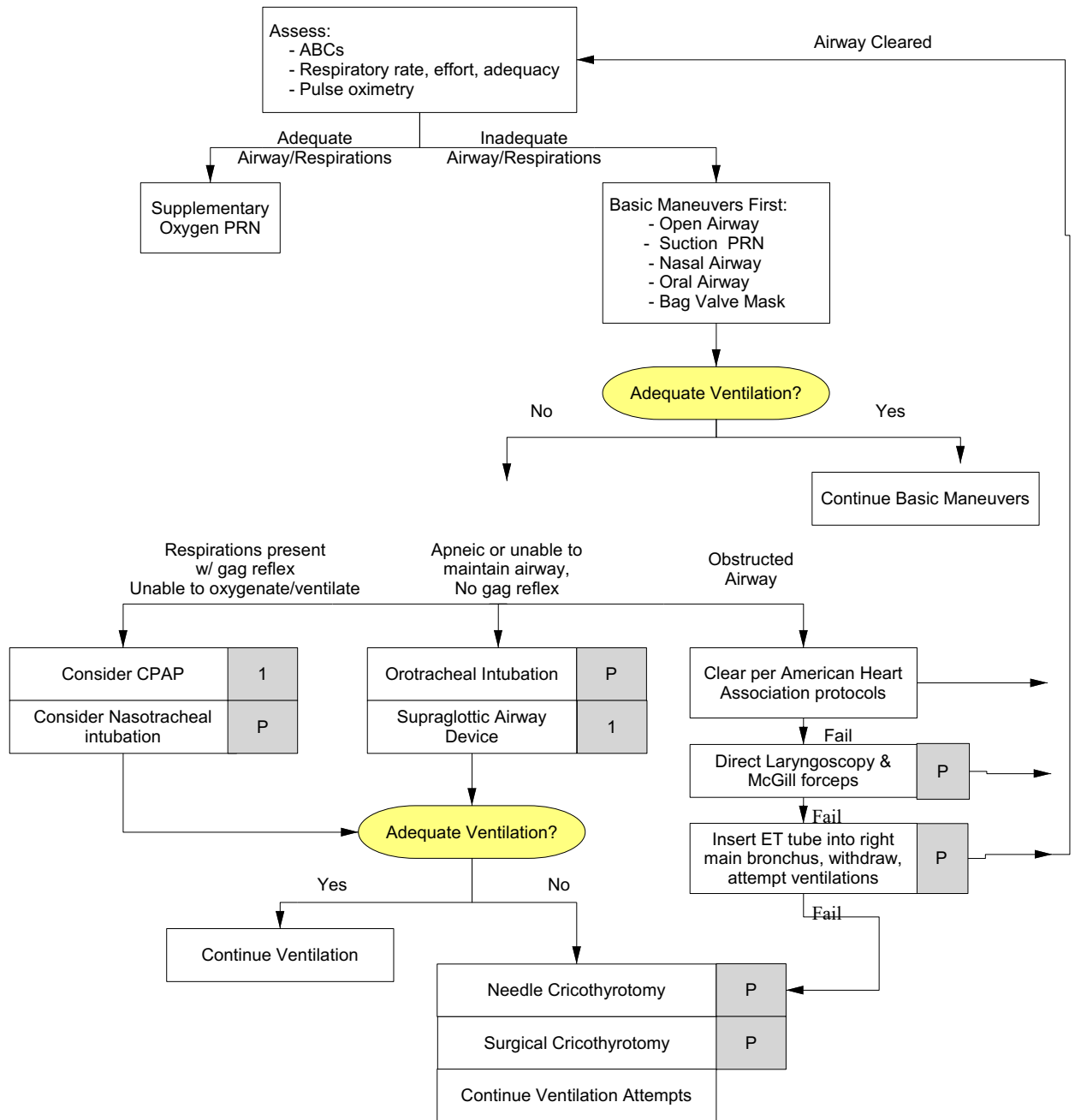
Pediatric Pt Assmt Triangle

General Appearance
 Work of Breathing
 Circulation to Skin

Notes:

- Consult State guidelines and skill sheets for specific assessment steps
- Minimum exam if not noted in specific protocols includes Vital Signs (BP, HR, RR, BGL, Lung sounds..) Mental Status & GCS and location of injury or complaint.
- Initiate cardiac monitoring and pulse oximetry on all cardiac and multi-system trauma patients.
- Base timing of transport on patient condition – identify and expedite priority patients.
- Initiate spinal immobilization following scene survey if indicated.
- Focused History & Physical Exam:
 - Trauma w/ significant MOI: Rapid Assessment, Vitals, Hx, Detailed Exam en route
 - Trauma w/ insignificant MOI: Focused Assessment, Vitals, Hx, Transport
 - Responsive medical: Hx, Focused Exam, Vitals, Transport
 - Unresponsive medical: Rapid Assessment, Vitals, Hx, Transport
- See appendix for additional history questions and pain assessment tool for pediatrics

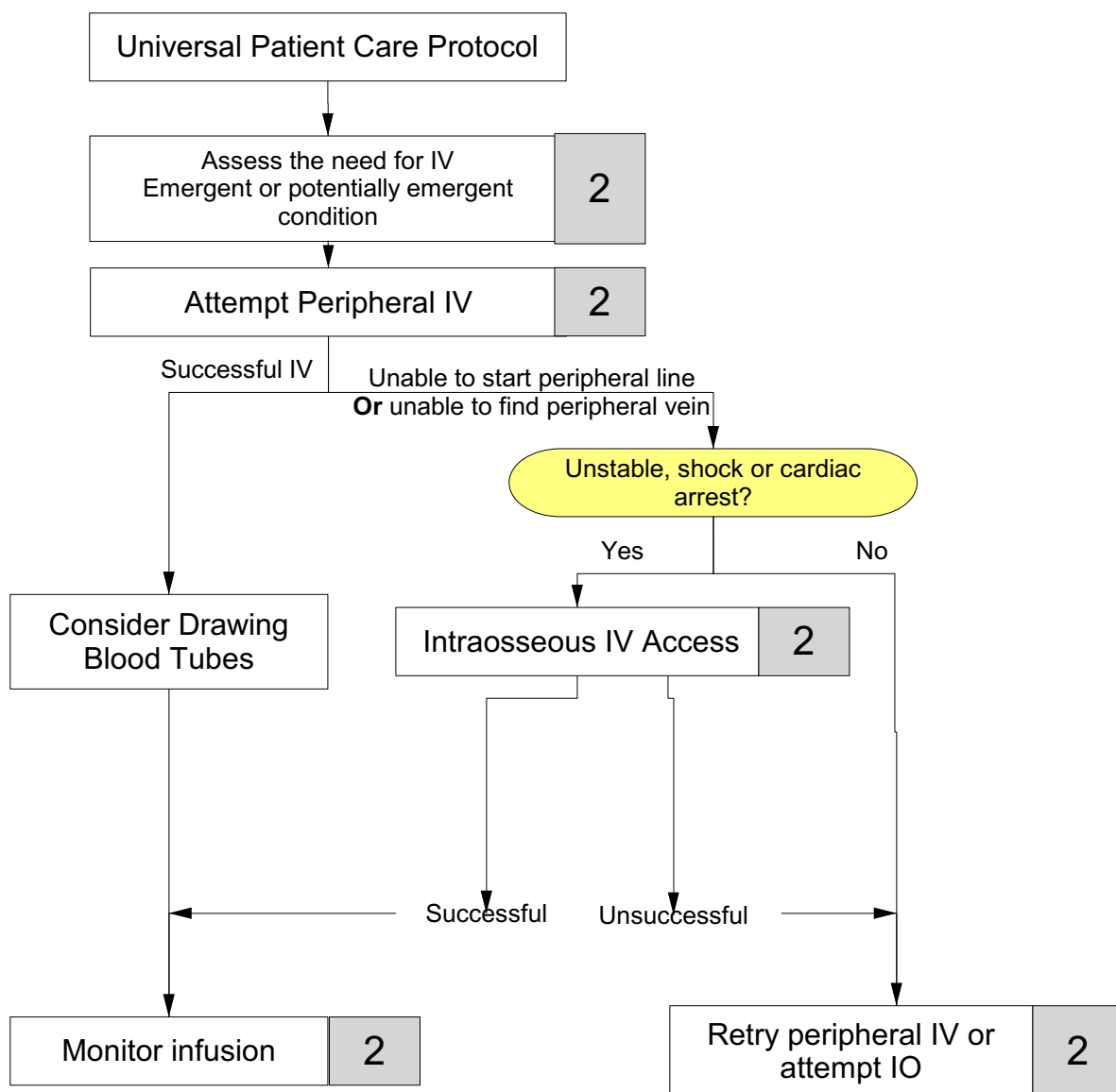
Airway Management Protocol



Notes:

- Confirm ET or Supraglottic Airway Device placement with secondary device (e.g. end-tidal CO2 or bulb detector).
- Consider the BURP maneuver (push trachea Back, Up and to Patient's Right) to help with endotracheal intubation.
- When dealing with partially obstructed stridor- may consider cold nebulized saline

Venous Access Protocol



Notes:

- You may use intraosseous equipment as trained and authorized by your department.
- Blood Draws (optional):
 - Order of draw: Blue (citrate), Red or Gold (SST), Green (heparin), Lavender (EDTA)
 - Invert Vacutainers this many times: Blue (3-4), Red glass (0), Red plastic (5), Gold (5), Green (8), Lavender (8)
 - Transport filled blood tubes upright in a protective container.
- Tibial and Humerus intraosseous access: only one attempt in each extremity.
- All fluids and meds approved for IV use may be given IO.
- Consider saline locks.
- **Adult:** Fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding 3 liters.
- **Pediatric:** Fluid bolus should be 20 cc/kg (10 cc/kg in neonates) over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.

Treatment Protocols Medical

Abdominal Pain

History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • Age • SAMPLE • OPQRST • Past surgical history • Fever • Improves or worsens with food or activity • Urinary frequency • Last bowel movement, emesis <ul style="list-style-type: none"> ○ Bloody, coffee grounds emesis? ○ Black tarry stools? • Menstrual history (pregnancy) 	<ul style="list-style-type: none"> • Pain (direct or referred) • Character of pain – crampy, constant, sharp, dull etc. • Tenderness • Nausea, vomiting • Diarrhea • Constipation • Dysuria • Vaginal bleeding/discharge • Pregnancy • Associated Symptoms – fever, headache, weakness, malaise, myalgias, cough, headache, mental status changes, rash 	<ul style="list-style-type: none"> • Abdominal Aortic Aneurysm • Appendicitis • Bowel obstruction • Diabetic ketoacidosis • Ectopic Pregnancy • Gallstones • Gastroenteritis (infectious) • Hepatitis • Kidney stone • Myocardial Infarction • GI bleed • Pneumonia • Pulmonary embolus

Focused Exam: Tenderness, rigidity, distention, bowel sounds, guarding, masses, fetal heart tones, ascites, CBG

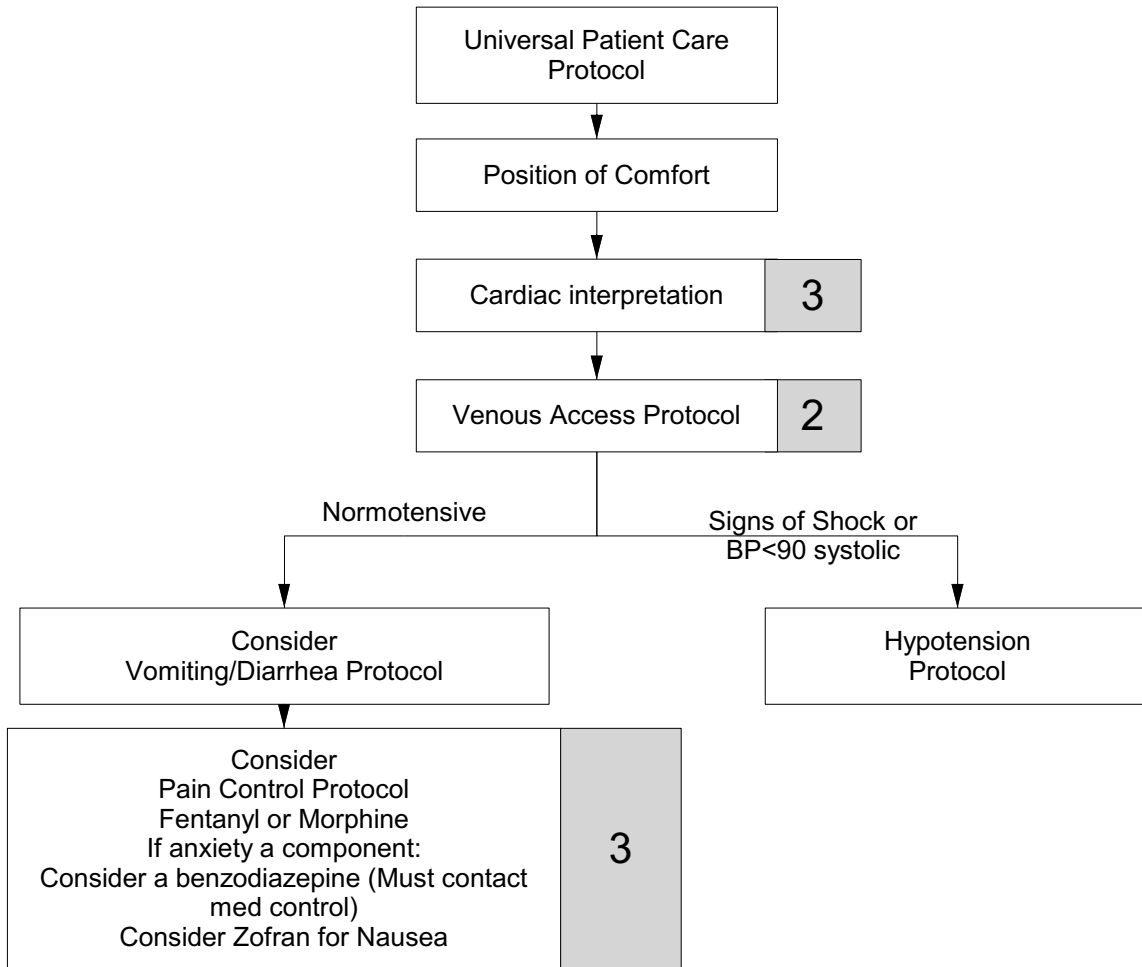
Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 25-50 mcg IV/IM/IN over 1-2 minutes. May repeat if no relief in 10 minutes. Maximum cumulative dose 200 mcg. Additional amounts require **Medical Control** approval.
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg (Consider initial lower doses of 0.5-1 mg/kg in elderly)

IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns

 - **Pediatric < 1 year: Contact Medical Control**
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
- **Lorazepam (Ativan) if no relief from opiates in 5-10 minutes:**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN, may repeat in 15-30, max dose 4 mg. **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM, max 2 mg/dose
- **Midazolam (Versed) (Versed preferred due to shorter acting time.)**
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred). **Contact Medical Control** for more than 2 doses.
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. Dose may be repeated x 1.
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose; Infuse IV dose over minimum 30 seconds.
 - ODT: 8mg, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Abdominal Pain



Notes:

- Remember: most patients with pain, do not require medication to control it.
- Fentanyl is the pain medication of choice for abdominal pain, if available.
- Treat abdominal pain in women of childbearing age as ectopic pregnancy until proven otherwise.
- Beware of internal bleeding (ruptured aneurism, liver, spleen, etc.) and monitor closely for shock.
- A tender, rigid or distended abdomen may indicate internal bleeding.
- **Consider DKA and check glucose**

Altered Mental Status

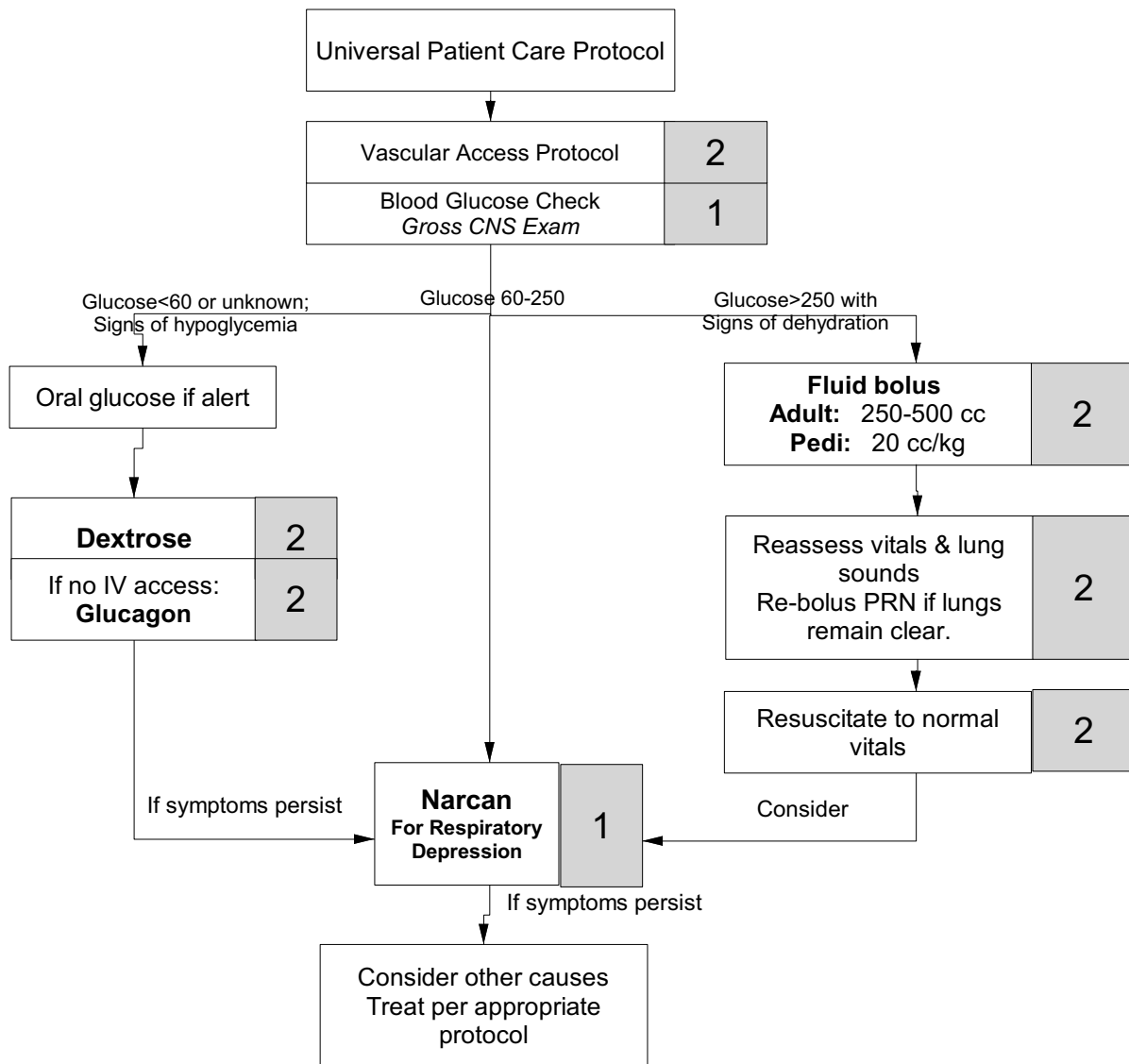
<p>History:</p> <ul style="list-style-type: none"> • Diabetic, medic alert tag • Duration of illness, onset and progression • Drugs, alcohol, pill bottles, syringes, odors. • Illicit drug use • Toxic ingestion/exposure • Prior medical or psychiatric problems • Recent trauma • History of seizures 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Decreased mental status • Change in baseline mental status • Bizarre behavior • Vomiting • Trauma • Hypoglycemia signs: cool, diaphoretic skin • Hyperglycemia signs: warm, dry skin, fruity breath, Kussmaul respirations, signs of dehydration • Stroke signs: headache, seizure, confusion, slurred speech, facial droop, weakness, loss of coordination 	<p>Differential:</p> <ul style="list-style-type: none"> • A = Alcohol, Acidosis, Alkalosis • E = Epilepsy/ Environmental • I = Infection • O = Overdose/Oxygen • U = Uremia • T = Trauma/tumor • I = Insulin (Diabetes) • P = Psychosis/Poison • S = Stroke/Shock
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Focused Exam: Mental status, GCS, Cincinnati Stroke Scale, cranial nerve assessment, neurological exam, CBG

Dosage Help:

- **Dextrose:**
 - **Adult:**
 - 50 ml D50 IV/IO.
 - D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
 - **Pediatric**
 - Age 8 and under:
 - 2-4 ml/kg of Dextrose 25% IV/IO. Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - Newborn with documented hypoglycemia:
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Glucagon:**
 - **Adult:** 1 mg IM or IN as last resort. May repeat in 15 minutes if no increase in LOC.
 - **Pediatric:** 0.1 mg/kg IM or see length-based tape (max 1 mg)
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN
- **Naloxone (Narcan):** (NOTE: if pt is protecting own airway and has adequate ventilatory rate, do not use narcan)
 - **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 is appropriate, otherwise drug should be titrated
 - **Pediatric:** 0.1 mg/kg IV/IO/IM/IN and titrate to desired effect; repeat every 2-3 min as needed up to 2 mg total or see the length-based tape/pedi wheel for dosage

Altered Mental Status



Notes:

- For patients with chronic narcotic use issue, acute withdrawal may cause violent behavior and/or seizures. Remember, only use narcan if patient is unable to protect own airway. If chronic abuse is suspected, be sure the patient is restrained and start with 0.2 mg, slowly administer subsequent doses to avoid acute withdrawal.
- If the patient becomes violent, consider a benzodiazepine (3's and AEMTs must contact med control prior to administration) Versed is the preferred benzo due its short-acting properties.
- If a glucometer reading is not available for an unconscious/unknown patient, give IV dextrose first. Dextrose may save the life of a hypoglycemic patient; it will not harm hyperglycemic patients.
- Hyperglycemic and ketoacidotic patients may be severely dehydrated, however be cautious with fluid resuscitation in CHF and dialysis patients.
- Normal fasting blood glucose is 70-100 mg/dl. Non-fasting blood glucose above 200 mg/dl with symptoms such as fatigue, polyuria and polydipsia suggests diabetes.
- In general, give dextrose and Narcan before intubating unconscious patients.

Anaphylaxis/Allergic Reaction

History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • SAMPLE • Onset and location • Insect sting or bite • Food allergy, exposure • Medication allergy, exposure • New clothing, soap, detergent, perfume • Past history of reactions 	<ul style="list-style-type: none"> • Itching or hives • Coughing, wheezing, stridor, respiratory distress • Chest or throat constriction • Swollen tongue, difficulty swallowing • Facial swelling, edema • Hypotension or shock • Diarrhea, stomach cramps • Teary, itchy or burning eyes 	<ul style="list-style-type: none"> • Anaphylaxis – severe respiratory or circulatory compromise, such as airway swelling or signs and symptoms of shock. • Angioedema - swelling in face, extremities, airway, digestive tract (abdominal cramps) • Urticaria - hives • Aspiration/Airway constriction • Vasovagal event • Asthma or COPD • CHF/Pulmonary edema

Focused Exam: Face, oropharynx (swelling), skin (wheals, hives), lungs, bowel sounds, vital signs

Dosage Help:

- **Albuterol:**
 - **Age 1 and up:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - Alternative: Continuous Neb dose:
 - **Adults:** In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) 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
- **Atrovent (Ipratropium):** Give in combination with Albuterol 2.5 mg
 - **Adult: Bronchospasm:**
 - Single administration: One 2.5-ml vial (500 mcg) by nebulizer over 5 to 15 minutes. Do not repeat-- Subsequent nebulizer treatments are with Albuterol only.
 - **Pediatric- Moderate and Severe Bronchospasm**
 - Age 2-12: Single administration: 0.5 mg/2.5 ml by nebulizer. Do not repeat-- Subsequent nebulizer treatments are with Albuterol only.
- **Diphenhydramine (Benadryl):**
 - **Adult:** 50 mg IV/IO/IM; slow IV/IO push (over 1-2 min)
 - **Pediatric:** <8 years: 1-2 mg/kg slow IV/IO/IM (not to exceed 50 mg)
- **Epinephrine 1:1000 (for anaphylaxis):**
 - **Adult:** 0.3 mg IM every 5-15 minutes PRN
 - **Pediatric:** 0.01 mg/kg (max 0.3 mg) IM every 5-15 minutes PRN
- **Epinephrine 1:10,000 (for anaphylaxis refractory to IM Epi):**
 - **Adult:** 0.1-0.25 mg (1-2.5 ml) epi 1:10,000 slow IV over 5 minutes; repeat q 5-15 to achieve and maintain desired BP of greater than 90 mmHg systolic
 - **Pediatric:** 0.01mg/kg (0.1 ml/kg of 1:10,000 solution) IV/IO
- **Methylprednisolone (Solu-Medrol):**
 - **Adult:** 125 mg IV/IO/IM large muscle (not deltoid)
 - **Pediatric:** 2 mg/kg IV/IO/IM consult with Online Medical Control for concentration and rate of infusion. Max 80 mg.

Anaphylaxis/Allergic Reaction

Universal Patient Care Protocol

If possible, determine likely trigger
Determine PMH, meds and allergies
Classify based on symptom severity and systems involved
Other protocols may apply: e.g.: obstructed airway

Generalized or Systemic Reaction
Severe respiratory or circulatory distress

Localized Reaction
No severe respiratory or circulatory distress

Does patient have any of the following symptoms?
-Hypotension
-Signs of poor perfusion
-Bronchospasm, stridor
-Altered Mental Status

No

Benadryl 2

Transport and reassess for signs of deterioration

Airway involvement?
Tongue or uvula swelling, stridor?

No

Yes

Impending airway obstruction?

Yes

No

Assist with patient's prescribed **EpiPen**

Epinephrine 1:1000 IM

1

Benadryl

2

Assist with patient's prescribed **MDI**

For continued respiratory distress:
Albuterol/Atrovent

1

Solu-Medrol

3ES

If symptoms persist or worsen (BP <70):
Epinephrine 1:10,000 IV/IO

P

Treat hypotension or dysrhythmias per appropriate protocol

Benadryl

2

Solu-Medrol

3ES

NOTE:

- Remove stinger if present. Scrape away - don't squeeze venom sac.
- Reactions may progress from hives to respiratory distress and death within minutes (rare).
- Most food allergies are to legumes, nuts, shellfish, eggs, wheat or milk.
- Consider IV Epi only if the patient has BP of <70 unchanged by IM Epi.

Behavioral – Agitated or Combative Patient

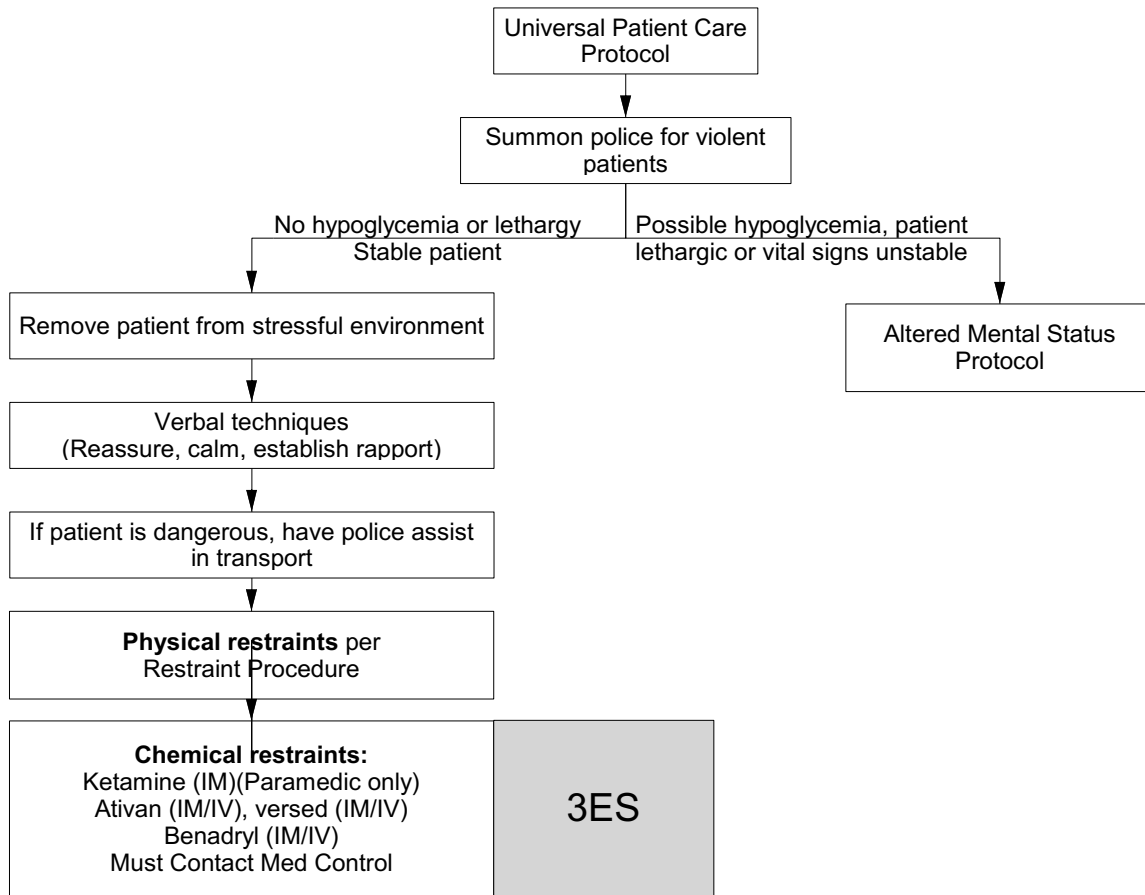
History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • SAMPLE • Situational crisis • Psychiatric illness/medications • Injury to self or threats to others • Medic Alert tag • Substance abuse/overdose • Diabetes 	<ul style="list-style-type: none"> • Anxiety, agitation, confusion • Affect change, hallucinations • Delusional thoughts, bizarre behavior • Combative, violent • Expression of suicidal/homicidal thoughts • Breath odors (alcohol, ketones, poisons) 	<ul style="list-style-type: none"> • See Altered Mental Status • Alcohol intoxication • Diabetic emergency • Toxin/substance abuse • Medication effect/overdose • Withdrawal syndromes • Depression • Bipolar (manic-depressive) • Schizophrenia • Anxiety Disorders

Focused Exam: Behavioral observations, orientation, memory, focus/level of awareness, perceptual process, mood, affect, ability to formulate an idea, judgment, psychomotor, CBG

Dosage Help:

- **Dextrose:**
 - **Adult:** 25 g (50mL of a 50% solution) IV/IO
 - D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
 -
 - **Pediatric-** Age 8 and under:
 - 2-4 ml/kg of Dextrose 25% IV/IO. Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - Newborn with documented hypoglycemia:
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
 - **Glucagon:**
 - **Adult:** 1 mg IM; IN as last resort. May repeat in 15 minutes if no increase in LOC.
 - **Pediatric:** 0.1 mg/kg IM or see length-based tape/pedi wheel (max 1 mg)
 - **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN
 - **Ketamine (Ketalar)**
 - **Adults:** 4 mg/kg IM **Excited Delirium:** 4 mg/kg IM, (repeat in 5-10 min as needed) Max dose 500 mg. (*First line Treatment for Excited Delirium is consider the cause*)
 - **Pediatric:** 4 mg/kg IM
 - **Lorazepam (Ativan):** (Anxiety/Sedation/Muscle Relaxation)
 - **Adult:** 0.5-1 mg IV/IO/IM/IN, may repeat in 15-30, max dose 4 mg. **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM, max 2 mg/dose
 - **Midazolam (Versed)** (for sedation/restraint):
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred if no IV in place). Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses, (unless **Excited Delirium Syndrome** present, in which case up to 3 doses may be given as standing order)
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.
- OR**
- **Diphenhydramine (Benadryl):**
 - **Adult:** 50 mg IV/IO/IM; slow IV/IO push (over 1-2 min)
 - **Pediatric:** <8 years: 1-2 mg/kg slow IV/IO/IM (not to exceed 50 mg)

Behavioral



Notes:

- Your safety first! Don't enter unsafe scenes.
- Be sure to consider all possible medical/trauma causes for behavioral emergencies and treat appropriately (*hypoglycemia, overdose, substance abuse, hypoxia, head injury, stroke, etc.*)
- Alcohol withdrawal (DT's) will present as agitation, tremors, and hallucination and seizures, if severe. Delirium tremens (DTs) usually occurs within 72 hours of an alcoholic's last drink. Symptoms include shakiness, emotional volatility, dysrhythmias, confusion, stupor and seizures. When untreated, mortality is up to 35%.
- If patient is suicidal, do not leave patient alone.
- Beware of weapons. If possible, remove dangerous items (*guns, knives, pills etc.*) from the scene.
- Unless emergency treatment is needed, minimize treatment and avoid invading the patient's personal space.

Cardiac: Arrest ALS

History:

- Estimated time since arrest
- Past medical history/medications
- Possibility of foreign body airway obstruction
- Events leading to arrest
- Known terminal illness
- POLST, DNR, Living Will

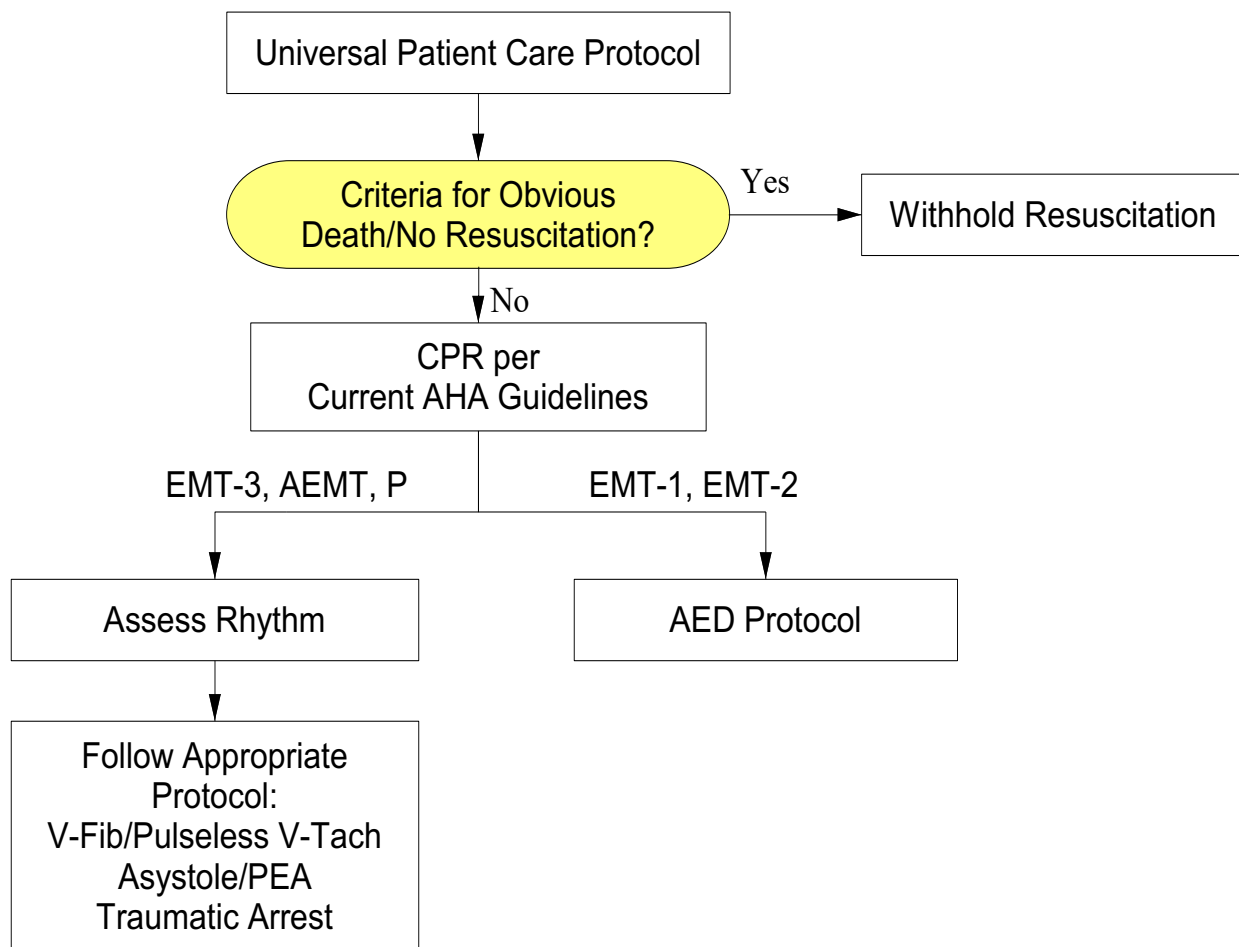
Signs/Symptoms:

- Unresponsive, pulseless, apneic
- Cyanosis
- Pupils fixed and dilated
- Signs of rigor mortis, dependent lividity

Differential:

- 6 Hs, 5 Ts**
- Hypovolemia
 - Hypoxia
 - Hydrogen ion (acidosis)
 - Hypo/Hyperkalemia
 - Hypoglycemia
 - Hypothermia
 - Toxins
 - Tamponade (cardiac)
 - Tension Pneumothorax
 - Thrombosis (coronary or pulmonary)

Focused Exam: ABCs, mental status, pupils, temperature



Notes:

- An EMT/Paramedic may withhold resuscitation if the patient has injury/illness incompatible with life. This includes cardiac arrest accompanied by blunt trauma, incineration, decapitation, open head injury with loss of brain matter, de-trunkation, rigor mortis, post-mortem lividity. **When in doubt, resuscitate!**
- An EMT/Paramedic may withhold resuscitation given evidence of enrollment in POLST* or other DNR program and confirmation of patient's identity.
- After 20 (unwitnessed)-30 (witnessed) minutes of CPR, see Termination of Resuscitation and Field Pronouncement Guidelines

Cardiac: Arrest w/AED BLS

History:

- Estimated time since arrest
- Past medical history/medications
- Events leading to arrest
- Known terminal illness
- POLST, DNR Living Will

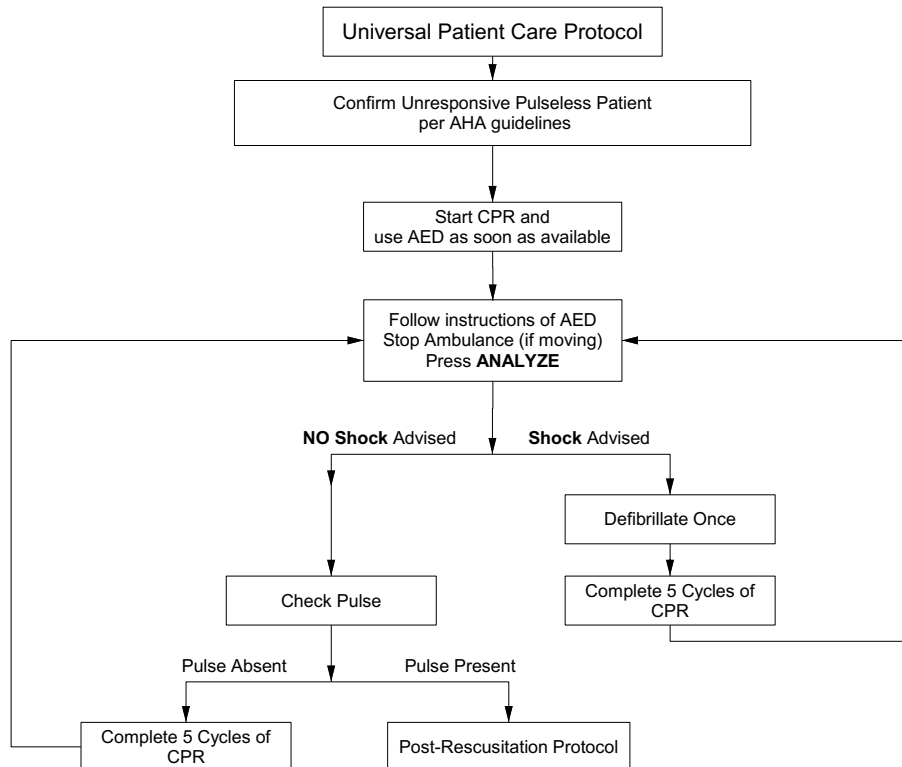
Signs/Symptoms:

- Unresponsive, pulseless, apneic
- Cyanosis
- Pupils fixed, dilated
- Signs of rigor mortis, dependent lividity

Differential:

- 6 Hs, 5 Ts**
- Hypovolemia
 - Hypoxia
 - Hydrogen ion (acidosis)
 - Hypo/Hyperkalemia
 - Hypoglycemia
 - Hypothermia
 - Toxins
 - Tamponade (cardiac)
 - Tension Pneumothorax
 - Thrombosis (coronary or pulmonary)
 - Trauma (hypovolemia, increased ICP)

Focused Exam: ABCs, mental status, pupils, temperature



Notes:

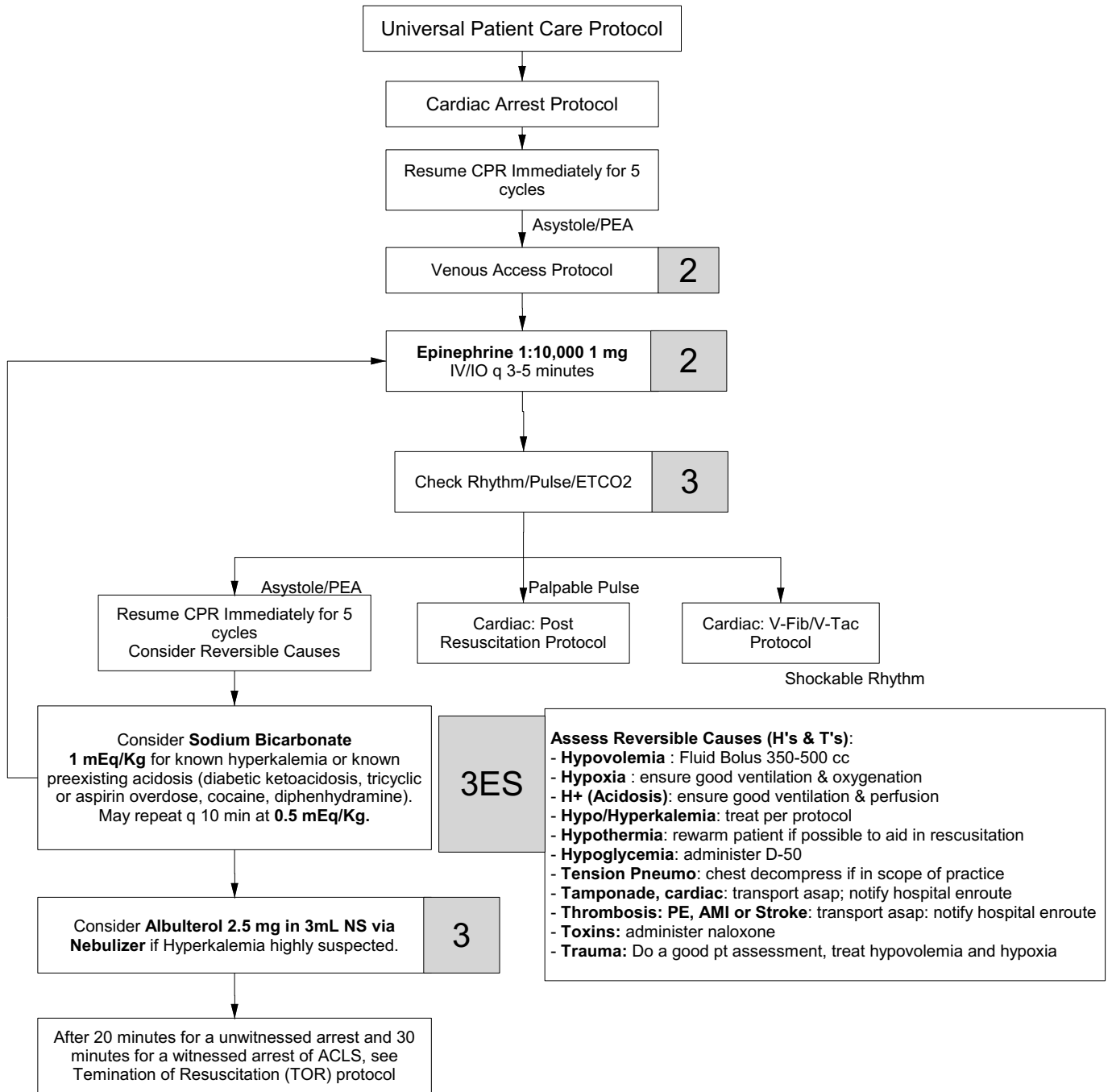
- If possible, transport immediately after the patient regains a pulse
- After 20 (unwitnessed)-30 (witnessed) minutes of CPR, see Termination of Resuscitation and Field Pronouncement Guidelines

Cardiac: Arrest- Asystole/PEA-Adult EMT-3/AEMT/Paramedic Only

<p>History:</p> <ul style="list-style-type: none"> • Events leading to arrest • Past medical history • Medications • Suspected overdose • Suspected hypothermia • Estimated down time • DNR/POLST 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Pulseless • Apneic • No electrical activity on ECG 	<p>Differential:</p> <p>6 Hs, 5 Ts</p> <ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo/Hyperkalemia • Hypoglycemia • Hypothermia • Toxins • Tamponade (cardiac) • Tension Pneumothorax • Thrombosis (coronary or pulmonary)
<p>Focused Exam: ABCs, pulse, respirations, ECG.</p>		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • Epinephrine: <ul style="list-style-type: none"> ○ Adult: <ul style="list-style-type: none"> ▪ IV/IO: 1 mg every 3-5 minutes (epinephrine 1:10,000) • Sodium Bicarbonate: <ul style="list-style-type: none"> ○ Adult: <ul style="list-style-type: none"> ▪ IV/IO: 1 mEq/kg IV, repeat at 0.5 mEq/kg every 10 minutes 		

Cardiac: Arrest -Asystole/PEA-Adult

EMT-3/AEMT/Paramedic Only



Notes:

- Confirm asystole in at least 2 leads.
- **Termination of resuscitation efforts should not be done until all reversible causes have been ruled out**

After 20 (unwitnessed)-30 (witnessed) minutes of high quality resuscitation efforts asses ETCO2 values.

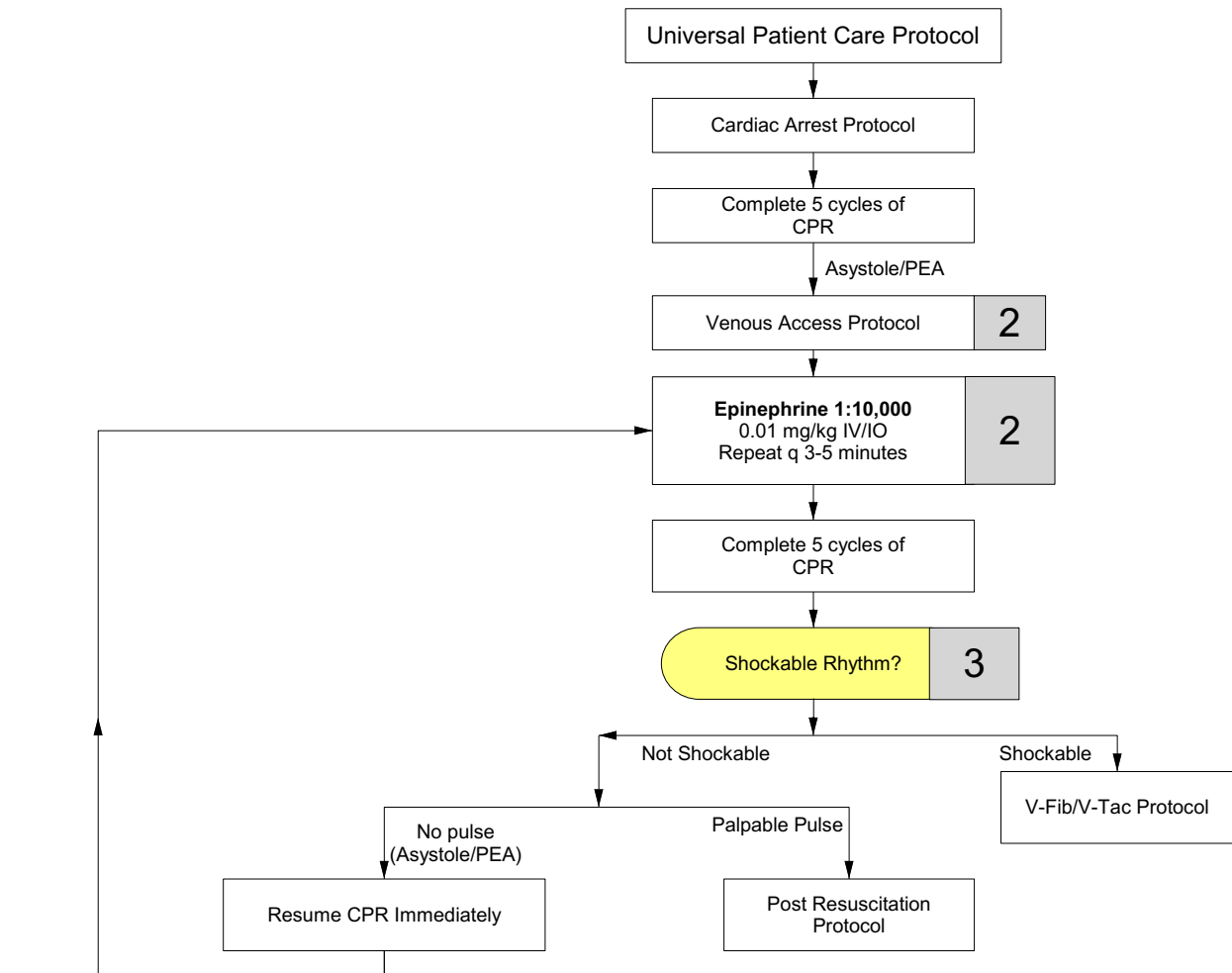
- ETCO2: less than 10 discontinue CPR
- 10-40 continue CPR assessing ETCO2 every 5 minutes
- 40 and greater, continue CPR, check for a pulse, assess H & TS

Cardiac: Arrest -Asystole/PEA-Pediatric EMT-3/AEMT/Paramedic Only

<p>History:</p> <ul style="list-style-type: none"> • Estimated down time • Events leading to arrest • Hypothermia • Past medical history • Medications • DNR/POLST 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Unresponsive • Pulseless • Apneic • Asystole/PEA • Cyanosis • Pupils fixed and dilated 	<p>Differential:</p> <ul style="list-style-type: none"> • Respiratory failure <ul style="list-style-type: none"> ○ Foreign Body airway obstruction ○ Secretions ○ Infection (croup, epiglottitis) ○ Asphyxia • Congenital Heart Disease <p>6 Hs, 5 Ts</p> <ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo/Hyperkalemia • Hypoglycemia • Hypothermia • Toxins • Tamponade (cardiac) • Tension Pneumothorax • Thrombosis (coronary or pulmonary) • Trauma
<p>Focused Exam:</p> <ul style="list-style-type: none"> • General impression, (PAT), ABCDEs, temperature 		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • Epinephrine: <ul style="list-style-type: none"> ○ 0.01 mg/kg epinephrine 1:10,000 IV/IO (max 1 mg per dose) every 3-5 min • Fluid Resuscitation: <ul style="list-style-type: none"> ○ For children, fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr. 		

Cardiac: Arrest -Asystole/PEA-Pediatric

EMT-3/AEMT/Paramedic Only



Consider Reversible Causes (H's & T's):

- **Hypovolemia** : Fluid Bolus 20cc/ kg
- **Hypoxia** : ensure good ventilation & Oxygenation
- **H+ (Acidosis)**: ensure good ventilation & perfusion
- **Hypo/Hyperkalemia**: treat per protocol
- **Hypothermia**: rewarm patient if possible to aid in resuscitation
- **Hypoglycemia**: administer D-25 or D-10
- **Tension Pneumo**: chest decompress if in scope of practice
- **Tamponade, cardiac**: transport asap; notify hospital enroute
- **Thrombosis: PE, AMI or Stroke**: transport asap: notify hospital enroute
- **Toxins**: administer naloxone
- **Trauma**: Do a good pt assessment, treat hypovolemia and hypoxia

Notes:

- Confirm asystole in at least 2 leads.
- Consider and treat possible causes (6Hs, 5Ts).
- **TRANSPORT ALL PEDIATRIC ARRESTS OR CONTACT MEDICAL CONTROL TO TERMINATE RESUSCITATIVE EFFORTS.**

Cardiac Arrest -V-Fib/Pulseless V-Tach- Adult (EMT-3/AEMT/Paramedic)

History: <ul style="list-style-type: none"> • Estimated time since arrest • Past medical history/medications • Events leading to arrest • Renal failure/dialysis • POLST, DNR, Living Will 	Signs/Symptoms: <ul style="list-style-type: none"> • Unresponsive, apneic, pulseless • Cyanosis • Pupils fixed and dilated • Ventricular fibrillation • Ventricular Tachycardia 	Differential: <ul style="list-style-type: none"> • Asystole (Confirm in two leads!) • Artifact • Device failure (lead or pad)
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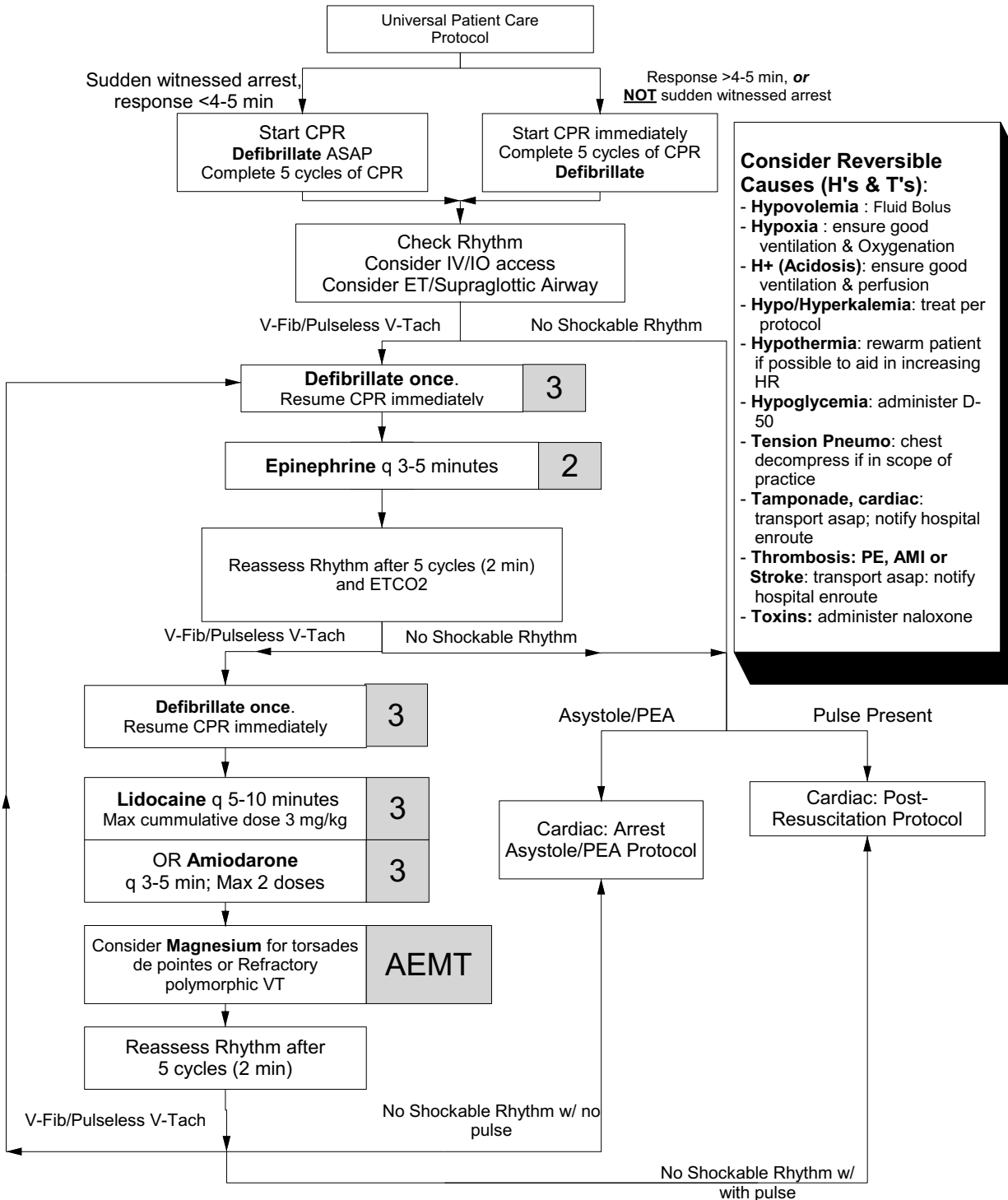
Focused Exam: ABCs, Mental Status

Dosage Help:

- **Amiodarone (Cordarone):**
 - **Adult:**
 - **Pulseless arrest (VF, VT)**
 - Initial dose: 300 mg IV/IO push (recommend dilution in 20-30 ml D₅W).
 - May follow **once** after 3-5 minutes with 150 mg IV/IO push - rapid push if pulseless or no BP, otherwise give over 10 minutes. (Mix 150 mg in 100 ml D₅W, run at 10 ml/min to decrease risk of hypotension.)
- **Lidocaine:**
 - **Adult:**
 - **IV/IO:** 1-1.5 mg/kg initial dose. Repeat @ 0.5-0.75 mg/kg every 5-10 minutes to maximum 3 mg/kg
 - Patients over 70 yo or patients with known liver disease:
 - Initial dose 1-1.5 mg/kg IV/IO; repeat doses 0.25-0.375 mg/kg (1/4 of the initial dose)
- **Magnesium Sulfate:**
 - **Adult:**
 - **IV/IO:** 1-2 g diluted in 10 ml NS over 5-10 minutes. May also place in bag of D₅W and drip over 5-10 minutes. (for Torsades de Pointes)
- **Epinephrine:**
 - **Adult:**
 - **IV/IO:** 1 mg every 3-5 minutes (epinephrine 1:10,000)
- **Defibrillation – Use escalating energies**
 - **Adult:**
 - **Monophasic:** 200 joules, 300 joules, 360 joules or AHA recommendation of 360 Joules
 - **Zoll biphasic:** 120 joules, 150 joules, 200 joules
 - **Physio-Control biphasic:** 200 joules, 300 joules, 360 joules
 - **Others:** follow manufacturer's recommendation or AHA recommendation of max dose

Cardiac Arrest -V-Fib/Pulseless V-Tach- Adult

(EMT-3/AEMT/Paramedic)



Notes: Minimize interruptions to CPR.

- If it can be done safely, continue chest compressions while charging the defibrillator.
- Defibrillate within 5 seconds of stopping chest compressions.
- Intubate or insert supraglottic airway during the pause for rhythm check and defibrillation. Intubation may not be a priority during the first few minutes of resuscitation

Cardiac Arrest V-Fib/Pulseless V-Tach- Pediatrics (EMT-3/AEMT/Paramedic Only)

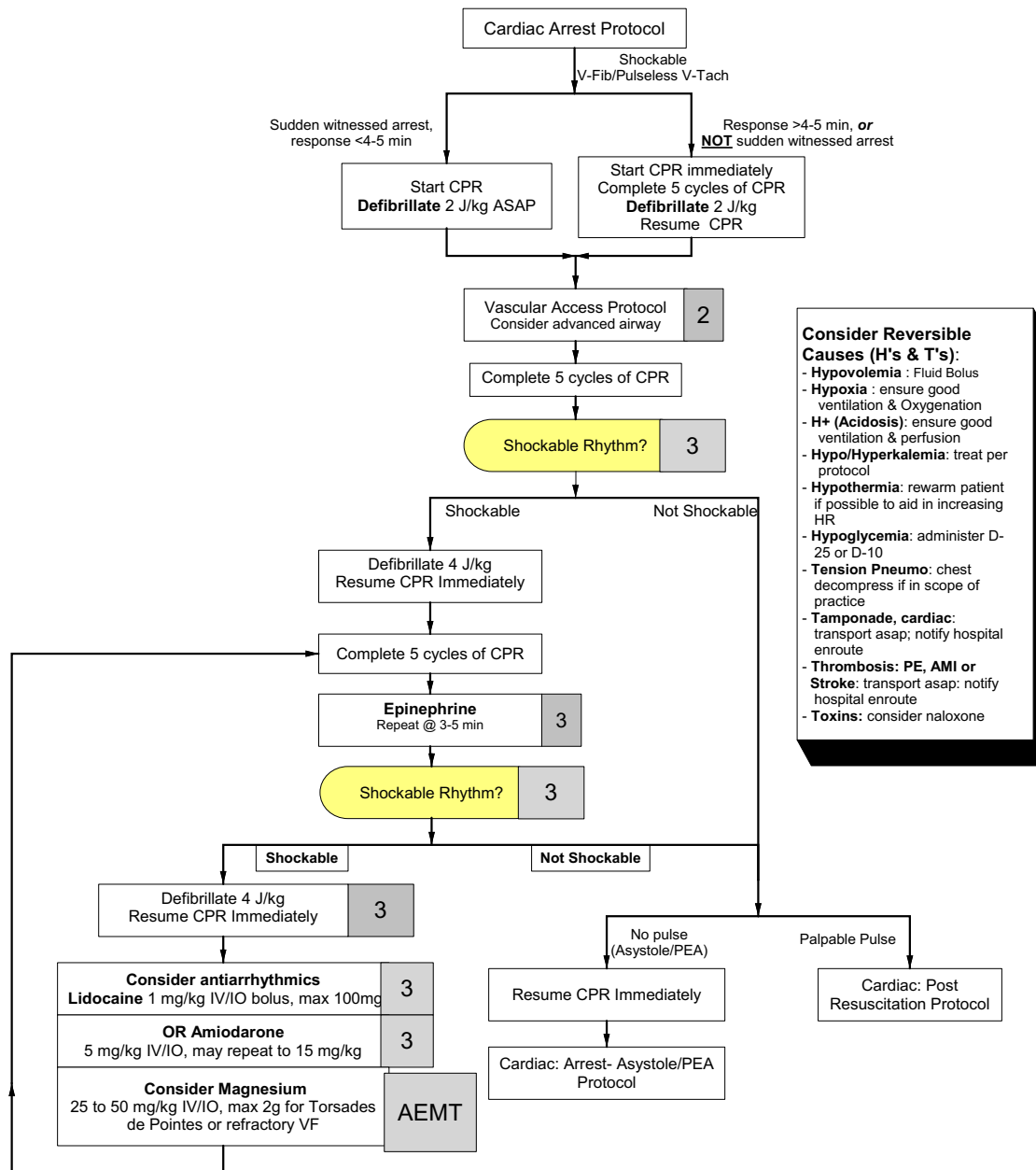
<p>History:</p> <ul style="list-style-type: none"> • Estimated down time • Events leading to arrest • Hypothermia • Past medical history • Medications • DNR/POLST 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Unresponsive • Pulseless • Apneic • Asystole/PEA • Cyanosis • Pupils fixed and dilated • Cyanosis • Ventricular fibrillation • Ventricular tachycardia 	<p>Differential:</p> <ul style="list-style-type: none"> • Respiratory failure <ul style="list-style-type: none"> ○ Foreign Body airway obstruction ○ Secretions ○ Infection (croup, epiglottitis) ○ Asphyxia • Congenital Heart Disease <p>6 Hs, 5 Ts</p> <ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo/Hyperkalemia • Hypoglycemia • Hypothermia • Toxins • Tamponade (cardiac) • Tension Pneumothorax • Thrombosis (coronary or pulmonary) • Trauma (hypovolemia, increased ICP)
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Focused Exam: General Impression (PAT), ABCDEs temperature

Dosage Help:

- **Amiodarone (Cordarone):**
 - 5mg/kg IV/IO bolus, max 300 mg/dose, may repeat up to 15 mg/kg
- **Lidocaine:**
 - 1 mg/kg rapid IV/IO push PRN; max 100 mg/dose every 5-10 minutes
- **Magnesium Sulphate:**
 - 25-50 mg/kg IV/IO diluted in 10 ml of NS, (max 2g) over 5-10 min; May also place in bag of D₅W and drip over 5-10 minutes. (for Torsades de Pointes)
- **Epinephrine:**
 - 0.01 mg/kg epinephrine **1:10,000** IV/IO (max 1 mg) every 3-5 min

Cardiac Arrest V-Fib/Pulseless V-Tach-Pediatrics (EMT-3/AEMT/Paramedic)



Consider Reversible Causes (H's & T's):

- **Hypovolemia** : Fluid Bolus
- **Hypoxia** : ensure good ventilation & Oxygenation
- **H+ (Acidosis)** : ensure good ventilation & perfusion
- **Hypo/Hyperkalemia** : treat per protocol
- **Hypothermia** : rewarm patient if possible to aid in increasing HR
- **Hypoglycemia** : administer D-25 or D-10
- **Tension Pneumo** : chest decompress if in scope of practice
- **Tamponade, cardiac** : transport asap; notify hospital enroute
- **Thrombosis: PE, AMI or Stroke** : transport asap; notify hospital enroute
- **Toxins** : consider naloxone

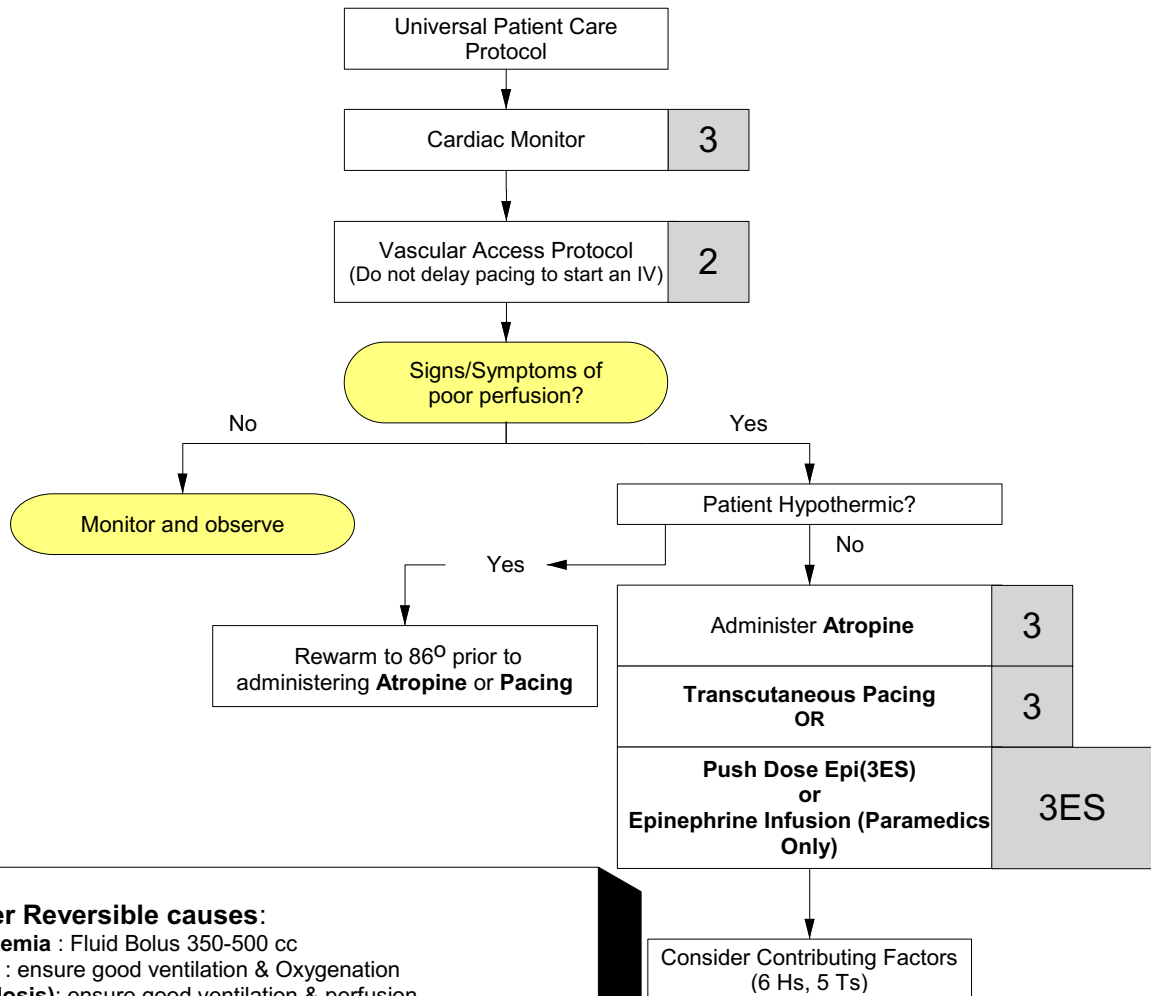
Notes:

- Confirm asystole in at least 2 leads.
- **CONSIDER AND TREAT POSSIBLE CAUSES (6HS, 5TS).**

Cardiac: Bradycardia-Adult

<p>History: Past medical history</p> <ul style="list-style-type: none"> • Medications <ul style="list-style-type: none"> ○ Beta blockers ○ Calcium channel blockers ○ Clonidine ○ Digitalis • Pacemaker 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Heart rate <60 • Chest pain • Respiratory distress • Hypotension/shock • Altered mental status • Syncope 	<p>Differential:</p> <ul style="list-style-type: none"> • MI • Sinus bradycardia • AV block • Athletes (bradycardia may be normal) • Sick Sinus Syndrome • 6 Hs, 5 Ts <ul style="list-style-type: none"> ○ Hypovolemia ○ Hypoxia ○ Hydrogen ion (acidosis) ○ Hypo/Hyperkalemia ○ Hypoglycemia ○ Hypothermia ○ Toxins ○ Tamponade (cardiac) ○ Tension Pneumothorax ○ Thrombosis (coronary or pulmonary)
<p>Focused Exam: Vital signs, mental status, JVD, heart, lungs sounds, neurological, ECG/12-lead if available.</p>		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • Atropine (bradycardia with pulse): <ul style="list-style-type: none"> ○ Adult <ul style="list-style-type: none"> ▪ IV/IO: 1mg every 3-5 minutes, not to exceed total dose of 0.04 mg/kg (maximum 3 mg) • Lorazepam (Ativan): (Anxiety/Sedation/Muscle Relaxation) <ul style="list-style-type: none"> ○ Adult: 0.5-1 mg IV/IO/IM/IN every 15-30 minutes, max 4.0 mg; Contact Medical Control to exceed 4 mg. • Midazolam (Versed) (for sedation): <ul style="list-style-type: none"> ○ Adult: 2 mg IV or 5 mg IN or IM (IN preferred) if no IV in place. Dose may be repeated x 1 after 5 minutes. Contact Medical Control for more than 2 doses, (unless Excited Delirium Syndrome present, in which case up to 3 doses may be given as standing order) • Transcutaneous Pacing: <ul style="list-style-type: none"> ○ Adult: Set initial rate to 60-80 bpm, energy to 0 mAmps. Increase energy in increments of 10 mAmps until capture is observed. Increase energy an additional 2-10 mAmps to ensure continued capture. ○ NOTE: object is good profusion, set rate to achieve that goal. • Push Dose Epi <ul style="list-style-type: none"> ▪ Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine ▪ Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY ▪ Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation. 		

Cardiac: Bradycardia-Adult



Consider Reversible causes:

- **Hypovolemia** : Fluid Bolus 350-500 cc
- **Hypoxia** : ensure good ventilation & Oxygenation
- **H+** (**Acidosis**): ensure good ventilation & perfusion
- **Hypo/Hyperkalemia**: treat per protocol
- **Hypothermia**: rewarm patient if possible to aid in increasing HR
- **Hypoglycemia**: administer D25 or D10
- **Tension Pneumo**: chest decompress if in scope of practice
- **Tamponade, cardiac**: transport asap; notify hospital enroute
- **Thrombosis: PE, AMI or Stroke**: transport asap: notify hospital enroute
- **Toxins**: administer naloxone
- **Trauma**: Do a good pt assessment, treat hypovolemia and hypoxia

Notes:

- Atropine increases myocardial oxygen demand. Use atropine with caution in the presence of MI or ischemia.
- Atropine may not work for Type II second degree AV block or for new third degree block with wide QRS. In patients with these blocks be prepared for rapid transcutaneous pacing following administration of Atropine.
- Pushing atropine too slowly or giving adults <0.5 mg may cause paradoxical slowing of the heart.
- Avoid atropine for hypothermic bradycardia, rewarm first.- if bradycardia continues, administer atropine

Cardiac: Bradycardia-Pediatric

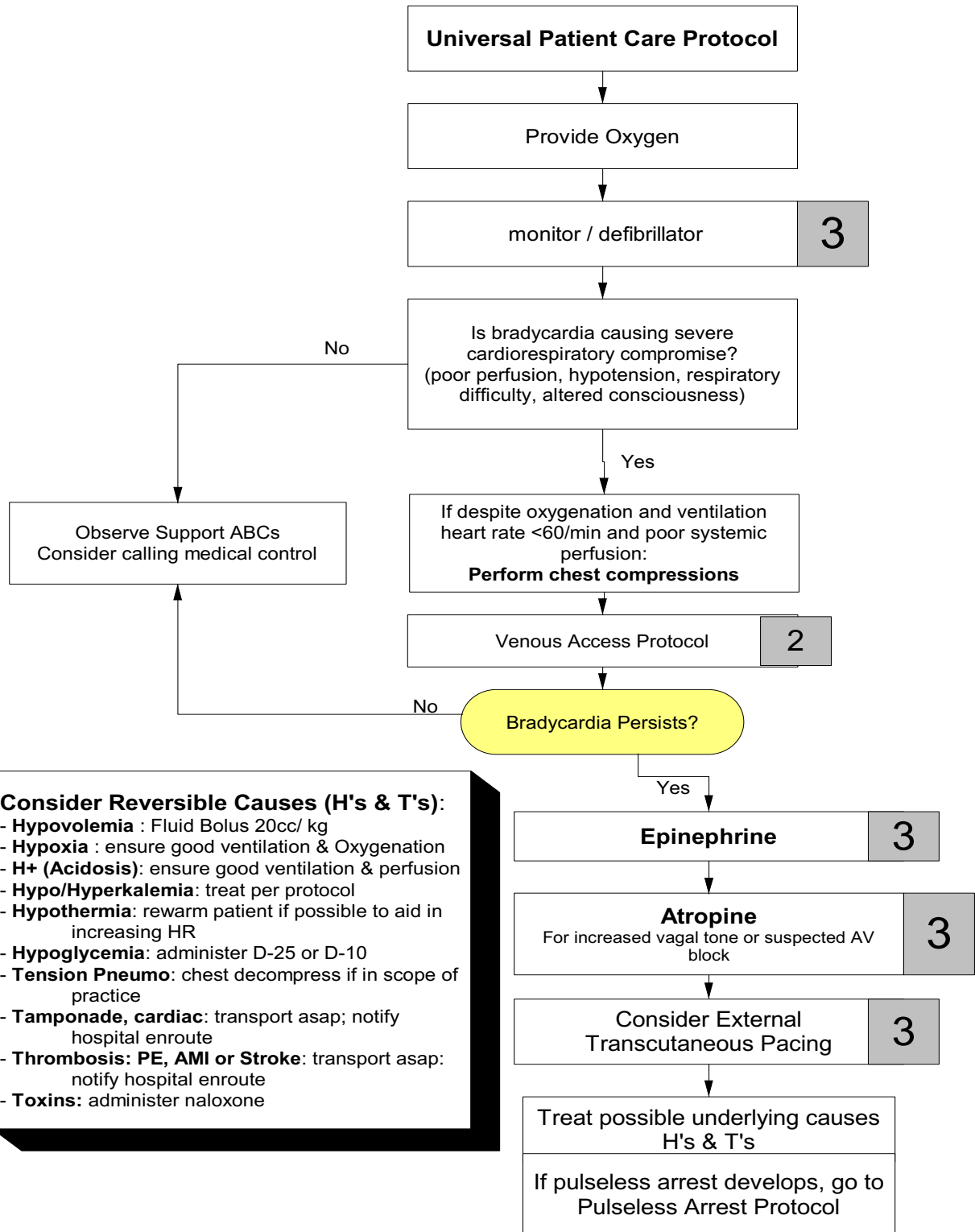
<p>History:</p> <ul style="list-style-type: none"> • Past medical history • Foreign body airway obstruction • Respiratory distress or apnea • Possible toxic or poison exposure • Congenital disease • Medication (maternal or infant) 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Decrease heart rate • Delayed capillary refill or cyanosis • Hypotension or arrest • Altered level of consciousness • Respiratory distress or apnea 	<p>Differential:</p> <ul style="list-style-type: none"> • Respiratory Drive • Respiratory Obstruction <ul style="list-style-type: none"> ○ Foreign body airway obstruction ○ Secretions ○ Croup ○ Epiglottitis • 6 Hs, 5 Ts <ul style="list-style-type: none"> ○ Hypovolemia ○ Hypoxia ○ Hydrogen ion (acidosis) ○ Hypo/Hyperkalemia ○ Hypoglycemia ○ Hypothermia ○ Toxins ○ Tamponade (cardiac) ○ Tension Pneumothorax ○ Thrombosis (coronary or pulmonary)
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Focused Exam: General impression (PAT), ABCDEs, 12 lead monitoring

Dosage Help:

- **Atropine** (bradycardia with pulse):
 - 0.02 mg/kg IV/IO, may repeat once.
Minimum 0.1 mg per dose. Less may cause paradoxical bradycardia.
Maximum child: 0.5 mg single dose, 1 mg total
Maximum adolescent: 0.5 mg single dose, 3 mg total
- **Epinephrine:**
 - 0.01 mg/kg epinephrine (0.1 ml/kg of 1:10,000) IV/IO (max 1 mg) every 3-5 min
- **Lorazepam (Ativan):** (Anxiety/Sedation)
 - **Pediatric:** 0.05 mg/kg IV/IO/IM, max 2 mg/dose.
- **Midazolam (Versed)** (for sedation):
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. Dose may be repeated x 1 after 5 minutes

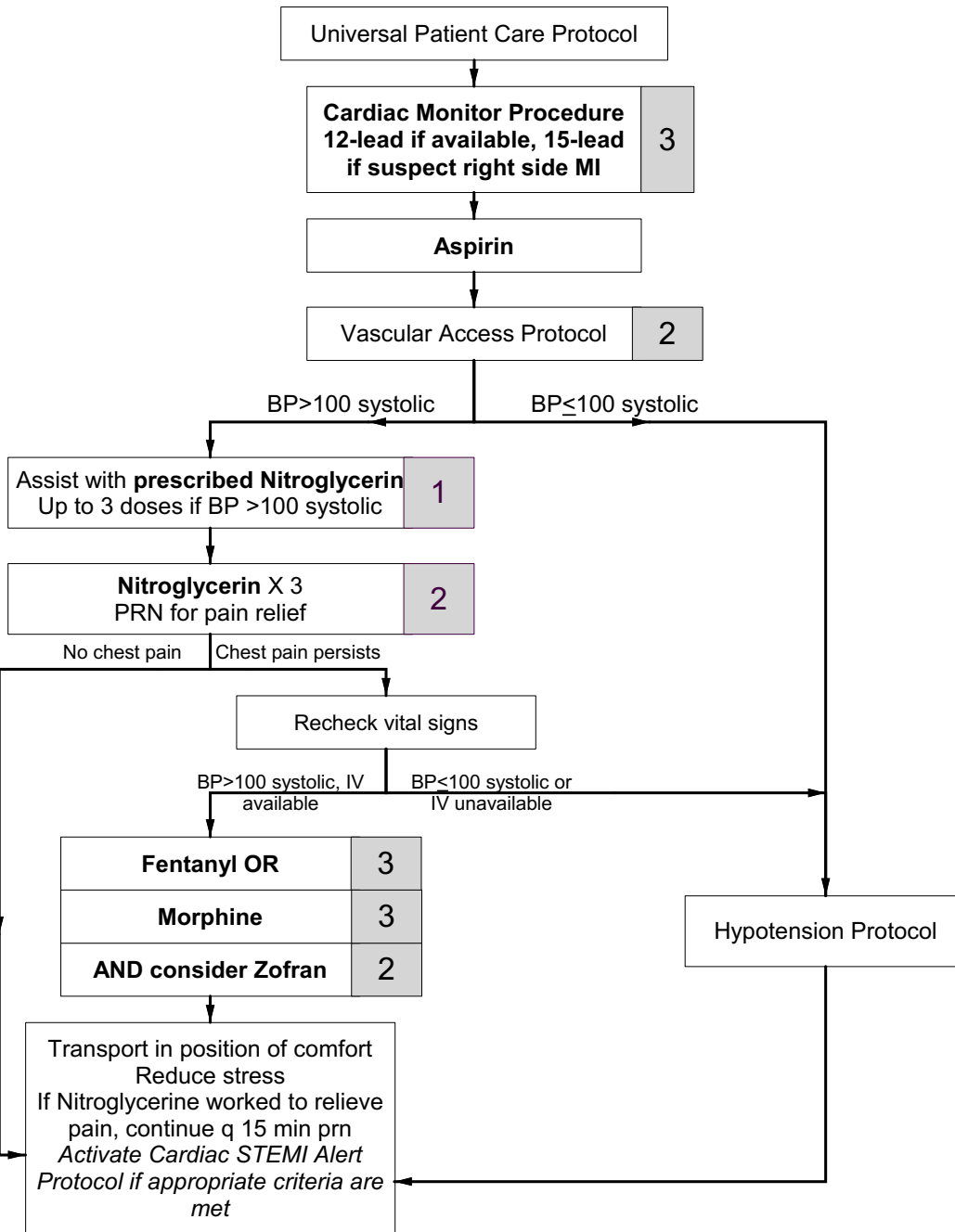
Cardiac: Bradycardia-Pediatric



Cardiac: Chest Pain

<p>History:</p> <ul style="list-style-type: none"> • Age • OPQRST • SAMPLE • Viagra, Cialis, Levitra, Revatio • Past Medical History (MI, Angina, Diabetes) • Allergies (Morphine, Lidocaine) 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Age • OPQRST • SAMPLE • Viagra, Cialis, Levitra, Revatio • Past Medical History (MI, Angina, Diabetes) • Allergies (Morphine, Lidocaine) 	<p>Differential:</p> <ul style="list-style-type: none"> • Age • OPQRST • SAMPLE • Viagra, Cialis, Levitra, Revatio • Past Medical History (MI, Angina, Diabetes) • Allergies (Morphine, Lidocaine)
<p>Focused Exam: Mental status, skin, vital signs, JVD, lungs, heart, abdomen, neurological, Fibrinolytic Checklist (see appendix), ECG/12-lead if available, 15-lead if right heart MI or failure a possibility. In NSTEMI, with chest pain, always consider a 15-lead to rule out right heart or posterior MI.</p>		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • Aspirin: <ul style="list-style-type: none"> • Adult: 324 mg (4 baby aspirin) PO • Nitroglycerin: <ul style="list-style-type: none"> • Adult: 0.4 mg SL every 3-5 minutes PRN. If 3 doses ineffective, give morphine OR Fentanyl (Fentanyl is preferred) • Fentanyl (Sublimaze): <ul style="list-style-type: none"> ○ Adult: 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires Med Control Contact. ○ <i>Alternative:</i> 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO-repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)Additional dosing requires MED Control approval. • Morphine: <ul style="list-style-type: none"> ○ Adult: Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. CONTACT Med Control for cumulative dose >10 mg. ○ • Ondansetron (Zofran) <ul style="list-style-type: none"> • Adult: <ul style="list-style-type: none"> ○ 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds • 8 mg ODT, single dose • Oxygen: <ul style="list-style-type: none"> • Titrate Oxygen to maintain SpO2 of 94-99%. However, DO NOT withhold if patient experiences continued respiratory distress with SpO2 of 94-99%. 		

Cardiac: Chest Pain



Notes:

- For cardiac pain, remember, “MONA greets all patients.” Morphine, Oxygen, Nitroglycerin, Aspirin, however, monitor vitals - the triad of hypotension, dry lungs and JVD with chest pain suggests right heart failure. Perfusion in these patients depends on adequate filling of the heart. Use nitroglycerin & morphine with caution, fluid boluses may be needed to maintain blood pressure in these patients.
- **Fentanyl is preferred for cardiac related chest pain over morphine, if available.**
- Diabetics, women and geriatric patients with MI often have atypical pain, or only generalized complaints.
- Nitroglycerine is contraindicated in patients taking medication for erectile dysfunction or pulmonary hypertension (Revatio) (phosphodiesterase inhibitors, e.g.: Viagra or Revatio (within 24 hrs), Cialis (within 48 hours) Levitra (within 36 hrs).
- Monitor for hypotension after administration of nitroglycerin and morphine. Administer fluid bolus if hypotension develops.

Cardiac: LVAD Patient

History:

- Age
- OPQRST
- SAMPLE
- Past Medical – When was LVAD placed?

Signs/Symptoms:

- If patient assessment per LVAD algorithm shows LVAD is functioning correctly and patient is stable, treat according to patient complaint, history, and physical findings as per other EMS protocols.

Differential:

- Consider other medical or traumatic etiologies.

Focused Exam: Mental status, skin, vital signs, JVD, lungs, heart, abdomen, neurological, Fibrinolytic Checklist (see appendix), ECG/12-lead if available, 15-lead if right heart MI or failure a possibility.

Notes:

******BE AWARE THAT CPR IN LVAD PATIENTS CAN DISLODGE THE DEVICE AND CAUSE DEATH. USE BEST JUDGEEMENT WITH ACLS PROTOCOLS IF PATIENT IS IN CARDIAC ARREST.**

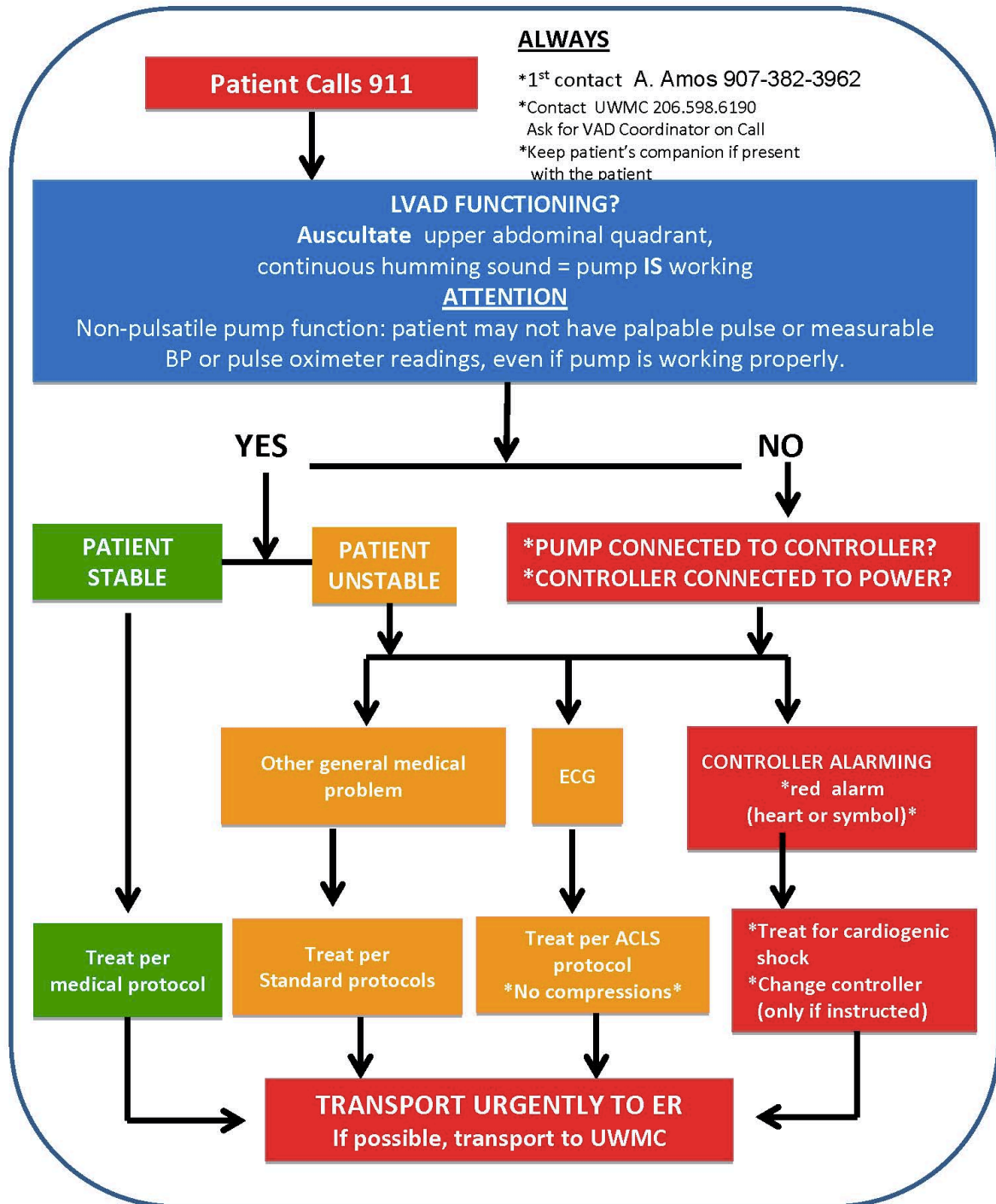
**12 lead may be helpful in giving an accurate heart rate.

Acute Complications of LVAD Failure:

- Hypovolemia
 - LVADs are preload dependent and afterload sensitive.
- Hemorrhage
- Ischemic Stroke
- Infection/Sepsis
- Pump Thrombus
 - Can be located in multiple areas of pump and will affect pump parameters based on location of thrombus
- RV Failure
 - Typically immediately post-operative
 - Management: careful volume management & inotropes
 - Primary myocardial dysfunction
 - Cardiac tamponade
 - Tricuspid regurgitation
 - Ventricular arrhythmias
 - Pulmonary hypertension
 - Pulmonary embolism
 - LVAD pump speed too high
- Causes of LV Failure
 - Pump thrombosis
 - Cannula obstruction
 - Motor failure
 - Aortic insufficiency
 - Anemia due to GI bleed
 - Bleeding

➤ Refer to www.myLVAD.com for essential resources/EMS field guides.

UW LVAD Patient Assessment



Due to the location of the LVAD and tubing connecting the LVAD to the heart, there may be risks associated with performing external chest compressions (CPR) on LVAD patients during cardiac arrest. CPR may dislodge tubing resulting in fatal bleeding. Decisions on the use of CPR and other treatments rest with the attending physician based on his or her clinical judgment and experience.

Cardiac: Post-Resuscitation-Adult

History:

- Cardiac arrest

Signs/Symptoms:

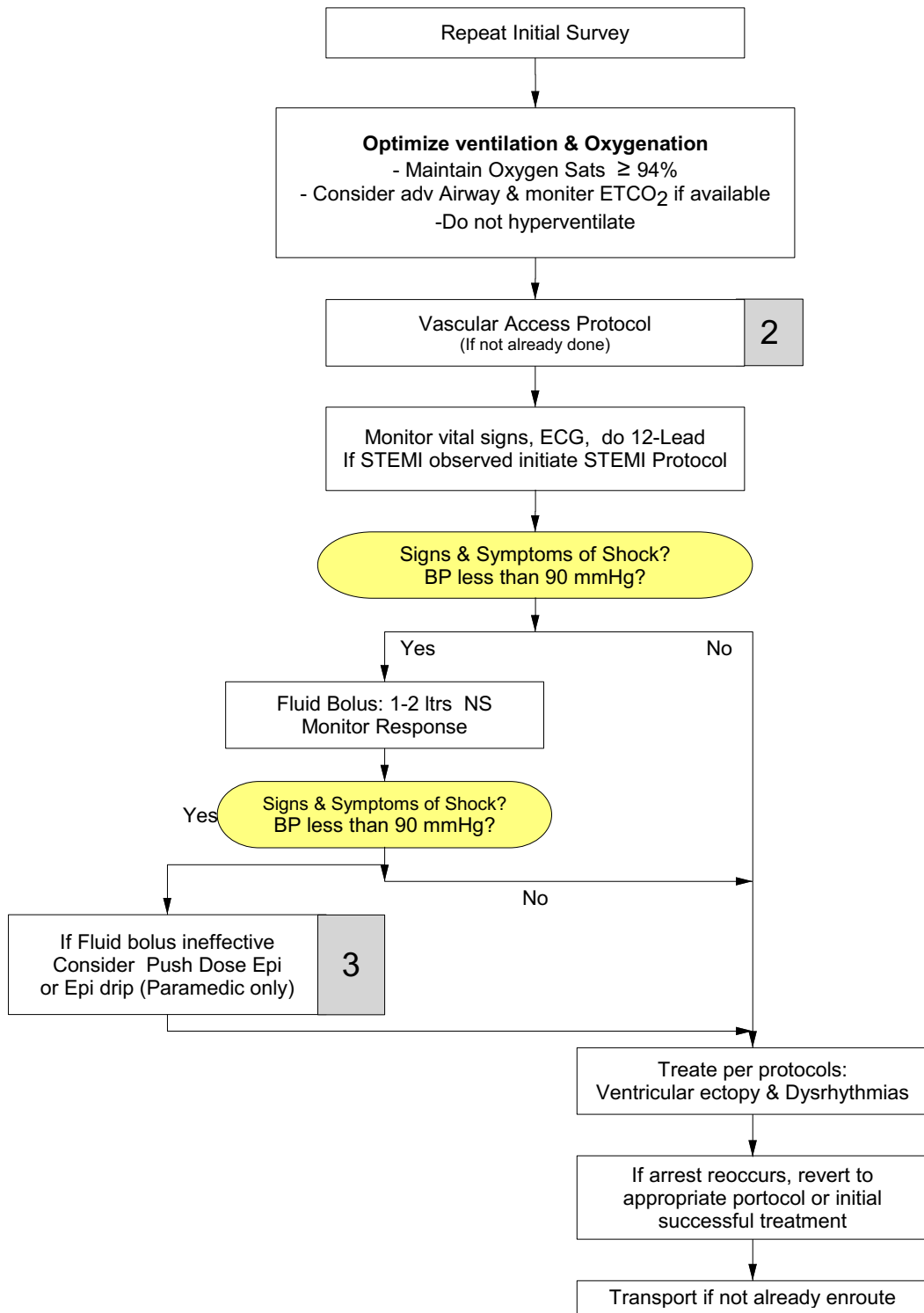
- ROSC (Return of Spontaneous Circulation)
- Significant increase in ETCO² during CPR

Focused Exam: ABCs, vital signs, mental status, lungs, skin, heart

Dosage Help:

- **Amiodarone (Cordarone)**
 - **Adult:**
 - **Recurrent life-threatening ventricular arrhythmias (VF, pulseless or unstable VT) Rapid Infusion:** 150 mg IV over 10 minutes, repeat every 10 minutes PRN. (Mix 150 mg in 100 ml D₅W, run at 10 ml/min)
- **Lidocaine**
 - **Adult:**
 - **IV/IO bolus:** 1-1.5 mg/kg initial dose. Repeat @ 0.5-0.75 mg/kg every 5-10 minutes to maximum 3 mg/kg.
 - Patients over 70 yo or patients with known liver disease:
 - Initial dose 1-1.5 mg/kg IV/IO; repeat doses 0.25-0.375 mg/kg (1/4 of the initial dose)
- **Epinephrine IV Infusion**
 - **Adult:**
 - Continuous infusion titrated to effect: 1 mg in 250 or 500 ml of Normal Saline IV/IO infused at 2 mcg/min until desired BP of > 90 mmHg systolic achieved.
 - **Push dose epi:**
 - Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine
 - Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY
 - Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation.

Cardiac: Post-Resuscitation-Adult



Note: Per Current American Heart Association standards, (ACLS Provider Manual Page 77) " There is no evidence to support continued prophylactic administration of antiarrhythmic medication once the patient achieves ROSC"; even when the rhythm was converted by that antiarrhythmic.

Cardiac: Post-Resuscitation-Pediatric

History:

- Cardiac arrest

Signs/Symptoms:

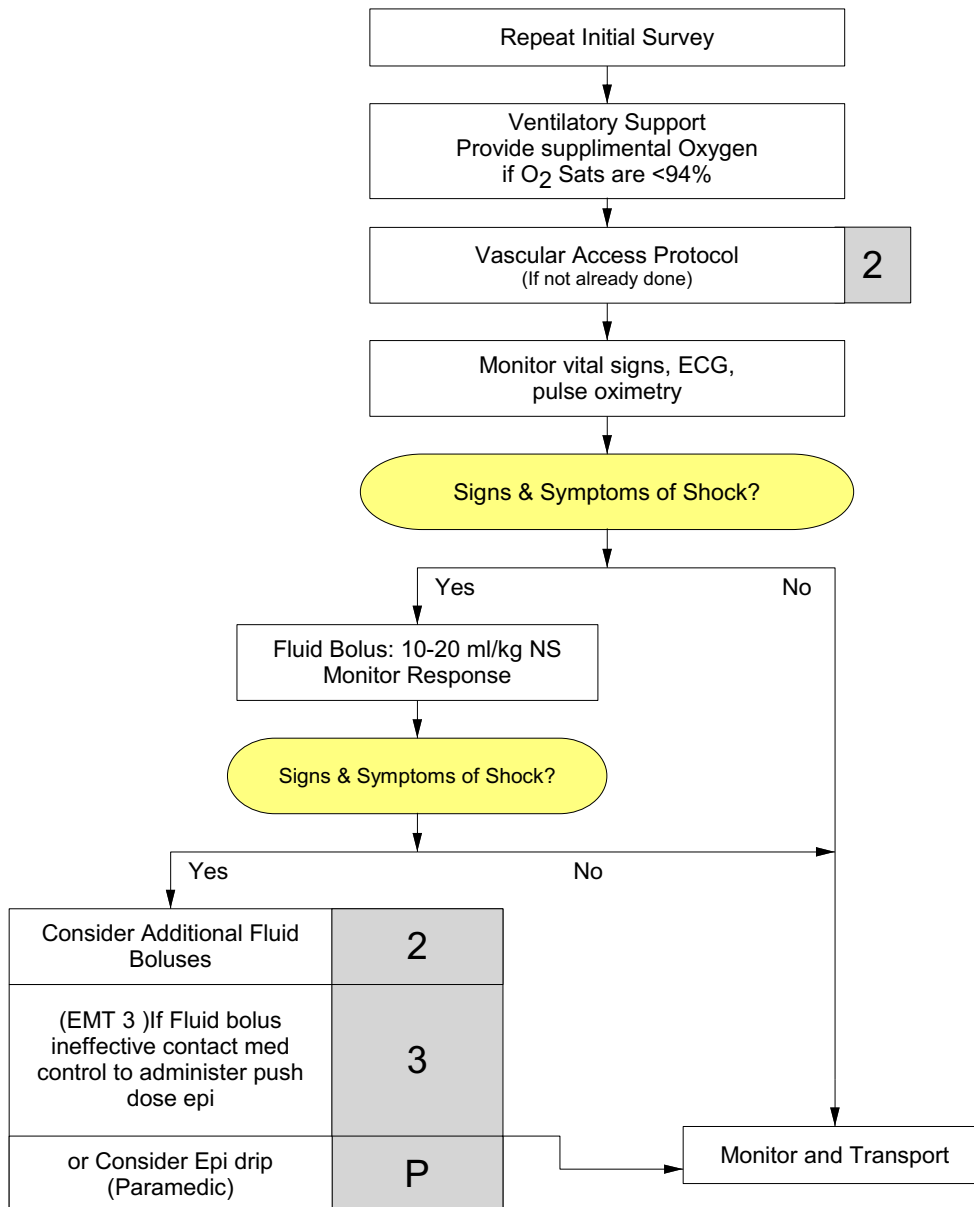
- Return of Spontaneous Circulation (ROSC)

Focused Exam: ABCs, vital signs, mental status, lungs, skin, heart

Dosage Help:

- **Estimating Post-Resuscitation Maintenance Fluid Requirements:**
 - **Infants:** 4 ml/kg/hr. Use D5W if available; otherwise use NS
 - **Children 10-20 kg:** NS 40 ml/hr plus 2 ml/kg/hr for each kg over 10 kg (e.g., for a 15 kg child, 40 ml/hr + (2 ml/hrx5kg) = 50 ml/hr).
 - **Children >20kg:** NS 60 ml/hr plus 1 ml/kg/hr for each kg above 20 kg (e.g. for a 30 kg child, 60 ml/hr + (1 ml/kg/hr x 10 kg) = 70 ml/hr
 - **All infants and children:** Adjust rate to clinical condition (pulse, BP, systemic perfusion).
- **Push dose epi:**
 - Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine
 - Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY
 - Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation.

Cardiac: Post-Resuscitation-Pediatric



Notes:

- If you suspect post arrest myocardial dysfunction, consider administering a smaller fluid bolus (5-10 mL/kg) over 10-20 minutes then reassess

Cardiac: Tachycardia -Adult (EMT-3/AEMT/Paramedic)

History: <ul style="list-style-type: none"> • Medications <ul style="list-style-type: none"> ○ Aminophylline ○ Decongestants ○ Thyroid supplements ○ Digoxin • Diet: Caffeine, chocolate • Drugs: Nicotine, cocaine • Past medical history <ul style="list-style-type: none"> ○ Palpitations, syncope ○ Pacemaker ○ Wolff-Parkinson-White Syndrome • Allergies: lidocaine, novacaine, etc. 	Signs/Symptoms: <ul style="list-style-type: none"> • Heart rate >150 • QRS wide (>0.12 sec) or narrow • Dizziness • Palpitations • Chest Pain • Shortness of breath • Syncope • Altered mental status • Hypotension • Cyanosis • Pulmonary congestion/CHF 	
	Differential: <ul style="list-style-type: none"> • Presenting rhythm <ul style="list-style-type: none"> ○ Sinus tachycardia ○ (Paroxysmal) Supraventricular Tachycardia ○ A-fib, atrial flutter, multifocal atrial tachycardia ○ Ventricular tachycardia • Sick sinus syndrome • Myocardial infarction • Pulmonary embolism • Exertion, pain, emotional stress • Artifact, device failure (lead or pad) 	6 Hs, 5 Ts <ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo/Hyperkalemia • Hypoglycemia • Hypothermia • Toxins • Tamponade (cardiac) • Tension Pneumothorax • Thrombosis (coronary or pulmonary) • Trauma

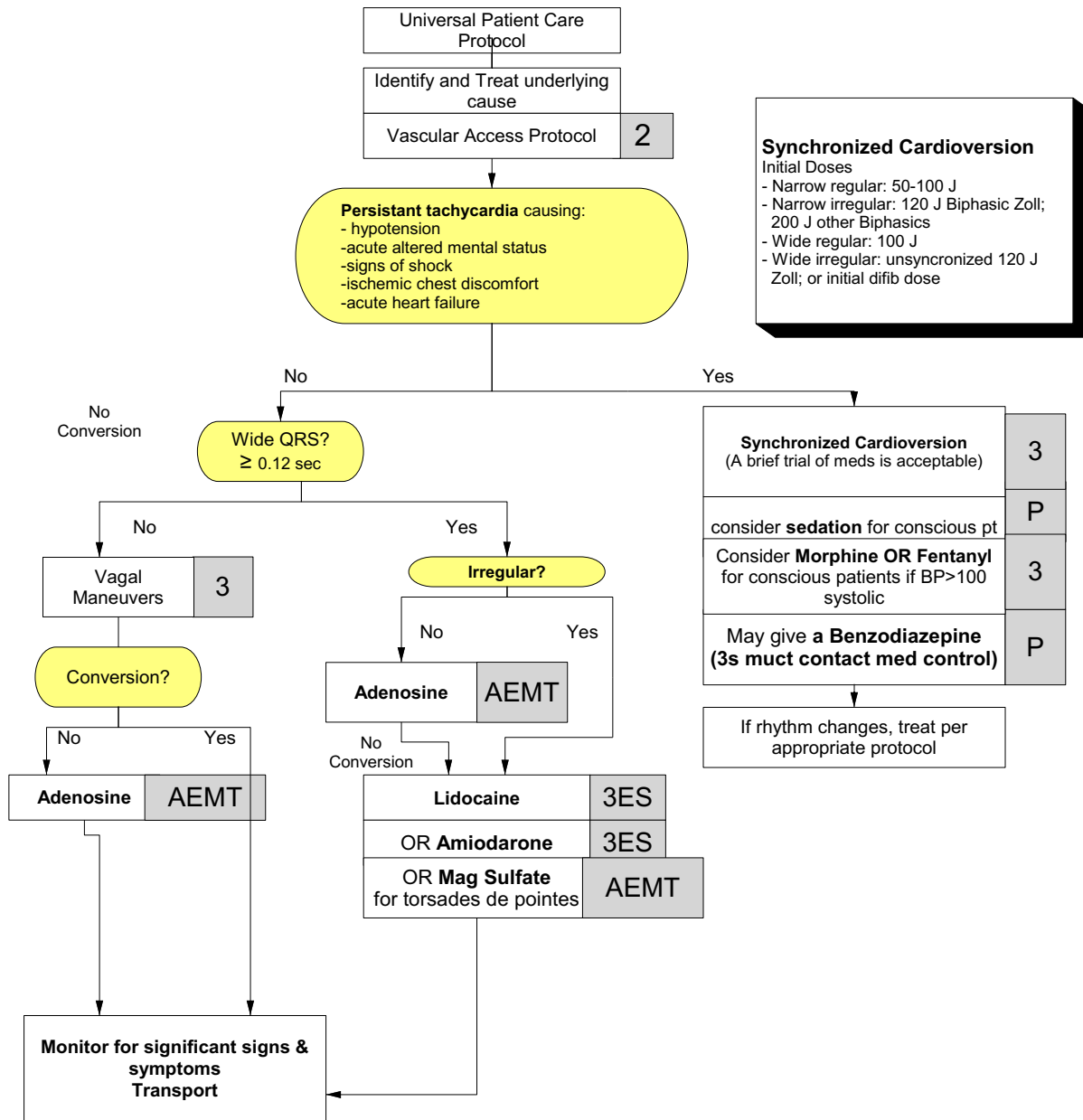
Focused Exam: Vital signs, mental status, JVD, heart, lungs sounds, ECG/12-lead if available

Dosage help:

- **Adenosine Triphosphate (Adenocard)**
 - 6 mg RAPID IV push, followed immediately by a 10-20 ml NS flush; If no response in 1-2 minutes, give 12 mg rapid IV push followed by a 10-20 ml NS flush.
- **Amiodarone (Cordarone):**
Recurrent life-threatening ventricular arrhythmias (VF, pulseless or unstable VT)
 - Rapid Infusion: 150 mg IV over 10 minutes, repeat every 10 minutes PRN. (Mix 150 mg in 100 ml D₅W, run at 10 ml/min)
- **Lidocaine:**
 - **IV/IO bolus:** 1-1.5 mg/kg. Repeat @ 0.5-0.75 mg/kg IV/IO every 5-10 minutes to maximum 3 mg/kg.
 - **Patients over 70 yo or patients with known liver disease:**
 - Initial 1-1.5 mg/kg IV/IO; repeat doses 0.25-0.375 mg/kg (1/4 of the initial dose).
- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - Alternative; 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly) Additional dosing requires **MED Control** approval.
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
- **Synchronized Cardioversion:**
 - Narrow/regular: 50-100 j
 - Narrow/irregular: 120-200 j biphasic or 200 j monophasic
 - Wide regular: 100 j
 - Increase stepwise if cardioversion does not occur with initial shock
- **Lorazepam (Ativan):** (Anxiety/Sedation/Muscle Relaxation)
 - **Adult:** 0.5-1 mg IV/IO/IM/IN every 15-30 minutes, max 4.0 mg, **Contact Medical Control** to exceed 4 mg.
- **Midazolam (Versed)** (for sedation):
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred) if no IV in place. Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses
- **Ondansetron (Zofran)**
 - **Adult: single dose:** 8 mg IV/IO/IM, infuse IV dose over minimum 30 seconds; 8 mg ODT

Cardiac: Tachycardia -Adult

(EMT-3/AEMT/Paramedic)



Notes:

- Treat pulseless V-tach like V-fib.
- Vagal maneuvers and adenosine may reveal atrial fib/flutter. Print a rhythm strip during these interventions.
- Adenosine may cause ventricular fibrillation when given to Wolff-Parkinson-White patients in atrial fibrillation. For known WPW patients, cardioversion may be a safer option.
- Document rhythm changes and print rhythm strips with each intervention.

Cardiac: Tachycardia- Pediatric

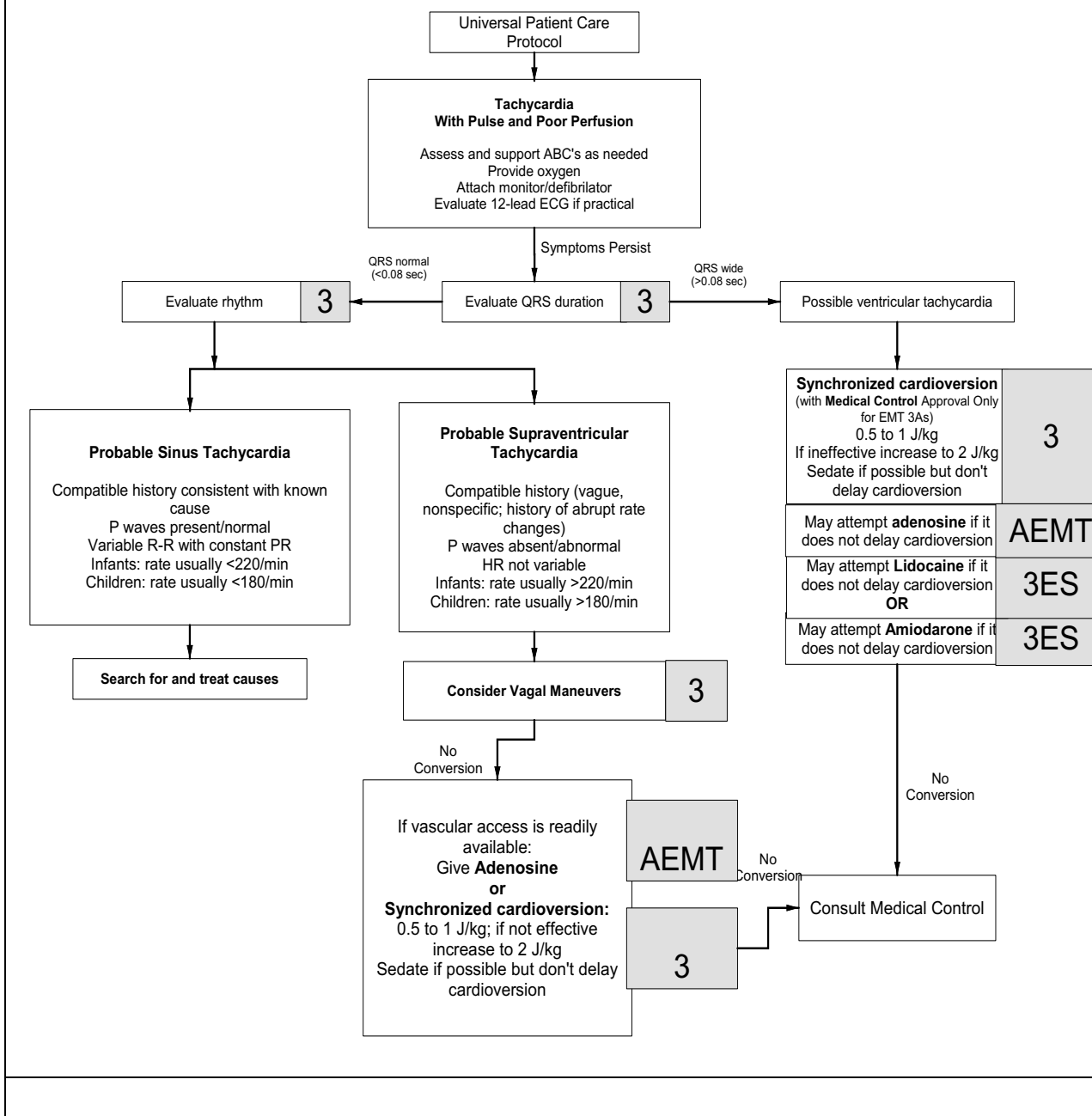
History:	Signs/Symptoms:	Differential
<ul style="list-style-type: none"> • Past medical history • Medications or Toxic Ingestion • (Aminophylline, Diet Pills, Thyroid supplements, Decongestants, Digoxin) • Drugs (nicotine, cocaine) • Congenital Heart Disease • Respiratory Distress • Syncope or Near Syncope 	<ul style="list-style-type: none"> • Heart Rate: Child > 180 bpm, Infant > 220 bpm • Pale or cyanotic • Diaphoresis • Tachypnea • Vomiting • Hypotension • Altered Level of Consciousness • Pulmonary congestion • Syncope 	<ul style="list-style-type: none"> • Heart disease (congenital) • Hypo/Hyperthermia • Hypovolemia or Anemia • Electrolyte imbalance • Anxiety/ Pain/ Emotional stress • Fever/ Infection/ Sepsis • Hypoxia • Hypoglycemia • Medication/ Toxin/ Drugs • Pulmonary embolus • Trauma • Tension Pneumothorax

Focused Exam: General impression (PAT), ABCDEs,

Dosage help:

- **Adenosine (Adenocard):**
 - 0.1 mg/kg IV (maximum first dose 6 mg)
May give second dose of 0.2 mg/kg IV (maximum second dose 12 mg)
- **Amiodarone (Cordarone):** (for SVT, V-tach with a pulse)
 - 5mg/kg IV over 20-30 minutes, max 300mg/dose
- **Lidocaine:**
 - **IV/IO bolus:** 1 mg/kg. (max 100 mg/dose). Repeat @ 0.5 mg/kg IV/IO every 5-10 minutes to maximum 3 mg/kg
- **Fentanyl (Sublimaze):**
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg**IN route** requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical**
- **Morphine:**
 - 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg
- **Synchronized Cardioversion:**
- 0.5-1.0 joules/kg; may increase to 2 j/kg if initial dose fails. Sedate if possible, but do not delay cardioversion **Lorazepam (Ativan):** (Anxiety/Sedation/Muscle Relaxation)
 - **Pediatric :** 0.05mg/kg, max 2 mg.
- **Midazolam (Versed)** (for sedation/restraint):
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.
- **Ondansetron (Zofran)**
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Cardiac: Tachycardia- Pediatric



Cardiac: Ventricular Ectopy-Adult

History:

- Medications
 - Aminophylline
 - Decongestants
 - Thyroid supplements
 - Digoxin
 - Tricyclic antidepressants
- Diet: Caffeine, chocolate
- Drugs: Nicotine, cocaine
- Allergies: lidocaine, novacaine, etc.
- Past medical history
 - Palpitations
 - Syncope

Signs/Symptoms:

- Palpitations
- Syncope
- Hypotension
- Chest pain
- Shortness of breath
- Ventricular tachycardia
- Bigeminy, trigeminy, etc.
- Runs of two or more PVCs in a row
- Multifocal PVCs
- PVCs greater than 6 per minute
- R-on-T

Differential:

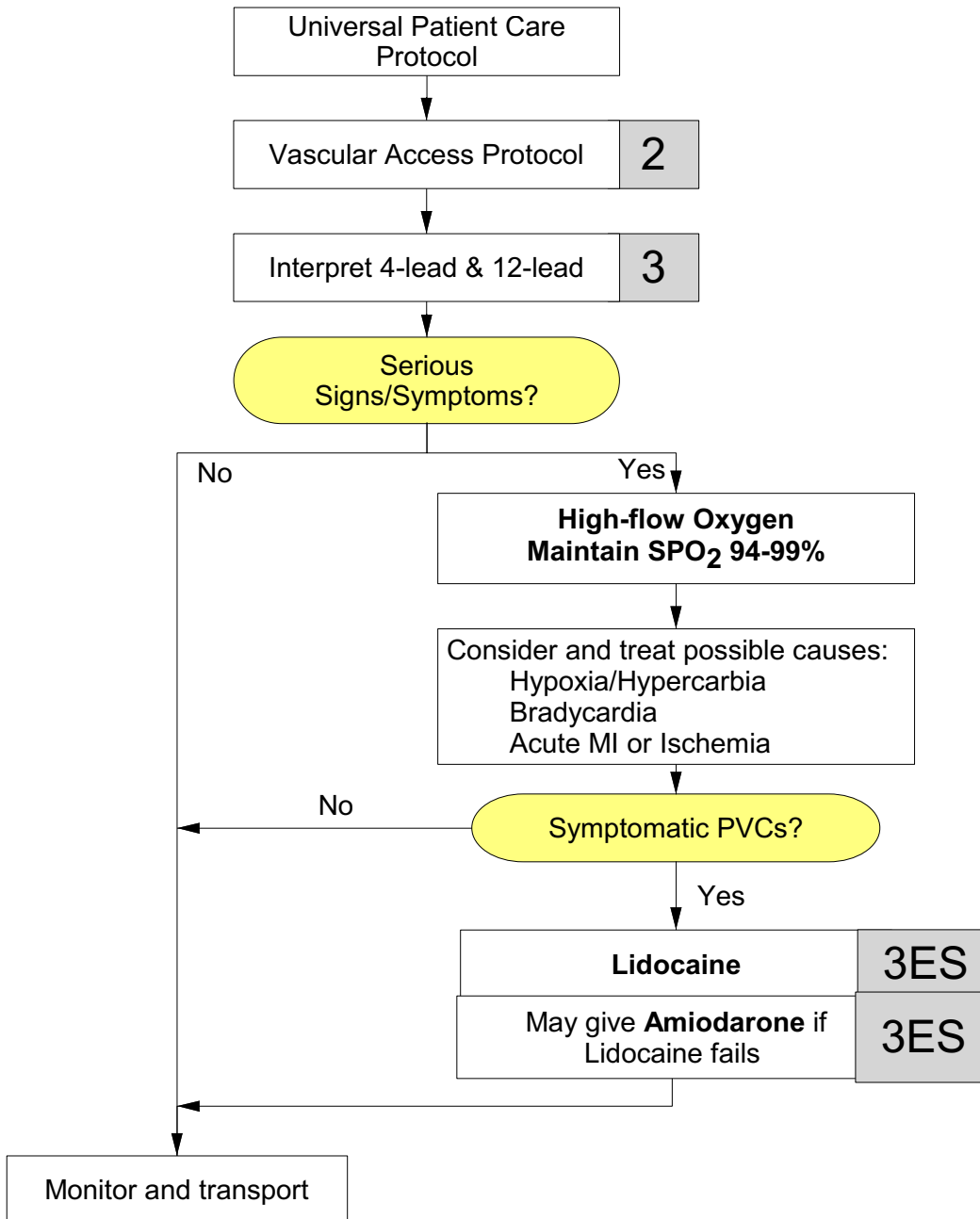
- Cardiac
 - Bradycardia/AV block
 - Myocardial infarction
 - Atrial fibrillation
 - CHF
 - Digoxin toxicity
- Pulmonary
 - Hypoxia
 - COPD
 - Pulmonary embolism
 - Thyroid
 - Diabetes
 - Hypokalemia, hyperkalemia
 - Hypomagnesia
- Drugs (see History)
- Anxiety, stress

Focused Exam: Vital signs, mental status, JVD, heart, lung sounds, ECG/12-lead if available.

Dosage help:

- **Amiodarone (Cordarone):**
 - **Adult - Life-threatening ventricular arrhythmias**
 - Rapid Infusion: 150 mg IV over 10 minutes, repeat every 10 minutes PRN. (Mix 150 mg in 100 ml D₅W, run at 10 ml/min)
- **Lidocaine:**
 - **Adult:**
 - **IV/IO bolus:** 1-1.5 mg/kg. Repeat @ 0.5-0.75 mg/kg IV/IO every 5-10 minutes to maximum 3 mg/kg.
 - **Patients over 70 yo or patients with known liver disease:**
 - Initial 1-1.5 mg/kg IV/IO; repeat doses 0.25-0.375 mg/kg (1/4 of the initial dose).

Cardiac: Ventricular Ectopy-Adult



Notes:

- Serious signs and symptoms include chest pain, respiratory distress, syncope, hypotension and/or any of the following: Ventricular tachycardia; bigeminy, trigeminy, etc.; runs of two or more PVCs in a row; multifocal PVCs; PVCs greater than 6 per minute; R-on-T.
- If patient is not unstable or showing serious signs and symptoms that can be attributed to the ectopy, do no treat.
- Given PVCs with bradycardia and/or AV block, treat the rate first. An antiarrhythmic like Lidocaine or Amiodarone are contraindicated in the presence of second- and third-degree AV block. They may worsen bradycardia and cause asystole and death.
- In absence of signs of ischemic heart disease (e.g. angina) or circulatory compromise (e.g. light-headedness or syncope), PVCs seldom require emergency treatment.

Dental Problems

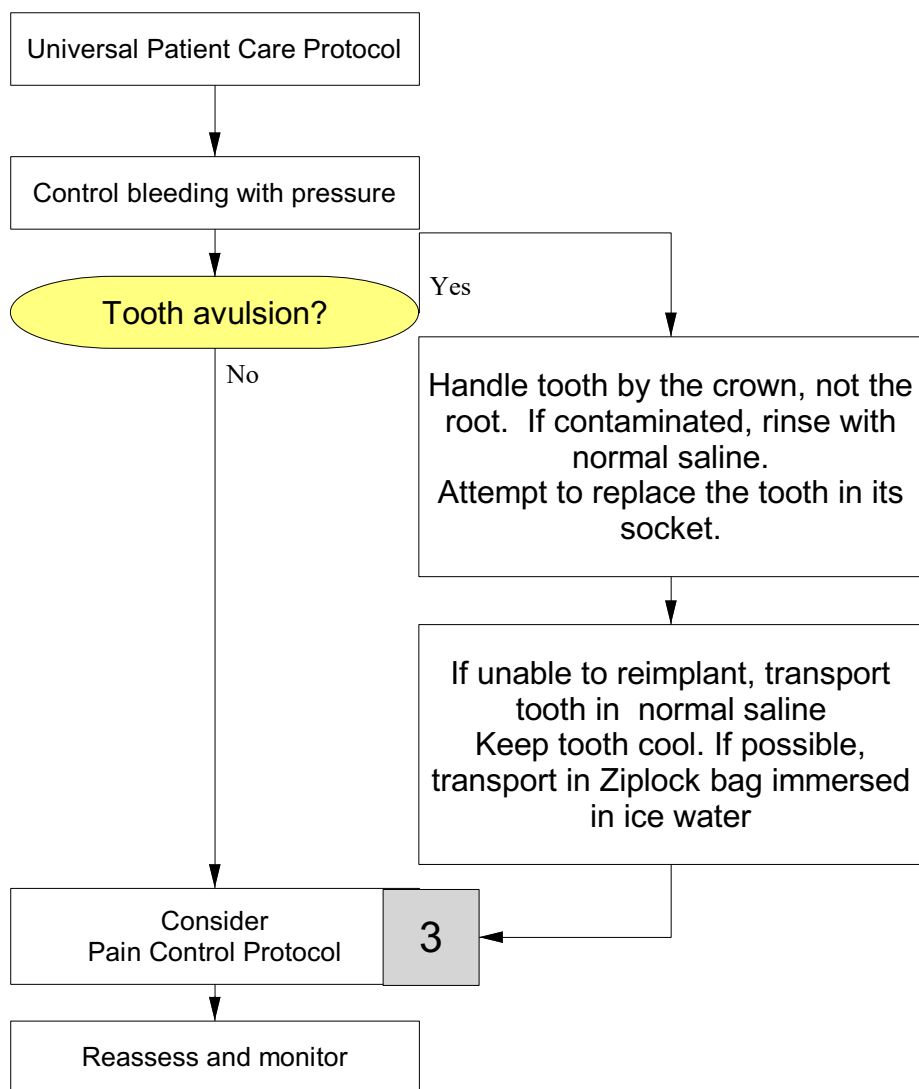
History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • Age • Onset of pain/injury • Trauma with “knocked out tooth” • Location of tooth • Whole vs. partial tooth injury • SAMPLE 	<ul style="list-style-type: none"> • Bleeding • Pain • Fever • Swelling • Tooth missing or fractured 	<ul style="list-style-type: none"> • Avulsion: Tooth “knocked out” • Abscess • Decay • Facial cellulites (infection in dermis and subcutaneous tissue) • Fracture: broken tooth • Impacted tooth (wisdom) • Infection • Myocardial infarction • TMJ syndrome

Focused Exam: Airway, facial/oral swelling, bite, missing/broken teeth

Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg
 - IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical Control**
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatrics:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV//IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Dental Problems



Notes:

- Assure open airway in cases of facial trauma. Avulsed teeth may be aspirated.
- Minimize scene and transport times for complete tooth avulsions. Re-implantation is possible within 4 hours if the tooth is properly cared for.
- Tooth pain is generally associated with a particular tooth that is tender to tapping, touch, heat or cold.
- Significant soft tissue swelling to the face or oral cavity may indicate cellulitis or abscess; voice changes, trismus (inability to open mouth) and difficulty swallowing are signs/symptoms of potential airway compromise.
- Tooth disorders often require antibiotic treatment in addition to pain control.
- Cardiac chest pain sometimes radiates to the jaw.

Epistaxis (Nosebleed)

History:

- Age
- Past medical history
- Medications (HTN, anticoagulants)
- Previous episodes of epistaxis
- Trauma, recent surgery
- Duration of bleeding
- Quantity of bleeding

Signs/Symptoms:

- Bleeding from nasal passage
- Pain
- Nausea
- Vomiting
- Bleeding into posterior pharynx

Differential:

- Trauma
- Infection (viral URI or sinusitis)
- Allergic rhinitis
- Lesions (polyps, ulcers)
- Hypertension

Focused Exam: Nares, mouth, pharynx, active bleeding, vomiting

Dosage Help:

- **Fluid Resuscitation:**

- For adults, fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding cumulative max of 3 liters

Epistaxis (Nosebleed)

Universal Patient Care Protocol



Compress nostrils (10 minutes)
Tilt head forward



Consider
Hypotension Protocol
or Hypertension Protocol



If bleeding not controlled:
Compress nostrils with clamp or
fingers, pinching over fleshy part
of nose, not bony nasal bridge.

1



Transport in position of
comfort, usually sitting
upright
Reassess



IV access and IV fluid
bolus if signs of
hypoperfusion or shock

Notes:

- Tilting the head forward reduces the drainage of blood into the pharynx where it may be swallowed and cause nausea.
- It is very difficult to quantify the amount of blood loss with epistaxis.
- Most nosebleeds are anterior, arising in the nasal septum. Pinching the nostrils applies pressure to the site.
- Bleeding may also occur posteriorly. Evaluate for posterior blood loss by examining the posterior pharynx. Posterior nosebleeds may be asymptomatic or present as nausea, hematemesis, hemoptysis or melena.
- Anticoagulants include aspirin, Coumadin (Wafarin), non-steroidal anti-inflammatory medications (ibuprofen) and many over-the-counter headache relief powders.

Frostbite

History:

- Air temperature, wind, weather
- Length and circumstances of exposure
- Alcohol ingestion
- Other injuries or illness
- Date of last tetanus immunization

Signs/Symptoms:

- Firm or hard, gray or white tissue
- Numbness, tingling, pain
- Body temperature
- Shivering, slurred speech, altered LOC, loss of coordination

Differential:

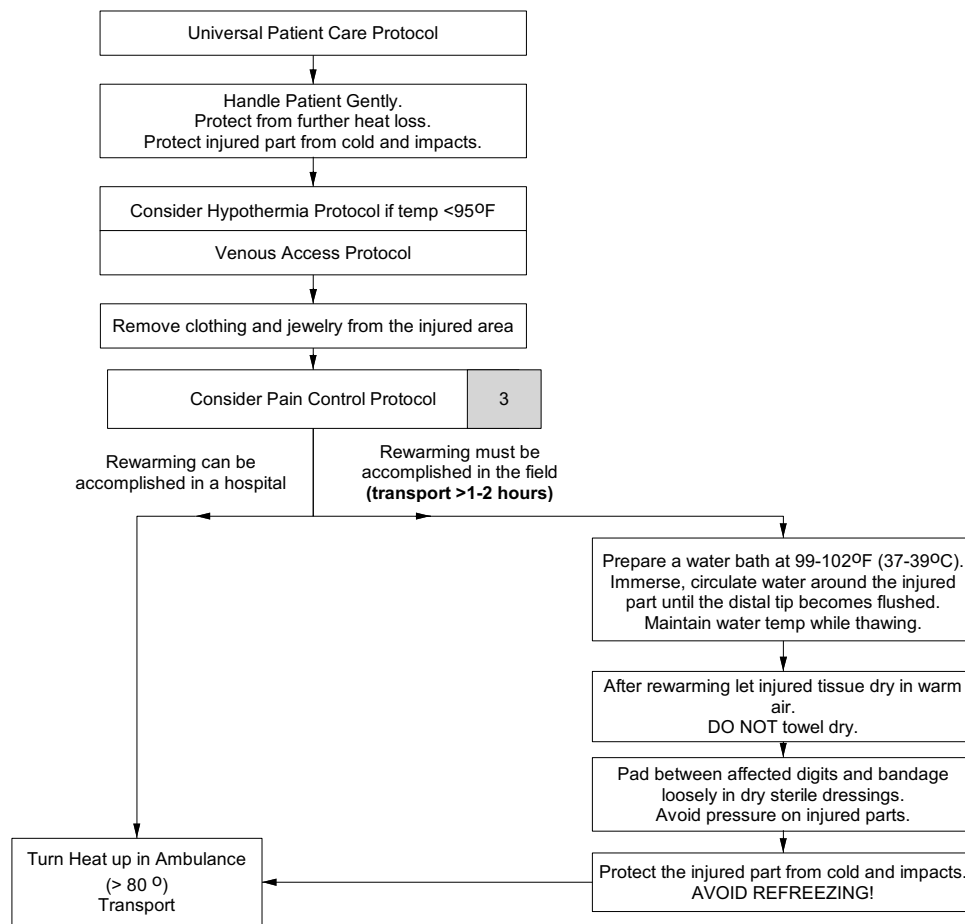
- Superficial frostbite: The skin feels firm but not hard.
- Deep frostbite: The skin feels hard and cold; affected tissue is white or gray. A pulse cannot be felt in deeply frostbitten tissue.
- Chilblains (skin lesions/blisters)
- Dehydration
- Hypothermia

Focused Exam: Mental status, skin, temperature, face, ears, extremities, peripheral pulses, neurological

Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
 - IV/IO/IN route:** 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg
 - **Pediatric < 1 year: Contact Medical Control**
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.

Frostbite



Notes:

- Careful handling of frostbitten tissues is the highest priority before, during and after thawing.
- Do not rub frozen parts or apply ice or snow. Do not allow the patient to use alcohol or tobacco.
- Prevent hypothermia, refreezing or additional frostbite.
- When transporting by helicopter, protect patient from wind chill due to rotor wash. If possible, shut down the helicopter for loading.
- Large blisters indicate that deep frostbite has thawed. Do not break blisters.
- Do not allow the patient to walk on frostbitten feet except when the lives of patient or rescuers are in danger.
- If there is frostbite distal to a fracture, realign the limb unless there is resistance. Splint in a manner that does not compromise distal circulation. Take care not to injure frostbitten tissues.
- Build a frame to prevent blankets from pressing directly on thawed tissue.
- Thawing in the field is seldom worth the risk if transport will take less than 1-2 hours.
- Do not thaw frozen parts in cold water or in high temperatures produced by stoves, exhaust, etc.
- Tissue that is thawed and refrozen almost always dies. Thawing commits the provider to maintaining warm water baths at constant temperature and protecting against further injury.
- Thawed extremities should not be used for ambulation.

Hyperkalemia

History:

- Missed Dialysis
- Related diseases: diabetes, renal failure, cardiac

Signs/Symptoms:

- Hypotensive
- Muscle fatigue
- Nausea
- Weakness
- Tall peaked T waves in multiple leads early signs of hyperkalemia

Differential:

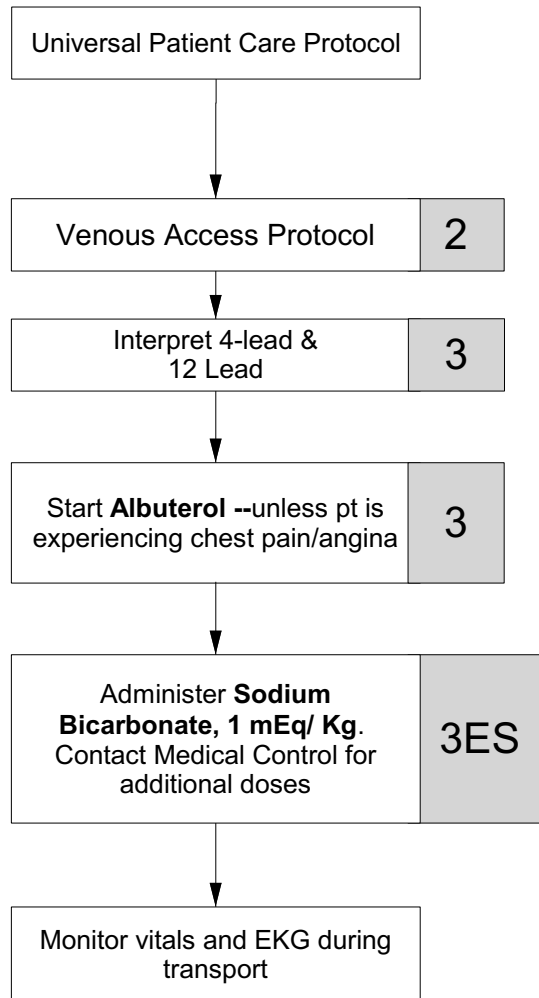
- Primary Cardiac arrhythmia

Focused Exam: Vital signs, mental status, skin, neck, lung, heart, abdomen, back, extremities, neurological

Dosage Help:

- **Albuterol:**
 - **Age 1 and up:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - Alternative: Continuous Neb dose:
 - **Adults:** In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) 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
- **Sodium Bicarbonate:**
 - **Adult: IV/IO:** 1 mEq/kg IV, repeat at 0.5 mEq/kg every 10 minutes

Hyperkalemia



Notes:

Severe elevations of potassium cause progressive derangement of cardiac conduction. This eventually leads to VTach or VFib, often preceded by a sinusoidal ECG pattern.

The prehospital provider will rarely have sufficient information to make this diagnosis since it generally requires lab confirmation. It should be strongly suspected in a dialysis-dependent renal failure patient who demonstrates a sinusoidal cardiac rhythm, suffers cardiac arrest after missing a dialysis session, or is otherwise known to be hyperkalemic. Tall, peaked T waves in multiple leads are also suggestive, and often diagnostic.

Hypertensive Crisis

History:

- Documented hypertension
- Related diseases: diabetes, CVA, renal failure, cardiac
- Medications (compliant?)
- Viagra, Levitra, Cialis, Revatio
- Pregnancy
- Drug use: phenylpropanolamine and related drugs (found in over-the-counter decongestants and diet aids), amphetamines, cocaine

Signs/Symptoms:

- Diastolic BP>120, Systolic BP>220
- Retinal hemorrhages
- Headache, dizziness, blurred vision, tinnitus, slow tremors (insidious onset of headache, often occipital and worse in the morning)
- Nosebleed
- Confusion, coma
- Seizures, vomiting
- Paresthesia, weakness
- Associated signs/symptoms:
 - Pulmonary edema
 - JVD
 - Unstable angina/MI
 - Peripheral edema
 - Neurological signs
 - Chest pain
 - Dyspnea
 - Abdominal/back pain
 - Stiff neck
 - Unequal peripheral pulses

Differential:

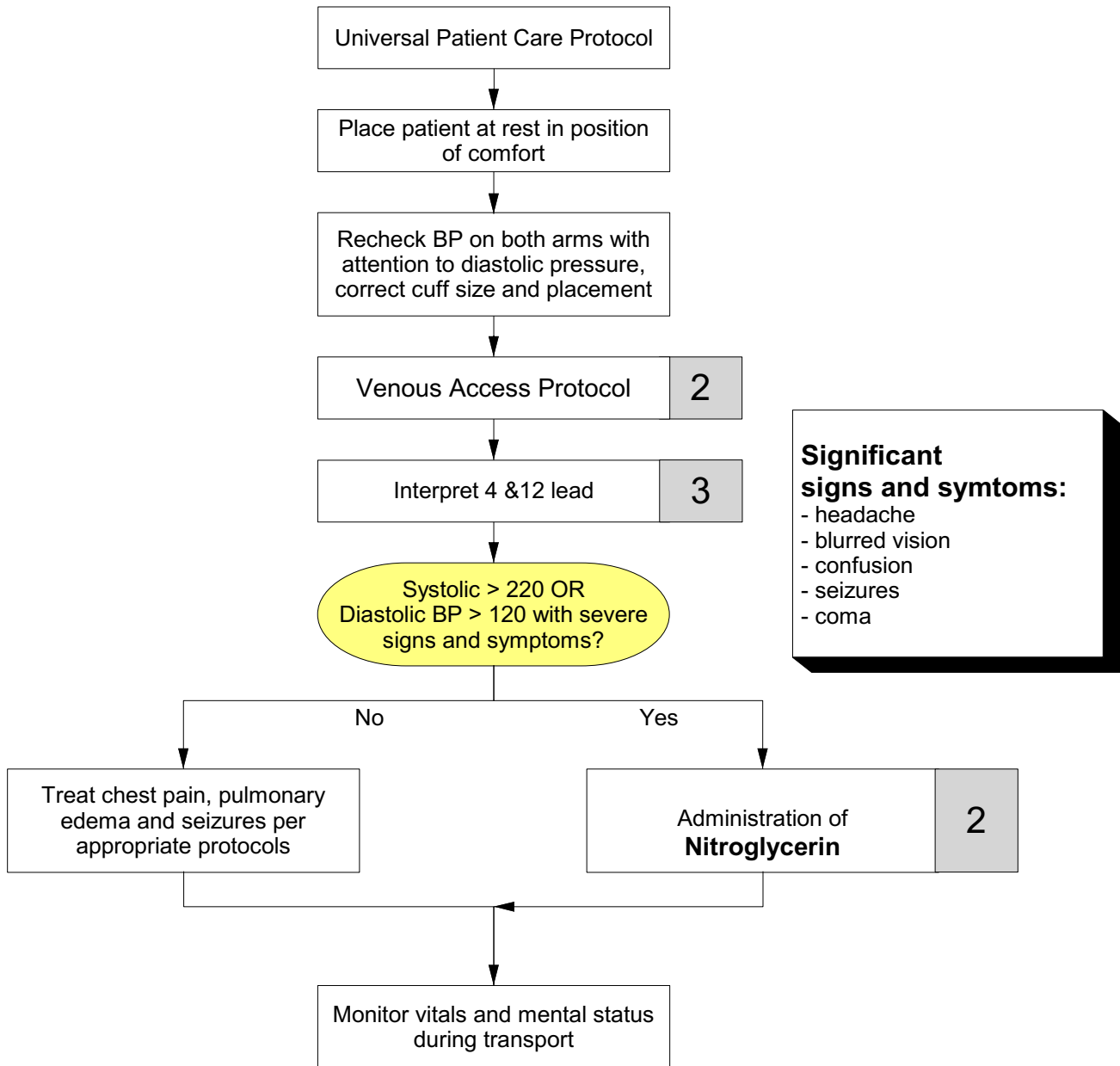
- Hypertensive encephalopathy (headache, decreased LOC, blindness, hemiparesis, hemisensory defects due to cerebral edema)
- Primary CNS injury (Cushing's response – bradycardia, hypertension, abnormal respiratory pattern)
- Myocardial infarction
- Pulmonary edema
- Aortic dissection (aneurysm)
- Pre-eclampsia, eclampsia

Focused Exam: Vital signs, mental status, skin, neck, lung, heart, abdomen, back, extremities, neurological

Dosage Help:

- **Nitroglycerin:**
 - **Adult:** 1.2 mg SL (3 tablets) initial dose, contact Medical Direction for repeat doses .

Hypertensive Crisis



Significant signs and symptoms:

- headache
- blurred vision
- confusion
- seizures
- coma

Notes:

- Do not give nitroglycerin for hypertension alone without medical control approval. Treat chest pain, pulmonary edema and seizures per appropriate protocols.
- Chronic hypertension is typically revealed by damage to the brain, eyes, blood vessels, heart, and kidneys.
- Secondary hypertension (due to stress or pain) is common in the field and does not require treatment.
- Hypertension in cases of severe head injury and intracranial bleeding is thought to be a protective response that increases perfusion to the brain. Treat the intracranial process, not the blood pressure.
- A blood pressure cuff that is too small for the patient may give falsely elevated blood pressure readings. Use larger cuffs on bigger arms.

Hyperthermia

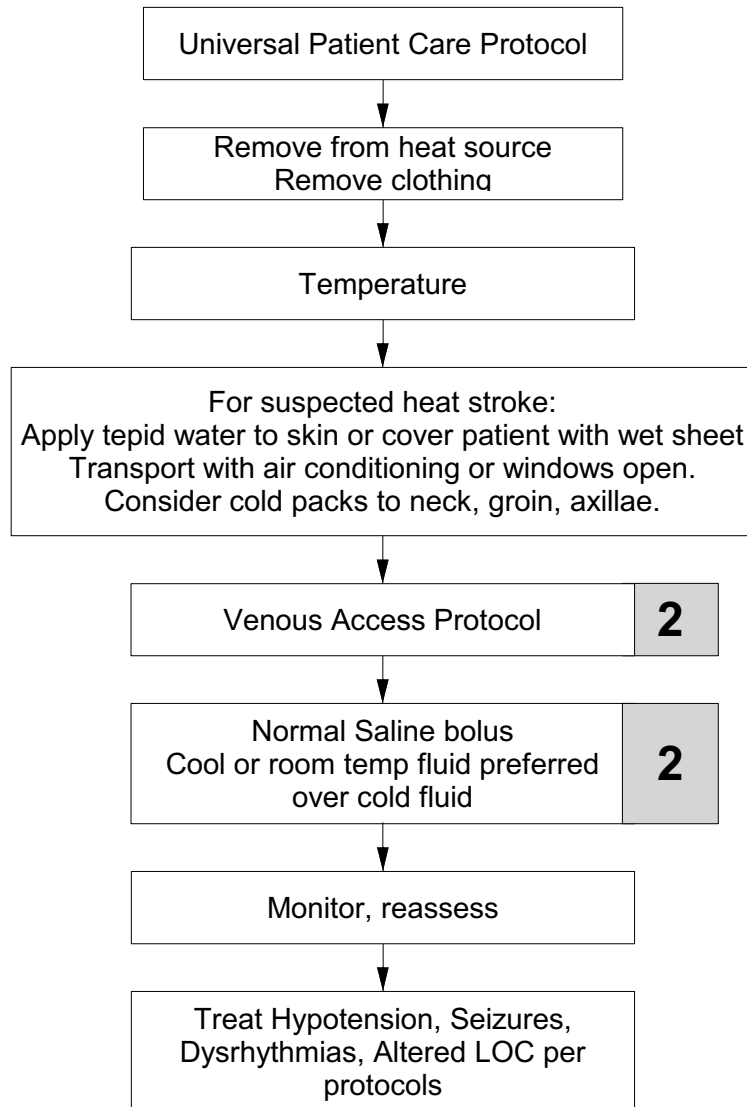
<p>History:</p> <ul style="list-style-type: none"> • Age • Exposure to high heat or humidity • Heavy exertion • Low fluid intake • Headache • Fatigue, muscle cramps • Medications, drug or alcohol use • SAMPLE 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Hot, dry or sweaty skin • Decreased urine output • Nausea, vomiting, diarrhea • Dizziness, syncope • Positive orthostatic vital signs • Hypotension • Tachycardia, bradycardia • Confusion, disorientation, coma • Twitching, seizures 	<p>Differential:</p> <ul style="list-style-type: none"> • Heat Cramps • Heat Exhaustion • Heat Stroke: temperature at least 105°F (40.6°C) • Fever, sepsis • Dehydration • Medications • Hyperthyroidism, thyroid storm • Delirium tremens (DTs) • CNS lesions or tumors • Hypoglycemia
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Focused Exam: Mental status, vitals, temperature, skin, neurological

Dosage Help:

- **Fluid bolus**
 - For adults, fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding cumulative max of three (3) liters.
 - For children, fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.

Hyperthermia



Notes:

- **Heat Exhaustion S&S:** Moist & cool skin, cramps, weakness, dizziness, normal to elevated temp, & nausea.
- **Heat Stroke S&S:** Hot, dry skin (25% of pts will still be moist); seizures, altered mental status, dilated pupils, tachycardia and arrhythmias.
- Young children and the elderly are more prone to heat emergencies.
- Cocaine, amphetamines and salicylates may elevate body temperature.
- The risk of heat emergencies is increased by:
 - Tricyclic antidepressants, beta blockers, diuretics, phenothiazines, anticholinergics and alcohol.
 - Obesity, diabetes, hyperthyroidism, dehydration and delirium tremens.
- Cooling the patient may induce intense shivering.
- Body temperatures above 106°F (42°C) may cause cellular damage.
- *The goal is to get the core temperature down to or under 40°C (104°) and to stop active cooling at 39°C (102°) to prevent overshooting the patient into hypothermia.*

Hypotension/Shock - Adult

History:

- Age
- SAMPLE
- Blood loss – vaginal or gastrointestinal bleeding
- Fluid loss – vomiting, diarrhea, fever
- Infection
- Allergic reaction
- Last bowel movement, emesis
 - Bloody, coffee grounds?
- Menstrual history (pregnancy)
- Diabetes
- Recent trauma

Signs/Symptoms:

- Thirst, weakness, confusion, dizziness on standing
- Cool, clammy skin
- Delayed capillary refill
- Weak, rapid pulse
- Hypotension
- Skin tenting
- Chest or abdominal pain
- Itching, hives, peripheral or facial edema
- Bloody vomit or stools

Differential:

- Shock
 - Hypovolemic
 - Cardiogenic
 - Septic
 - Neurogenic
 - Anaphylactic
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolus
- Tension pneumothorax
- Medication effect or Overdose
- Vasovagal
- Physiologic (pregnancy)
- Diabetic hyperglycemia

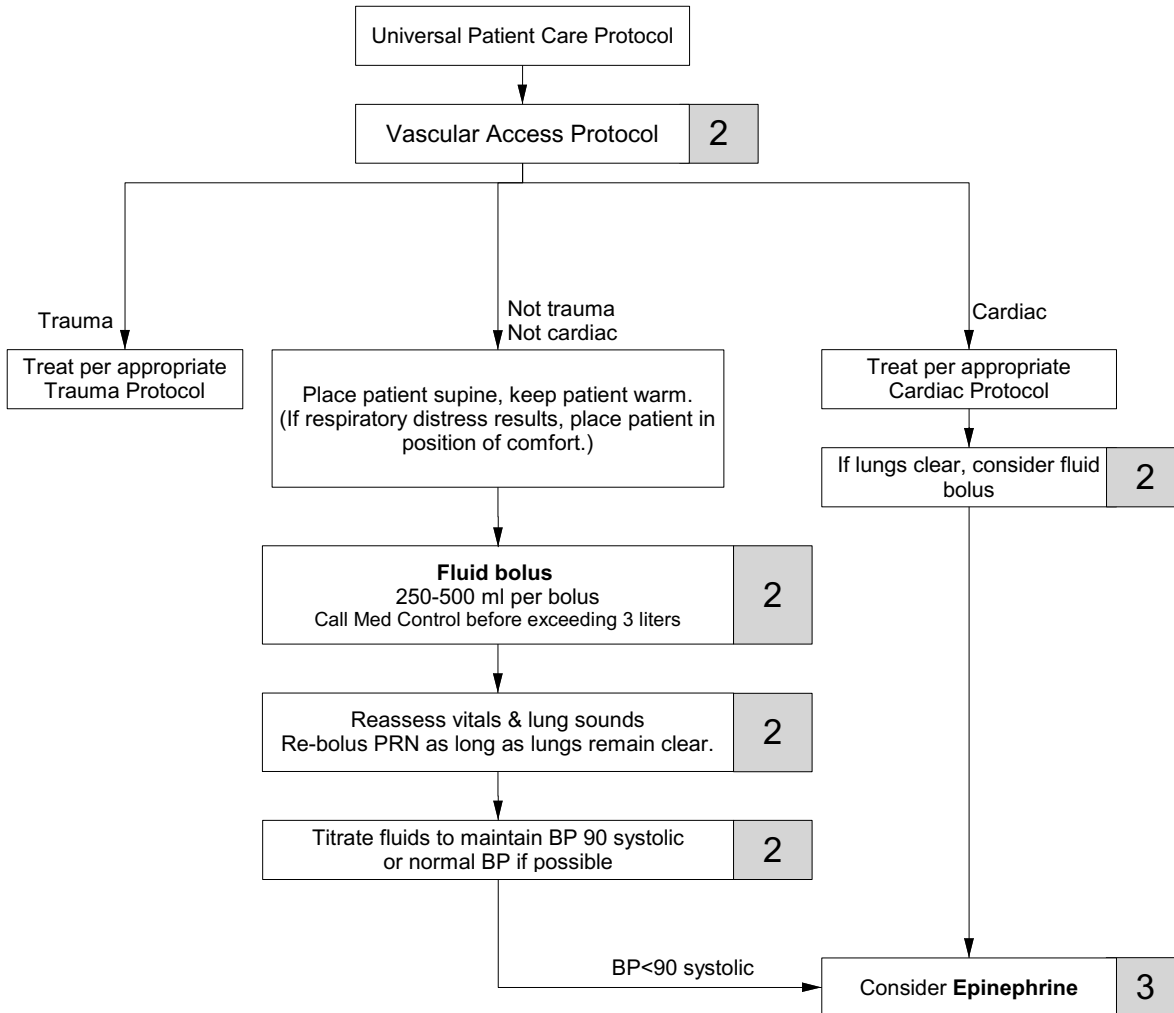
Focused Exam: Mental status, vital signs, skin, heart, lungs, abdomen, back, extremities, orthostatic vital signs

Dosage Help:

- **Fluid Resuscitation:**
 - For adults, fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding cumulative max of 3 liters
 - **Epinephrine Adult:**
 - Continuous infusion titrated to effect: 1 mg in 250 or 500 ml of Normal Saline IV/IO infused at 2 mcg/min until desired BP of > 90 mmHg systolic achieved. or
 - **Push dose epi:**
 - Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine
 - Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY
 - Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation.

Hypotension/Shock - Adult

(Systolic BP < 90 mmHg AND/OR signs of poor perfusion)



Notes:

- Adult hypotension is defined as systolic blood pressure < 90 with signs and symptoms of shock.
- Consider volume status: Is patient “dry” (hypovolemic), normally hydrated (euvolemic), or “wet” (hypervolemic).
 - Hypovolemic: use repeat boluses of NS titrated against clinical exam. Potential situations: gastrointestinal illness, dehydration of other causes.
 - Euvolemic: May need volume AND Epinephrine. Potential cause: septic shock, neurogenic shock, anaphylactic shock.
 - Hypervolemic: Use Epinephrine. This situation is generally cardiogenic shock
- Consider all possible causes of hypotension and treat per appropriate protocol.
- Use large-bore IV catheters for hypotension with suspected hemorrhage.

Hypotension/Shock - Pediatric

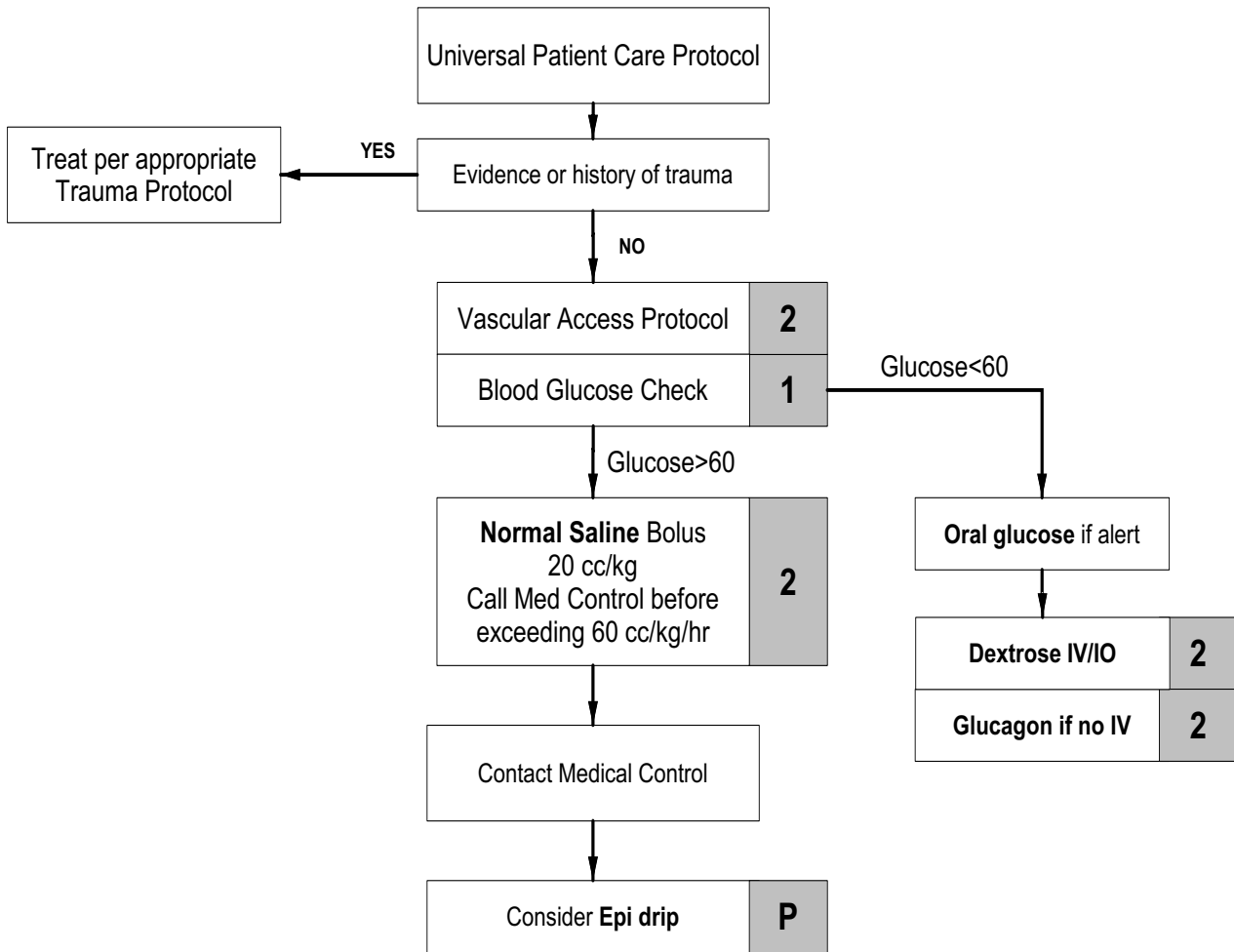
History: <ul style="list-style-type: none"> • Blood Loss • Fluid Loss <ul style="list-style-type: none"> ○ Vomiting ○ Diarrhea ○ Fever • Infection • Medications 	Signs/Symptoms: <ul style="list-style-type: none"> • Restlessness, Confusion, weakness • Dizziness • Altered mental status • Increased HR, rapid pulse • Pale, cool, clammy skin • Delayed capillary refill • Decreased BP (late sign) • Altered mental status • Depressed fontanel in infants • Dry mucous membranes • Sunken eyes 	Differential: <ul style="list-style-type: none"> • Infection/ sepsis • Dehydration <ul style="list-style-type: none"> ○ Vomiting ○ Diarrhea ○ Fever • Congenital heart disease • Medication or Toxin • Internal bleeding
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Focused Exam: General impression (PAT), ABCDEs

Dosage Help:

- **Fluid Resuscitation:**
 - For children, fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.
 - **Epinephrine: See length-based tape for dosing**
- **Dextrose:**
 - **Age 8 and under:**
 - 2-4 ml/kg of Dextrose 25% IV/IO. Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - **Newborn with documented hypoglycemia:**
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Glucagon if no IV:**
 - 0.1 mg/kg IM or see length-based tape/pedi wheel (max 1 mg)
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN

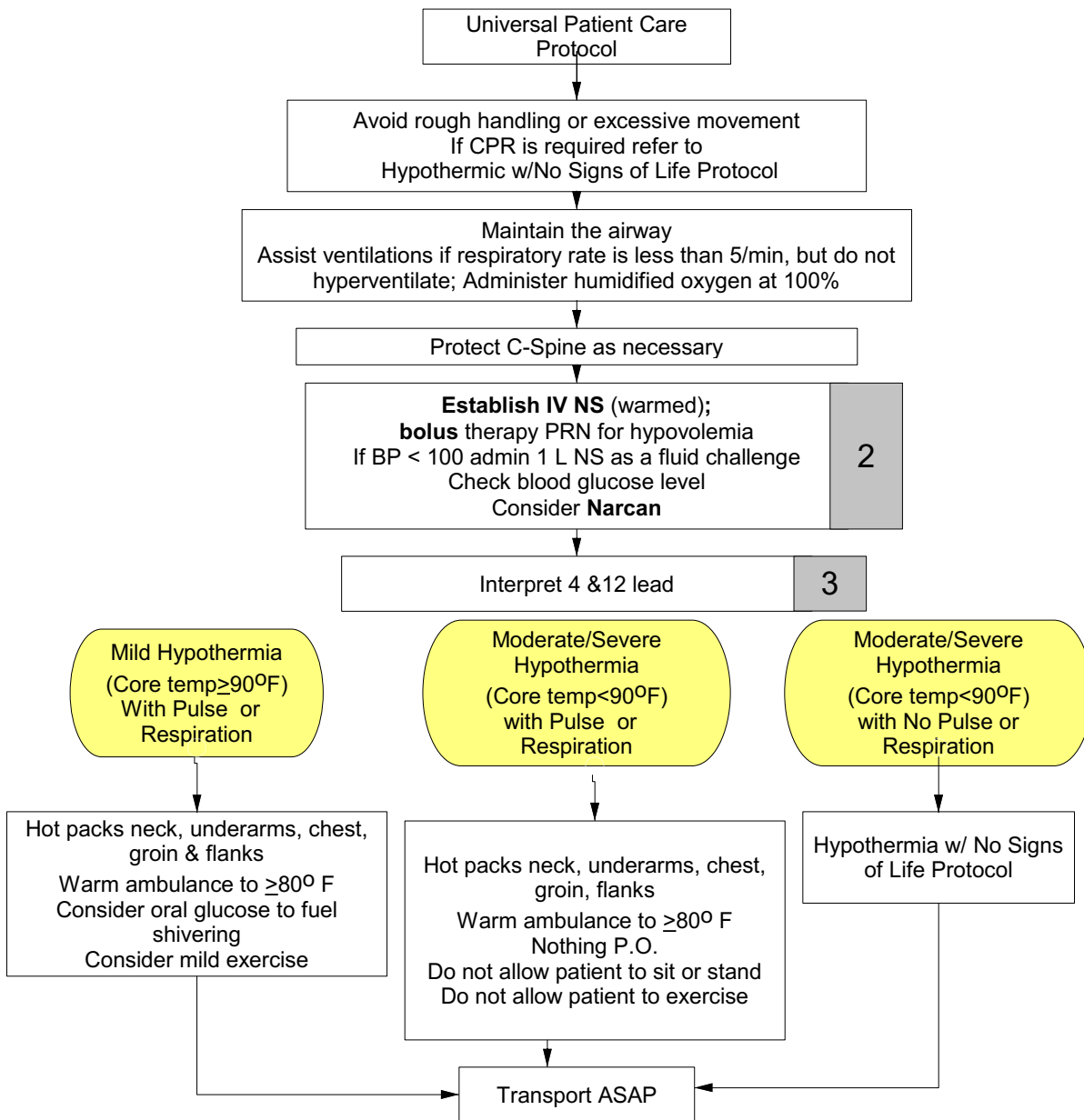
Hypotension/Shock - Pediatric



Hypothermia with Signs of Life

<p>History:</p> <ul style="list-style-type: none"> • Very young or very old • Drug/Alcohol use • Air temperature, length of exposure • Past medical history • Wet • Infection, sepsis 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Mental status changes • Shivering • Bradycardia • Hypotension/shock • Core temperature 	<p>Differential:</p> <ul style="list-style-type: none"> • Environmental exposure • Drug/alcohol use • Sepsis • Hypoglycemia • Stroke, head injury, spine injury
<p>Focused Exam: ABCs, temperature, LOC, lungs, ECG, extremities</p>		
<p>Definitions:</p> <ul style="list-style-type: none"> • Normothermic: Above 95° F (35° C) – Sensation of cold, shivering • Mild Hypothermia: 90-95° F, (32-35° C) - Patient may present with a history of exposure to cold, AMS, shivering, stiffness of muscles, stumbling or staggering gait, cool or cold skin, mottled or pale skin,. They are often alert, with vital signs that are not depressed, but present with vigorous shivering • Moderate to Severe Hypothermia: below 90° F (32° C) – Depressed vital signs, altered LOC, slurred speech, staggering gait, decreased mental skills, lack of response to verbal or painful stimuli, <u>No shivering</u> despite being very cold. Pulse may be undetectable. Ventricular fibrillation/cardiac arrest may occur. 		
<p>Temperature Measurement:</p> <ul style="list-style-type: none"> • The simplest assessment of temperature is by placing an ungloved hand against the skin. If the patient's armpit, chest or back feels warm, hypothermia is unlikely. • Patients with cold skin should have a core temperature taken with a low-reading thermometer (capable of reading temps as low as 70° F (21° C). <ul style="list-style-type: none"> ○ Axial and oral temperatures are poor measures of core temp, but may rule out hypothermia. ○ Rectal temperature is presently the best measure available on Fairbanks North Star Borough ambulances. 		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • Fluid Resuscitation: <ul style="list-style-type: none"> ○ For adults, fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of minimum 100 systolic. Most hypothermic patients who don't have contraindications (e.g. pulmonary edema or near drowning) require at least one liter of fluids for volume replacement. Consult medical control before exceeding three (3) liters. ○ For children, fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr. 		

Hypothermia with Signs of Life



Notes:

- Cut away and remove wet clothing.
- Assess carefully for other injury or illness. Diabetes, overdose, exhaustion and altitude sickness may mimic hypothermia.
- Do Not give IV medications to patients with core temperatures < 86° F (30° C).
- No food or liquids PO unless the patient is able to swallow and protect airway.
- Rough handling of hypothermic patients may induce refractory ventricular fibrillation.
- Do not injure frostbitten tissue. Cold skin is easily injured. Avoid direct application of hot objects and excessive pressure.
- If possible, humidify and heat oxygen to a maximum of 108° F (42° C)
- Heat IV fluids to 104-108° F (40-42° C) when possible. They should be no cooler than the patient's core temperature.

Hypothermia, No Signs of Life

History: <ul style="list-style-type: none"> • Drug/Alcohol use • Air temperature, length of exposure • Past medical history • Wet • Infection, sepsis 	Signs/Symptoms: <ul style="list-style-type: none"> • Mental status changes • Shivering • Bradycardia • Hypotension/shock • Core temperature 	Differential: <ul style="list-style-type: none"> • Environmental exposure • Drug/alcohol use • Sepsis • Hypoglycemia • Stroke, head injury, spine injury
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Focused Exam: ABCs, temperature, LOC, lungs, ECG, extremities

Definitions:

- **Normothermic:** Above 95° F (35° C) – Sensation of cold, shivering
- **Mild Hypothermia:** 90-95° F, (32-35° C) - Patient may present with a history of exposure to cold, AMS, shivering, stiffness of muscles, stumbling or staggering gait, cool or cold skin, mottled or pale skin,. They are often alert, with vital signs that are not depressed, but present with vigorous shivering
- **Moderate to Severe Hypothermia:** below 90° F (32° C) – Depressed vital signs, altered LOC, slurred speech, staggering gait, decreased mental skills, lack of response to verbal or painful stimuli. No shivering despite being very cold. Pulse may be undetectable. Ventricular fibrillation/cardiac arrest may occur.

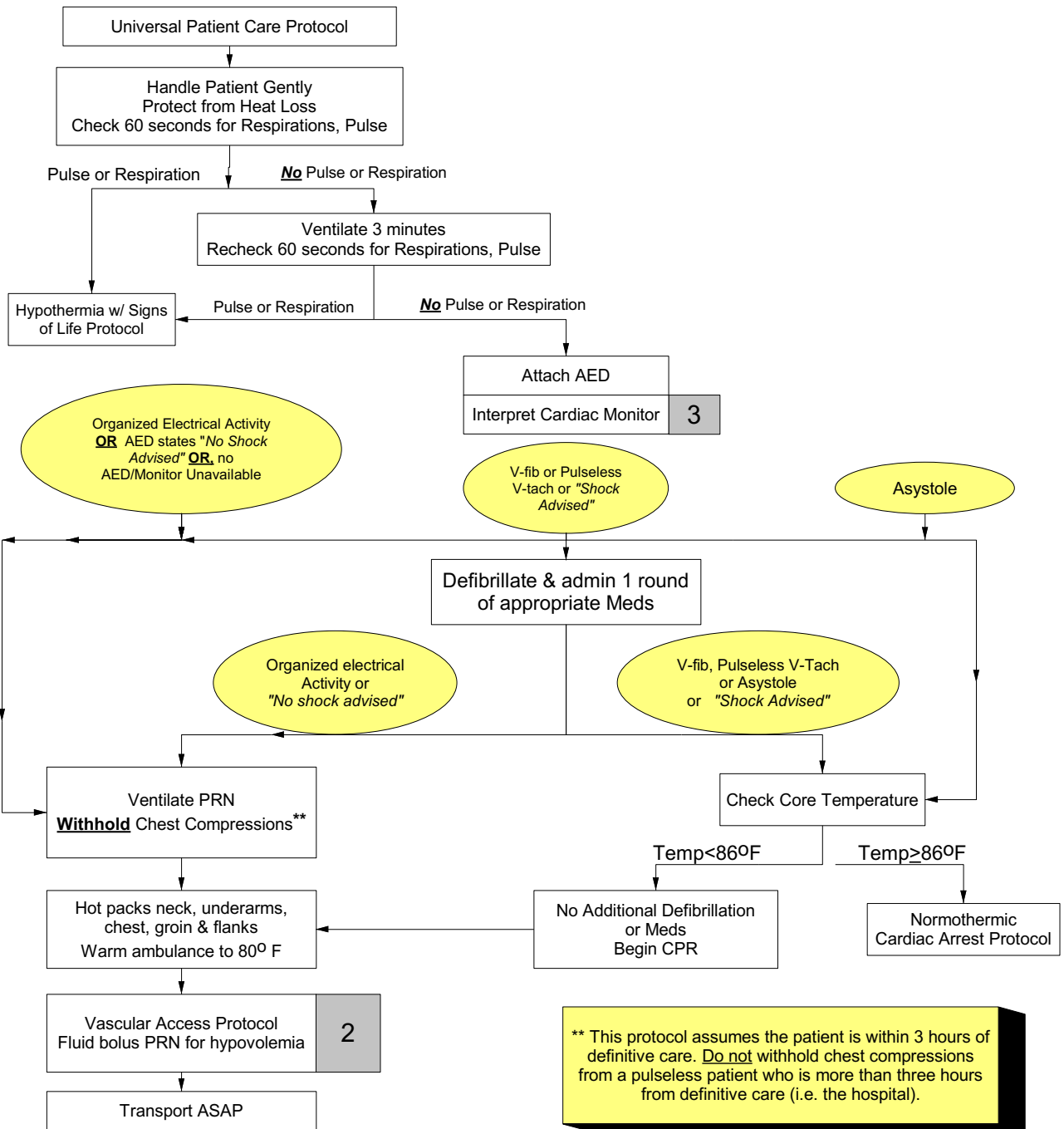
Temperature Measurement:

- The simplest assessment of temperature is by placing an **ungloved hand** against the skin. If the patient's armpit, chest or back feels warm, hypothermia is unlikely.
- Patients with cold skin should have a core temperature taken with a **low-reading thermometer** (capable of reading temps as low as 70° F (21° C).
 - **Axial and oral temperatures** are poor measures of core temp, but may rule out hypothermia.
 - **Rectal temperature** is presently the best measure available on Fairbanks Northstar Borough ambulances.

Dosage Help:

- **Fluid Resuscitation:**
 - Use warmed fluid. For adults, fluid bolus should be 250-500 cc. absent pulmonary edema, repeat as needed to maintain BP of at minimum 100 systolic. Most hypothermic patients who don't have contraindications (e.g. pulmonary edema or near drowning) require at least one liter of fluids for volume replacement. Consult medical control before exceeding three (3) liters.
 - For children, fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.

Hypothermia, No Signs of Life



** This protocol assumes the patient is within 3 hours of definitive care. Do not withhold chest compressions from a pulseless patient who is more than three hours from definitive care (i.e. the hospital).

Notes:

- Do Not give IV medications to patients with core temperatures <86° F (30° C).
- Rough handling of hypothermic patients may induce refractory ventricular fibrillation.
- Heat IV fluids to 104-108° F (40-42° C) when possible. They should be no cooler than the patient's core temperature.
- Do not attempt CPR on pts with core temp <50° F (10° C), obvious fatal injuries, frozen patients or those whose chest walls are too stiff to compress. Consult the "Authority to Pronounce Death Procedure" for additional information.

Near-Drowning/ Drowning

History:

- How long was patient submerged?
- Water temperature
- History of trauma – e.g. diving board accident
- Preexisting medical problems

Signs/Symptoms:

- Unconscious or decreased LOC
- Decreased or absent vital signs
- Coughing, vomiting
- Respiratory distress, pulmonary edema
- Hypothermia

Differential:

- Drowning/near drowning
- Trauma
- Preexisting medical problems (e.g. diabetic emergency)
- Hypothermia
- Scuba-diving injuries – barotrauma, decompression sickness

Focused Exam: ABCs, mental status, trauma survey, head, neck, back, chest, abdomen, extremities, temperature, vitals, skin, neurological, GCS

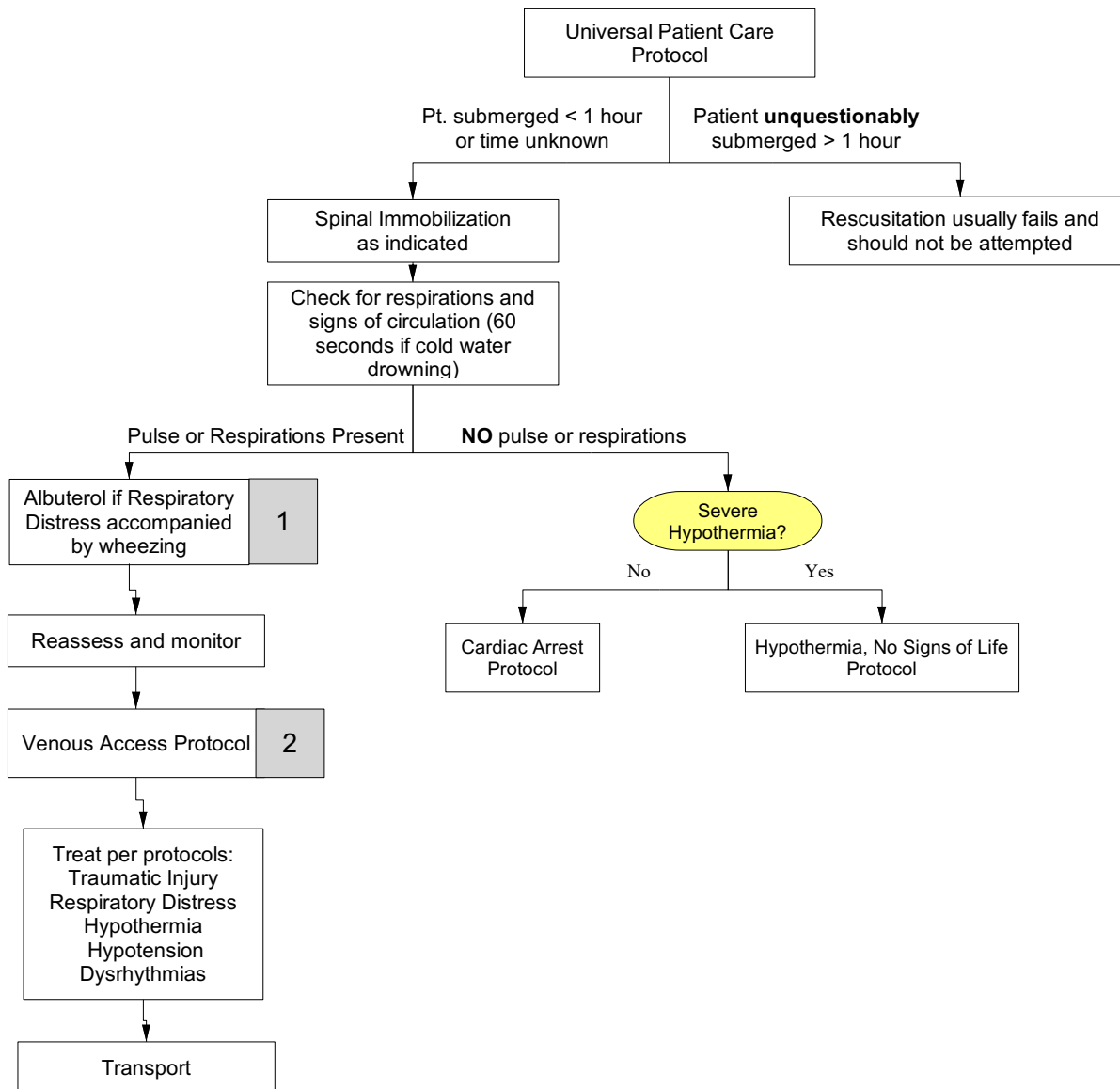
Dosage Help:

- **Albuterol Sulfate:**
 - **Age 1 and up:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - Alternative: Continuous Neb dose:
Adults: In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) 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

Temperature Measurement:

- The simplest assessment of temperature is by placing an **ungloved hand** against the skin. If the patient's armpit, chest or back feels warm, hypothermia is unlikely.
- Patients with cold skin should have a core temperature taken with a **low-reading thermometer** (capable of reading temps as low as 70° F (21° C).
 - **Axial and oral temperatures** are poor measures of core temp, but may rule out hypothermia.
 - **Rectal temperature** is presently the best measure available on Fairbanks Northstar Borough ambulances.

Near-Drowning/ Drowning



Notes:

- Severe hypothermia is uncommon in cold-water near drowning. Unless there are indications of severe hypothermia, begin CPR immediately if no pulse is detected.
- It is optimal to obtain a rectal temperature but do not delay transport to acquire one.
- Take C-spine precautions if there is a possibility of neck injury (e.g. dive into shallow water). If practical and safe, use a backboard to remove the patient from the water.
- Any patient who was submerged and unconscious should be transported even after regaining consciousness. Pulmonary edema may develop 6-24 hours after submersion.
- Cold water is defined as being less than 70°F (21°C). In submersions longer than 6 minutes, the chance of survival is much better in cold water than in warm water.
- Hypovolemia is not generally a problem in cold-water drowning/near-drowning. In general, use a saline lock or run IV at a TKO rate.

Neonatal Resuscitation

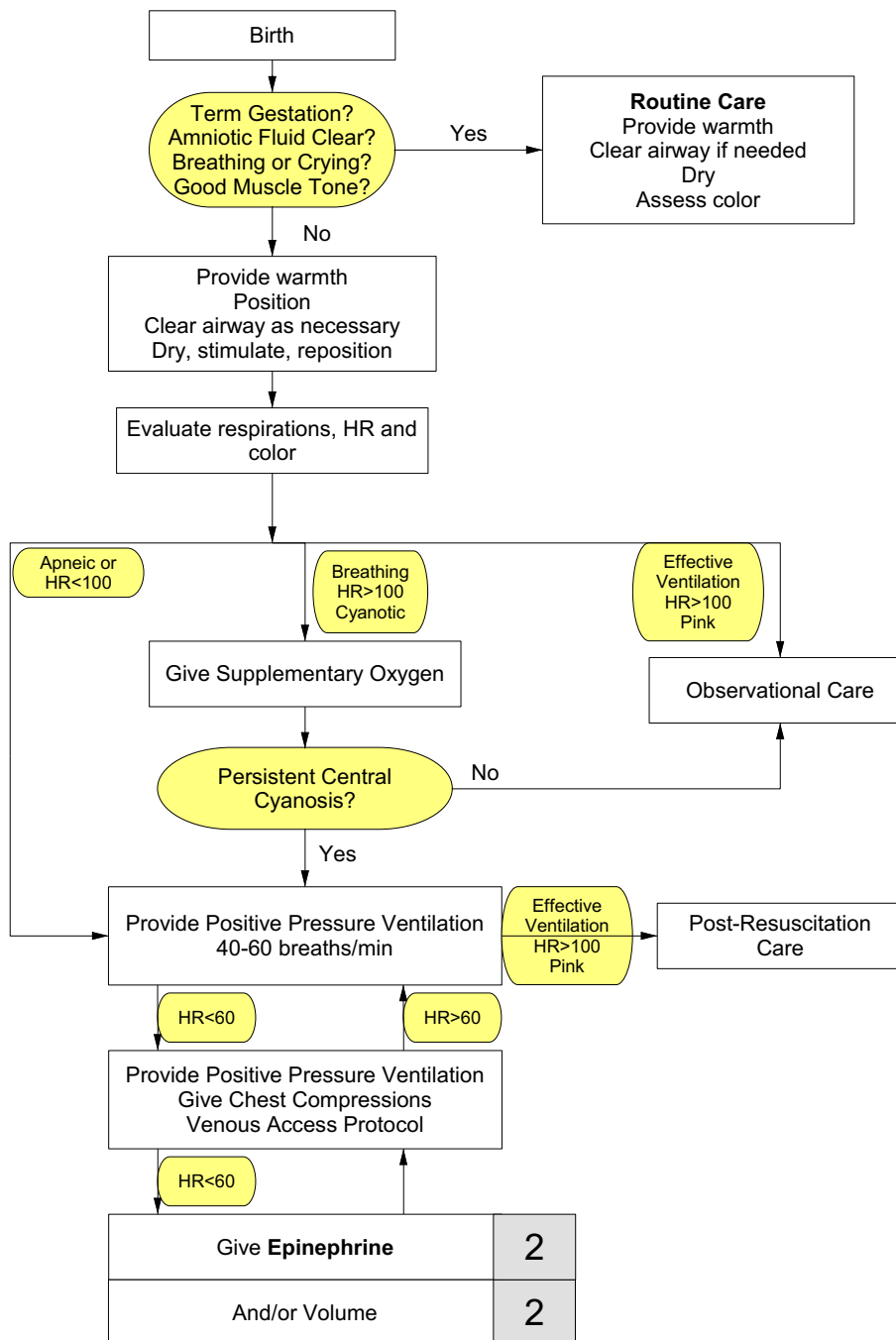
<p>History:</p> <ul style="list-style-type: none"> • Due date and gestational age • Multiple birth pregnancy • Meconium staining with delivery • Delivery difficulties • Congenital disease • Medications (maternal and infant) 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Respiratory distress • Peripheral cyanosis or mottling (normal) • Central cyanosis (abnormal) • Altered level of responsiveness • Bradycardia 	<p>Differential:</p> <ul style="list-style-type: none"> • Airway Failure <ul style="list-style-type: none"> ○ Secretions ○ Respiratory Drive • Infection • Maternal medication effect • Hypovolemia • Hypoglycemia • Congenital heart disease • Hypothermia
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Focused Exam: General impression, (PAT), ABCDE,

Dosage Help:

- **Dextrose**
 - Newborn with documented hypoglycemia:
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Epinephrine 1:10,000:** see length-based tape/pedi wheel
- **Normal Saline:**
 - Fluid bolus should be 10 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.
- **Naloxone (Narcan):** see the length-based tape/pedi wheel

Neonatal Resuscitation



Notes:

- Maternal sedation or narcotics will sedate infant (naloxone effective).
- With prolonged resuscitation consider hypoglycemia
- Use proper size mask on neonate to prevent intraocular pressure that will cause vagal stimulation and bradycardia.

OB: Childbirth/Labor

History:

- Due date
- Time contractions started
- Frequency & duration of contractions
- Rupture of membranes, color of fluid
- Time/amount of any vaginal bleeding
- Sensation of fetal activity
- Problems with pregnancy
- Expected multiple births
- Past medical and delivery history
- Medications

Signs/Symptoms:

- Spasmodic pain
- Vaginal discharge or bleeding
- Crowning or urge to push
- Meconium

Differential:

- Abnormal presentation
 - Buttock
 - Foot
 - Hand
- Prolapsed cord
- Placenta previa
- Abruptio placenta

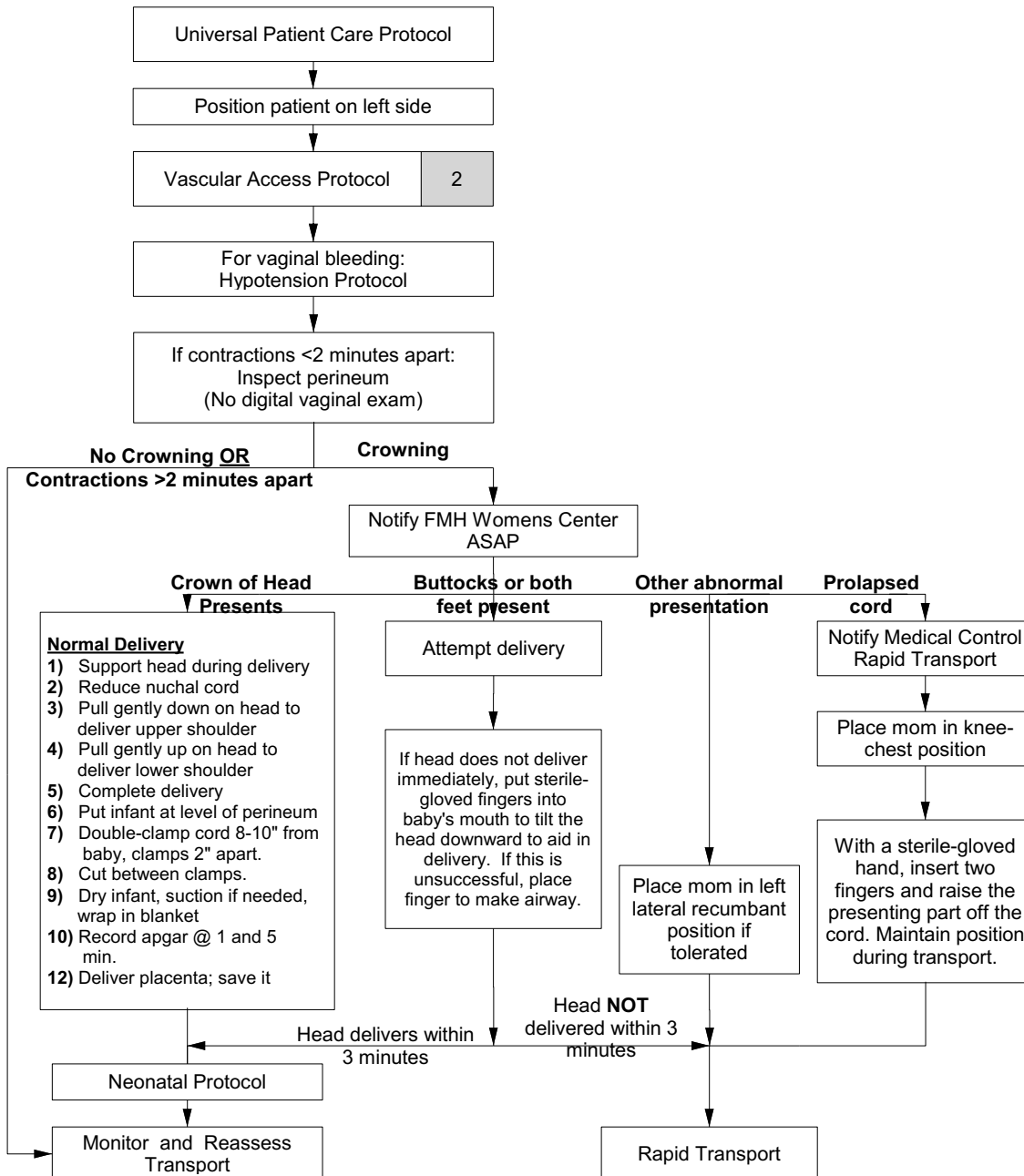
Focused Exam (of mother): Abdomen, perineum, evidence of crowning/presenting parts, fetal heart tones

Apgar Scoring

Test	0 Points	1 Point	2 Points
A ctivity (Muscle Tone)	Absent	Arms & legs extended	Active movement with flexed arms & legs
P ulse (Heart Rate)	Absent	Below 100 bpm	Above 100 bpm
G rimace (Response Stimulation or Reflex Irritability)	No Response	Facial grimace	Sneeze, cough, pulls away
A ppearance (Skin Color)	Blue-gray, pale all over	Pink body and blue extremities	Normal over entire body – Completely pink
R espiration (Breathing)	Absent	Slow, irregular	Good, crying

- The one-minute **Apgar score** helps determine the need for further treatment.
 - **7-10 is good to excellent.** The baby usually needs only routine post-delivery care. (A 10 is unusual because a baby's extremities are seldom completely pink one minute after birth. Also, a difficult delivery, premature birth, or medication may artificially depress scores.)
 - **4-6 may indicate the need** to assist/stimulate breathing, e.g. vigorously rubbing the baby's skin or oxygen administration.
 - **<4 may indicate the need** for immediate lifesaving measures.
- The five-minute **Apgar score** helps determine how the baby has responded to any resuscitative efforts and whether it will need additional monitoring.
 - 7-10 is considered normal.
 - <7 suggests the need for continued close observation and care. An Apgar may be done every five minutes for up to 20 minutes to monitor the baby's condition.

OB: Childbirth/Labor



Notes:

- Normal gestation is 40 weeks (38-42 weeks). Infants born before 37 weeks are premature.
- Document frequency and duration of contractions and time of delivery, if applicable.
- Contractions <2 minutes apart, bulging perineum, urge to push = imminent delivery.
- If head presents and the cord is wrapped around the neck, slip cord over the head. If that is impossible, clamp the cord in two places and cut between the clamps.
- Massaging the uterus (lower abdomen) may facilitate uterine contraction and help control post-partum bleeding

OB: Obstetrical/Gynecological

History:

- Past medical history - bleeding problems, pregnancies, medications, allergies
- Last normal period, duration, amount of flow
- Birth control method
- Pregnancy, due date, problems

Signs/Symptoms:

- Vaginal bleeding or discharge
- Clots or tissue fragments passed (bring to ER if possible)
- Abdominal pain
- Signs of hypovolemic shock
 - Altered mental status
 - Dizziness, light-headedness
 - Tachycardia, hypotension
 - Diaphoresis, pallor
- Signs of eclampsia/pre-eclampsia
 - Hypertension
 - Edema of hands and face
 - Severe headache
 - Visual changes
 - RUQ pain
 - Seizures
- Fever
- Signs of labor
 - Uterine contractions
 - Rupture of membranes
 - Urge to push

Differential:

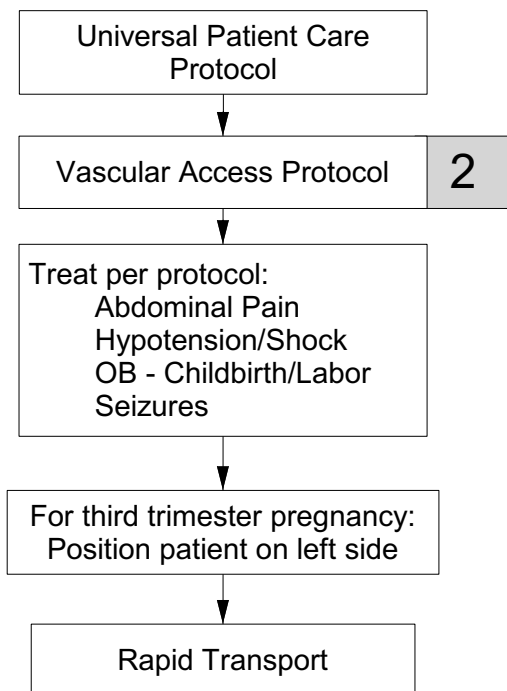
- Normal labor/childbirth
- Pre-eclampsia/eclampsia
- Placenta previa
- Abruptio placenta
- Spontaneous abortion
- Ectopic pregnancy

Focused Exam: Vitals (orthostatic), mental status, abdomen, fetal heart tones, perineum (as appropriate)

Dosage Help:

- **Dextrose:**
 - **Adult:** 50 ml D50 IV/IO.
 - D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
 - **Newborn with documented hypoglycemia:** For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO. To make D10, mix 1 part D50 with 4 parts normal saline.
- **Glucagon:**
 - **Adult:** 1 mg IM. May repeat in 15 minutes if no increase in LOC.
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN
- **Magnesium Sulfate** (for seizures of eclampsia):
 - Initial dose: 4 g (8 ml of 50% solution, diluted to 20-40 ml with NS) IV/IO over 3-4 minutes
 - Maintenance infusion: 1-2 g/hr IV/IO
- **Naloxone (Narcan):**
 - **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 is appropriate, otherwise drug should be titrated
- **Lorazepam (Ativan):** (for status epilepticus) **Medical Control approval required.**
 - Adult: 4 mg IV/IO/IM/IN; may repeat doses in 10-15 minutes with **Medical Control** approval.
- **Midazolam (Versed)** (for status epilepticus): **Medical Control approval required.**
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred) if no IV in place. Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses

OB: Obstetrical/Gynecological



Notes:

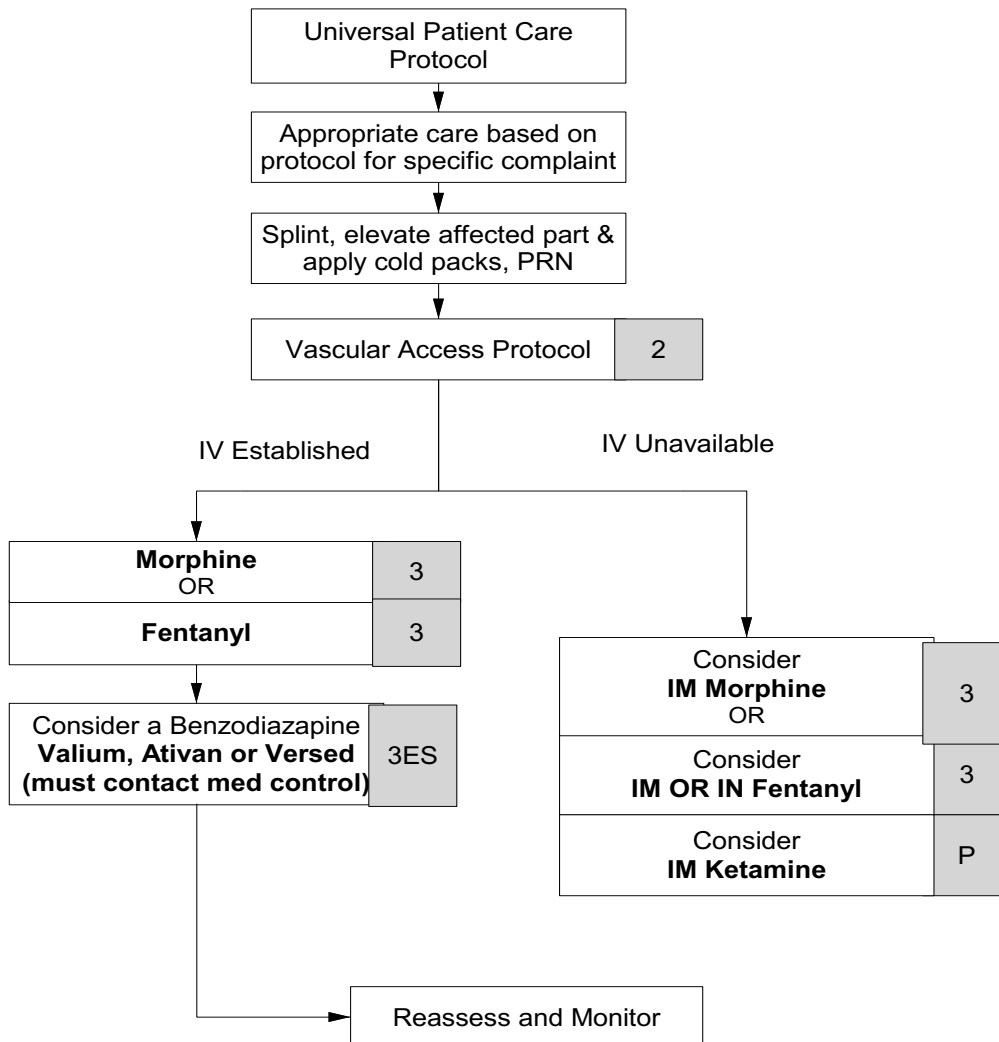
- For hypotensive patients and suspected bleeding, consider establishing a second large-bore IV line.
- Examine pregnant patients for presence of contractions.
- If contractions are less than 2 minutes apart and the patient feels the urge to push, observe for evidence of crowning and prepare for imminent childbirth. Maintain patient privacy.
- During pregnancy, hypertension is defined as BP >140 systolic or >90 diastolic, or a relative increase of 30 systolic and 20 diastolic from the patient's pre-pregnancy blood pressure.
- Maintain pregnant patients in left lateral position to prevent supine hypotensive syndrome.
- Ask the patient to quantify any vaginal bleeding – number of pads used per hour.
- Any pregnant patient involved in a motor vehicle accident should be seen immediately by a physician for evaluation and fetal monitoring.
- Bring any blood clots or tissue fragments passed to the emergency room for evaluation.

Pain Control Protocol

Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires MED Control approval.
 - Alternative: 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
 - IV/IO/IN route:** 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg
 - IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical Control**
 - **Morphine Sulfate:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatrics:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
 - **Lorazepam (Ativan):**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN every 15-30 minutes, max 4.0 mg, **contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM, max 2 mg/dose; max 2.0 mg,
 - **Midazolam (Versed):**
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred if no IV in place). Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses, (unless **Excited Delirium Syndrome** present, in which case up to 3 doses may be given as standing order)
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.
- Note: Versed preferred due to short acting properties**
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Pain Control Protocol



Notes:

- Remember: most patients with pain do not need medication to manage it.
- Use pain control cautiously on patient taking other mood altering substances or with altered mental status.
- Consider using Fentanyl for treating pain over Morphine, it has a shorter half-life, but has a better hemodynamic profile than morphine.
- Morphine may be preferred to Fentanyl in the elderly and/or debilitated patients. In patients with decreased liver and renal function, Fentanyl may accumulate and cause sudden respiratory depression.
- Morphine and Fentanyl are contraindicated for patients with BP <100 systolic.
- Use pain control cautiously in geriatric or debilitated patients (use lower doses), severely ill patients, trauma patients, diabetics, patients with severe pulmonary, renal or hepatic disease, alcoholism and cardiac disease- particularly arrhythmias.
- Consider benzodiazepines as a last resort, most patients with pain management issues do not require sedation – (the ultimate effect of administration of benzodiazepines). *Versed is preferred due to its short half-life.*

Poisoning/Overdose

History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • Suspected ingestion of toxic substance • Substance, route, quantity, time ingested • Reason for ingestion – child neglect, depression, attempted suicide? • Available medicines in home • Bystander treatment – induced emesis, antidotes • Past medical history, medications 	<ul style="list-style-type: none"> • Mental status changes • Respiratory distress/depression • Hypotension/hypertension • Tachycardia, dysrhythmias • Seizures • Breath odor, salivation, oral burns • Skin signs - sweating, cyanosis • Nausea, vomiting, diarrhea 	<p>A = Alcohol, Acidosis, Alkalosis E = Epilepsy/Environmental I = Infection O = Overdose/Oxygen U = Uremia T = Trauma/tumor I = Insulin (Diabetes) P = Psychosis/Poison S = Stroke/Shock</p>

Focused Exam: Mental status, skin, HEENT, lungs, abdomen, extremities, neurological

Dosage Help:

- **Atropine Sulfate:**
 - **Adults:** For organophosphate & carbonate insecticides, usually start with 2 mg IV, titrate to clear lung sounds. High doses (>10 mg) may be indicated.
 - **Pediatric:** Contact Poison Control for dose

- **Glucagon:** Beta Blocker/Calcium Channel Overdose
 - **Adults ::** 2 mg IV bolus
 - **Pediatric:** 2 mg IV bolus (**Contact Med Control**)

- **Naloxone (Narcan):**
 - **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 is appropriate, otherwise drug should be titrated
 - **Pediatric:** 0.1 mg/kg IV/IO/IM/IN and titrate to desired effect; repeat every 2-3 min as needed up to 2 mg total or see the length-based tape/pedi wheel for dosage

- **Sodium Bicarbonate:** Tricyclic OD with Hypotension or prolonged QRS > 0.10 sec
- **Adult/Pediatric > 10 kg:** 1 mEq/kg slow IV Push, repeat if needed in 10 minutes
- **Push dose Epi**
 - Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine
 - Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY
 - Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation.

Poisoning/Overdose

Obtain specific information:

- Type of ingestions(s)
- What, When and how much ingested?
- Bring the poison, container, all medications and other questionable substances to the ED
- Note actions taken by bystanders or patient (e.g.: induced emesis, "antidotes", etc)
- **Supportive Care is key to overdose Management**

Universal Patient Care Protocol

Obtain specific information regarding exposure

Need for airway Management?

Yes

-Naloxone
-Airway Management Protocol

Hypotension?

Yes

Hypotension/Shock Protocol

Altered mental status?

Yes

Altered Mental Status Protocol

Specific ingestion?

Consult Poison Control

Narcotic OD
↓ LOC & Respirations
Pinpoint pupils

Narcan 1

Organophosphate Carbamate or nerve agent
DUMBELS Syndrome

Atropine
(Consult Poison Control) 3

Tricyclic antidepressant
Wide complex tachycardia, seizure

Sodium Bicarbonate
(Consult Poison Control) 3ES

Seizure Protocol

Calcium Channel Blocker
Bradycardia, heart block, hypotension

Beta Blocker
Bradycardia, heart block, hypotension

Glucagon 2

Epinephrine
for Hypotension 3

Notes:

Think scene safety, particularly with inhaled poisons and suicidal patients. Acronym for remembering the signs and symptoms of cholinergic overdoses:

DUMBELS

- D**iarrhea
- U**rination
- M**iosis/muscle weakness
- B**ronchorrhea
- B**radycardia
- E**mesis
- L**acrimation
- S**alivation/sweating

Respiratory Distress- Adult: Universal Algorithm

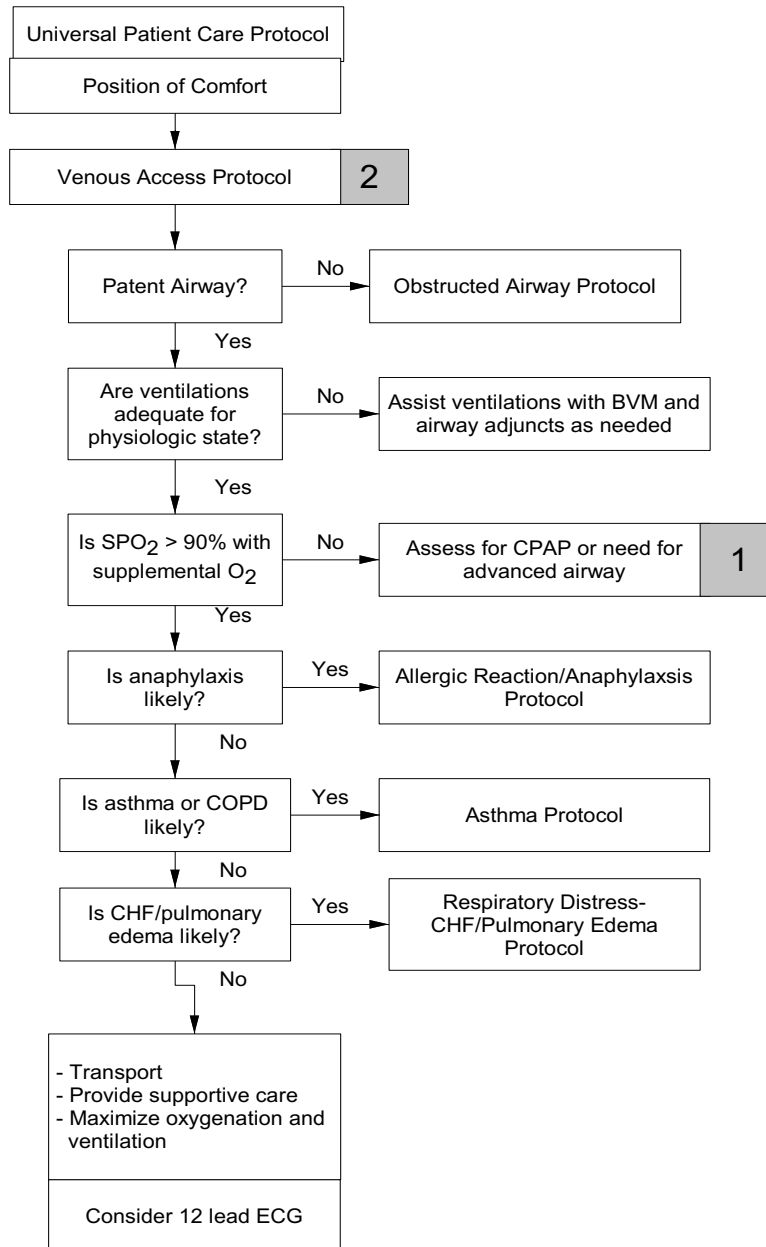
History: <ul style="list-style-type: none"> • Asthma • COPD – chronic bronchitis, emphysema • Congestive heart failure • Medications (theophylline, steroids, inhalers, home oxygen) • Toxic exposure • Smoke inhalation • Acute change or slow deterioration • Tobacco use 	Signs/Symptoms: <ul style="list-style-type: none"> • Respiratory effort: accessory muscle use, retractions, pursed lips, tripod position • Difficulty speaking • Breath sounds: clear, crackles, wheezing, crowing, stridor, rhonchi, diminished breath sounds • Trauma to chest or neck. Deformed steering wheel. • Neurological: slurred speech, impaired LOC, evidence of drug/alcohol use • Upper airway obstruction signs: Hoarseness, stridor, crowing, drooling, exaggerated chest wall movement • Associated chest pain, tachycardia 	Differential: <ul style="list-style-type: none"> • Anaphylaxis • Asthma • COPD • Congestive heart failure • Hyperventilation syndrome • Pulmonary edema (cardiogenic) • Pulmonary edema (noncardiogenic) • Pneumonia • Pneumothorax • Pulmonary embolus • Upper airway obstruction
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Focused Exam: Mental status, lung sounds, accessory muscle use, skin, JVD, heart, abdomen (ascites), back (edema), extremities (pitting edema)

Dosage Help:

- **Albuterol:**
 - **Age 1 to adult:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - **Alternative:** Continuous Neb dose:
 - **Adult Only:** In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) for a total dose of 7.5 mg in 9 ml, into a nebulizer.
- **Ipratropium Bromide (Atrovent):**
 - **Adult: Bronchospasm:**
 - Single administration: One 2.5-ml vial (500 mcg) by oxygen-powered nebulizer over 5 to 15 minutes. Do not repeat-- Subsequent nebulizer treatments are with Albuterol only.
- **Epinephrine 1:1,000** (for anaphylaxis, asthma)
 - **Adult: Anaphylaxis-**0.3 mg IM/SQ every 5-15 minutes PRN; **Asthma-** 0.3 mg SQ. May repeat dose x 1 PRN
- **Epinephrine 1:10,000** (for anaphylaxis):
 - **Adult:** 0.1-0.25 mg (1-2.5ml) IV/IO every 5-15 minutes PRN
- **Solmedrol (Methylprednisolone Sodium Succinate):**
 - **Adult:** 125 mg slow IV push (1-2 minutes/IM large muscle (not deltoid)
- **Magnesium Sulfate:**
 - **For refractory status asthmaticus:** 2 gm, diluted in 10 ml NS over 5-10 minutes

Respiratory Distress- Adult Universal Algorithm



Notes:

- Continuous pulse oximetry if initial saturation <96% or if patient status deteriorates.
- Status asthmaticus is a severe, prolonged asthma attack unresponsive to therapy. It is life threatening.
- Use caution when giving epinephrine to patients >50 years old, those with history of heart disease and when the patient's heart rate is >150. Epinephrine may precipitate myocardial ischemia or infarction.
- A silent chest is a sign of impending respiratory arrest.
- Wheezing in the elderly may be due to pulmonary edema (cardiac asthma). Pulmonary embolus is an uncommon cause of wheezing.
- Suspect pulmonary embolism after recent fracture, surgery or childbirth, long flights, extended driving or prolonged bed rest.

Respiratory Distress: Asthma- Adult

History: <ul style="list-style-type: none"> • Asthma • COPD – chronic bronchitis, emphysema • Congestive heart failure • Medications (theophylline, steroids, inhalers, home oxygen) • Toxic exposure • Smoke inhalation • Acute change or slow deterioration • Tobacco use 	Signs/Symptoms: <ul style="list-style-type: none"> • Respiratory effort: accessory muscle use, retractions, pursed lips, tripod position • Difficulty speaking • Breath sounds: clear, crackles, wheezing, crowing, stridor, rhonchi, diminished breath sounds • Associated chest pain, tachycardia 	Differential: <ul style="list-style-type: none"> • Anaphylaxis • Asthma • COPD • Congestive heart failure • Pulmonary edema (cardiogenic) • Pulmonary edema (noncardiogenic) • Pneumonia • Pneumothorax • Pulmonary embolus • Upper airway obstruction
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Focused Exam: Mental status, lung sounds, accessory muscle use, skin, JVD, heart, abdomen (ascites), back (edema), extremities (pitting edema)

Dosage Help:

- **Albuterol:**
 - **Age 1 to adult:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - **Alternative:** Continuous Neb dose:
 - **Adult Only:** In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) for a total dose of 7.5 mg in 9 ml, into a nebulizer.

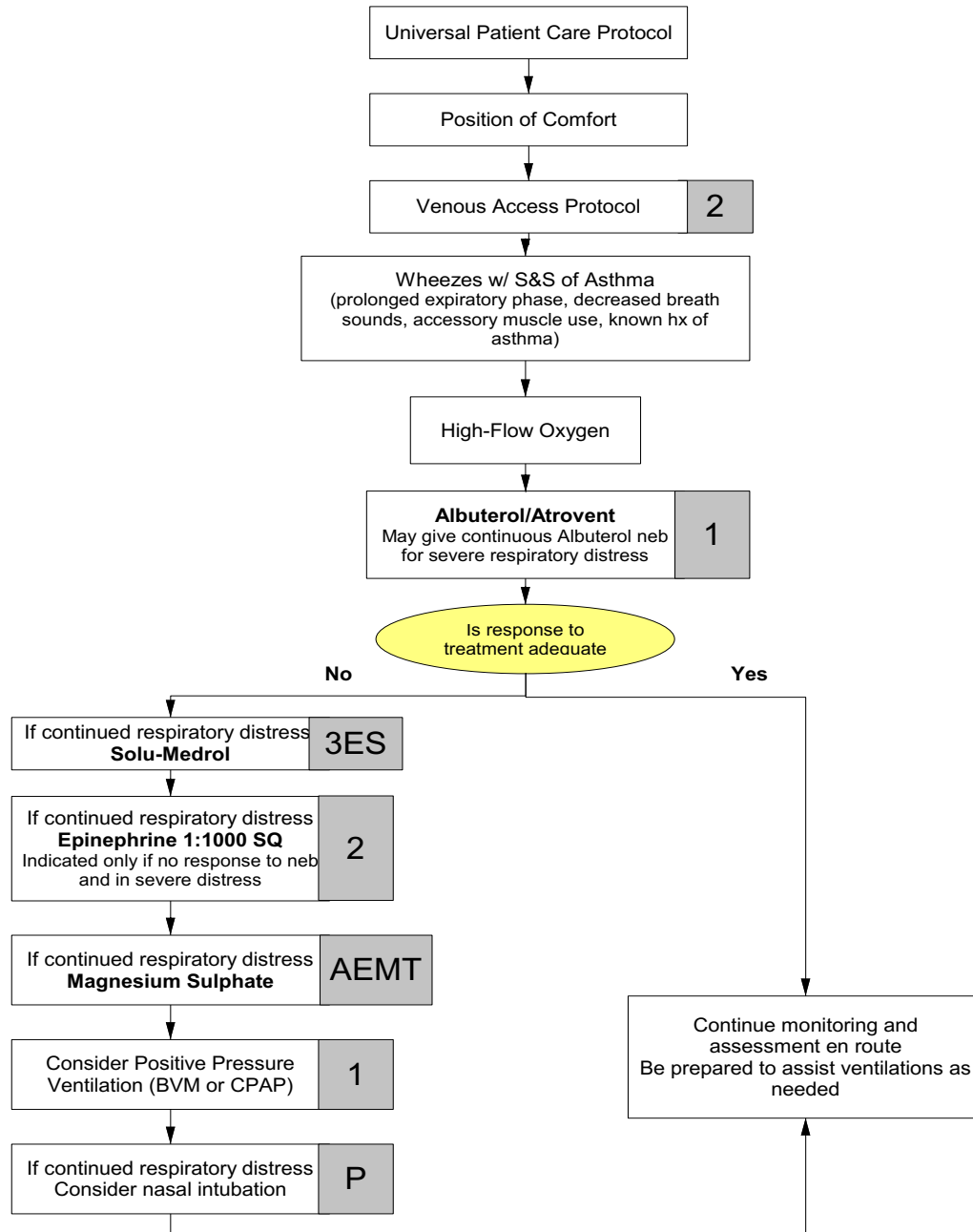
- **Epinephrine 1:1,000** (for asthma)
 - **Adult:** 0.3 mg SQ may repeat x 1 PRN

- **Ipratropium Bromide (Atrovent):**
 - **Adult: Bronchospasm:**
 - Single administration: One 2.5-ml vial (500 mcg) by nebulizer over 5 to 15 minutes. Do not repeat-- Subsequent nebulizer treatments are with Albuterol only.

- **Solumedrol (Methylprednisolone Sodium Succinate):**
 - **Adult:** 125 mg slow IV push (1-2 minutes) IM large muscle (not deltoid)

- **Magnesium Sulfate:**
 - **For refractory status asthmaticus:** 2 gm, diluted in 10 ml NS, over 5-10 minutes

Respiratory Distress: Asthma-Adult



Notes:

- Continuous pulse oximetry if initial saturation <96% or if patient status deteriorates and monitor EtCO₂, if available.
- Status asthmaticus is a severe, prolonged asthma attack unresponsive to therapy. IV magnesium may be beneficial in these cases, however it should not be given routinely. It should be reserved for life-threatening attacks not responding to conventional therapy.
- Use caution when giving epinephrine to patients >50 years old, those with history of heart disease and when the patient's heart rate is >150. Epinephrine may precipitate myocardial ischemia or infarction.
- A silent chest is a sign of impending respiratory arrest.
- Wheezing in the elderly may be due to pulmonary edema (cardiac asthma). Pulmonary embolus is an uncommon cause of wheezing.
- Suspect pulmonary embolism after recent fracture, surgery or childbirth, long flights, extended driving or prolonged bed rest.

Respiratory Distress: CHF/Pulmonary Edema Adult

History:

- Congestive heart failure
- Past medical history
- Medications (Digoxin, Lasix)
- Viagra, Cialis, Levitra, Revatio
- Cardiac history – past MI

Signs/Symptoms:

- Respiratory distress, cyanosis
- Bilateral rales
- Fever, cough
- Apprehension, orthopnea
- Jugular vein distension
- Pink, frothy sputum
- Peripheral edema, diaphoresis
- Hypertension
- Hypotension, shock
- Chest pain
- Fatigue
- Paroxysmal nocturnal dyspnea

Differential:

- Anaphylaxis
- Asthma
- COPD
- Pulmonary edema (cardiogenic)
- Pulmonary edema (noncardiogenic)
- Pericarditis
- Pneumonia
- Pneumothorax
- Pulmonary embolus
- Myocardial infarction
- Congestive heart failure
- Aspiration

Focused Exam: Mental status, lung sounds, skin, JVD, heart, abdomen (ascites), back (edema), extremities (pitting edema)

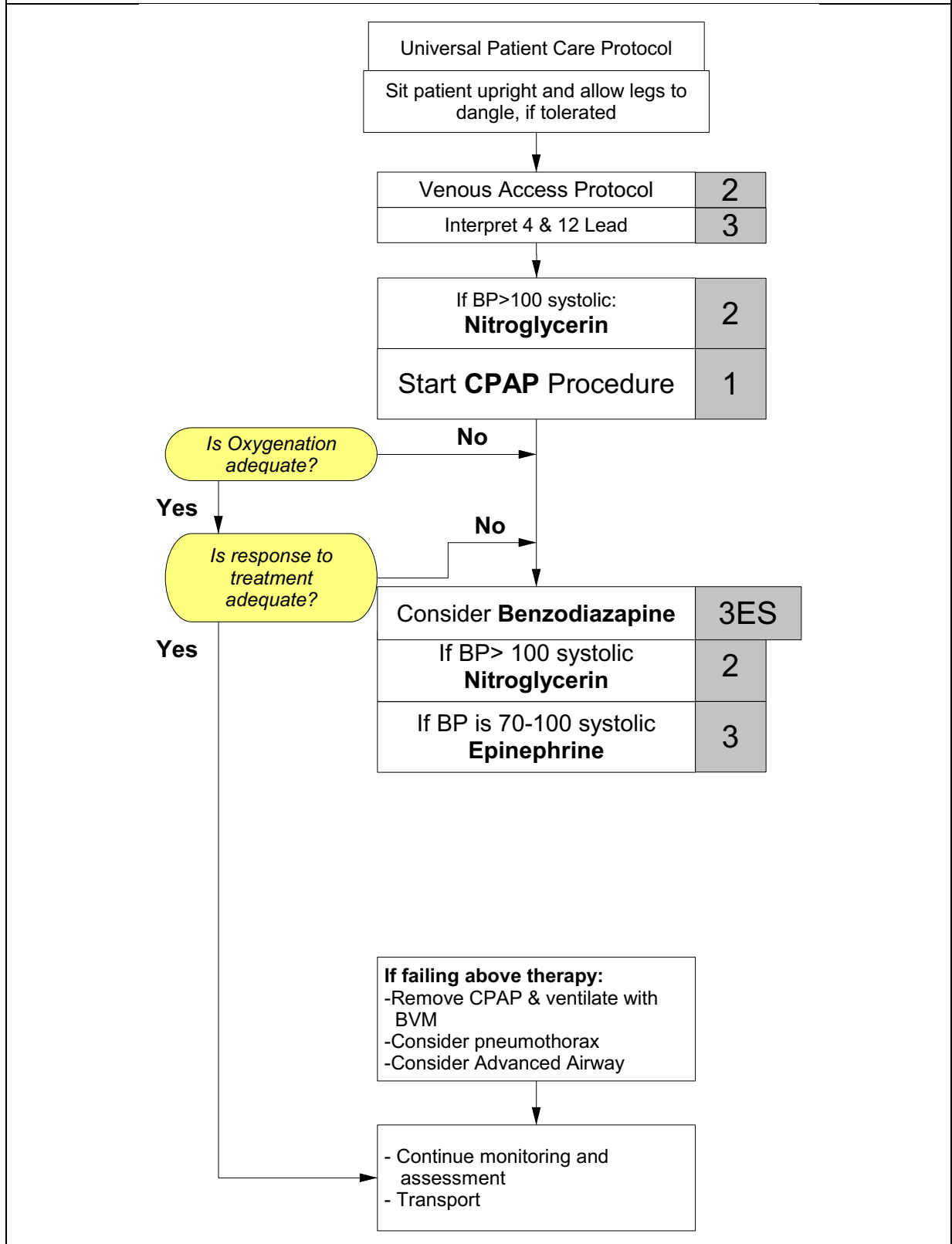
Dosage Help:

- **Nitroglycerin (Nitrolingual):**
 - **Adult:** 0.4 mg SL every 3-5 minutes PRN. Use in conjunction with CPAP.
- **Lorazepam (Ativan):**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN every 15-30 minutes, max 4.0 mg; **Contact Medical Control** to exceed 4 mg.

Notes:

- Allow patient to assume position of comfort, generally upright to minimize respiratory distress.
- Consider myocardial infarction in all pulmonary edema patients.
- Avoid nitroglycerin in patients who have used Viagra or Revatio within 24 hours, Levitra within 36 hours or Cialis within 48 hours due to potential severe hypotension.
- Contraindications for morphine include severe COPD and respiratory depression. Monitor patient closely.
- Monitor for hypotension after administration of nitroglycerin.
- A low dose of Ativan will reduce anxiety and the patient's endogenous catecholamine production and release. This will improve renal blood flow by opening the renal arteries, hence stimulating diuresis.

Respiratory Distress: CHF/Pulmonary Edema Adult



Respiratory Distress-Pediatric

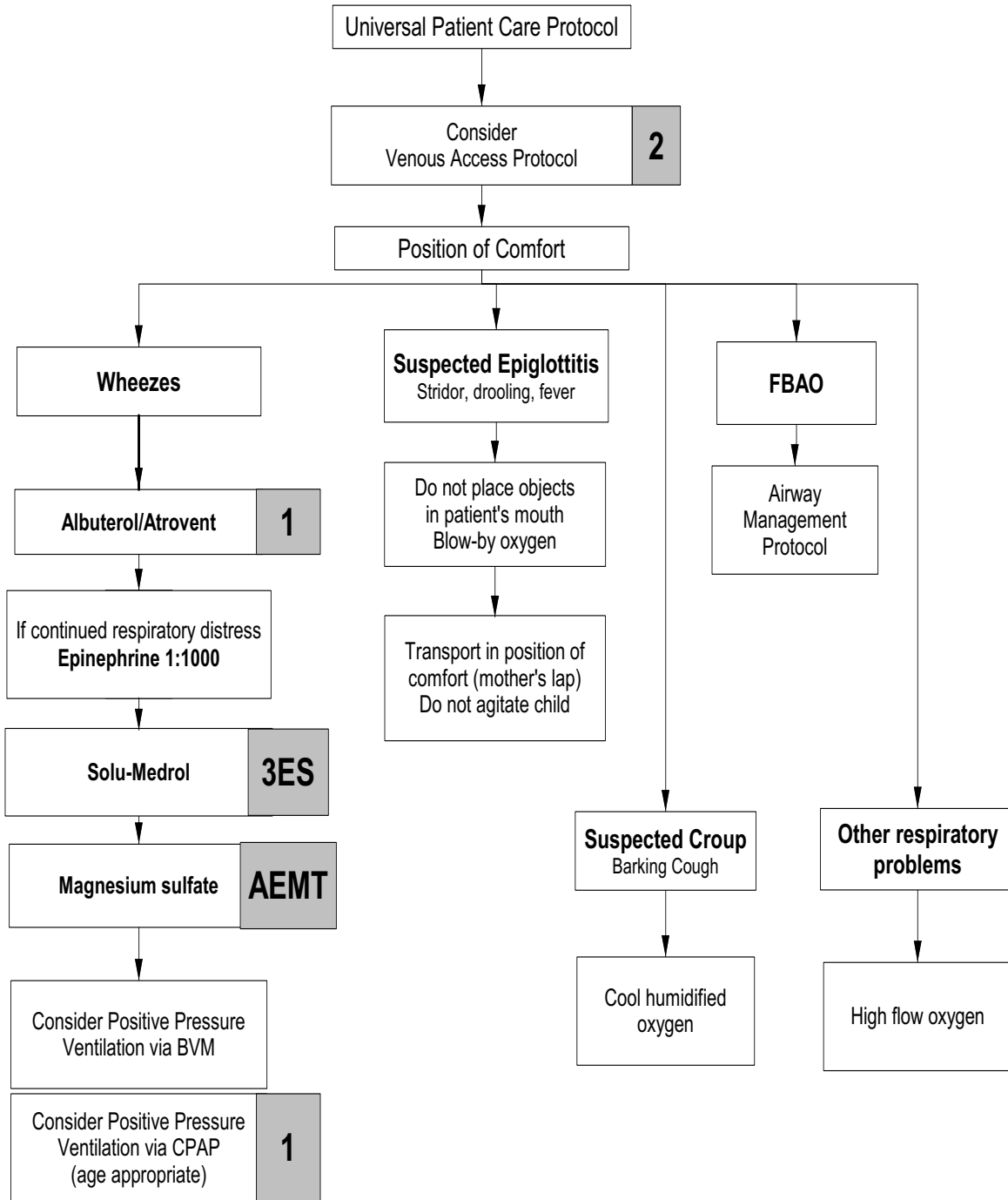
History: <ul style="list-style-type: none"> • Time of onset • History of foreign body obstruction • Medical history • Medications • Fever or respiratory infection • Other sick siblings • History of trauma 	Signs/Symptoms: <ul style="list-style-type: none"> • Wheezing or stridor • Respiratory retractions • Increased or decreased heart rate • Altered level of consciousness • Anxious appearance 	Differential: <ul style="list-style-type: none"> • Asthma • Aspiration • Foreign body • Infection <ul style="list-style-type: none"> ○ Pneumonia ○ Croup ○ Epiglottitis • Congenital heart disease • Toxin or medication • Trauma
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Focused Exam: General impression, (PAT), ABCDEs

Dosage Help:

- **Albuterol:**
 - **Age 1 to adult:** 2.5 mg (3 ml) by nebulizer, up to 3 doses total
 - **Alternative:** Continuous Neb dose:
 - **Adult Only:** In more severe cases, place 3 premixed containers of Albuterol (2.5 mg/3 mL) for a total dose of 7.5 mg in 9 ml, into a nebulizer.
- **Ipratropium Bromide (Atrovent):**
 - **Pediatric- Moderate and Severe Bronchospasm**
 - Age 2-12: Single administration: 0.5 mg/2.5 ml by nebulizer. Do not repeat-- Subsequent nebulizer treatments are with Albuterol only.
- **Epinephrine 1:1,000** (for anaphylaxis, asthma):
 - **Pediatric:** 0.01 mg/kg (0.01 ml/kg of **1:1,000** solution) IM/SQ max 0.3 mg per dose
- **Magnesium Sulfate:**
 - **For refractory status asthmaticus:** 25-50 mg/kg IV/IO over 5-10 minutes or slow infusion over 15-30 minutes dilute in NS to infuse. (Max 2 grams)
- **Methylprednisolone (Solu-Medrol):**
 - **Pediatric:** 2 mg/kg IV/IO/IM consult with Medical Control for concentration and rate of infusion. Max 80 mg.

Respiratory Distress-Pediatric



Notes:

- Consider humidified oxygen, if available

Seizures-Adult

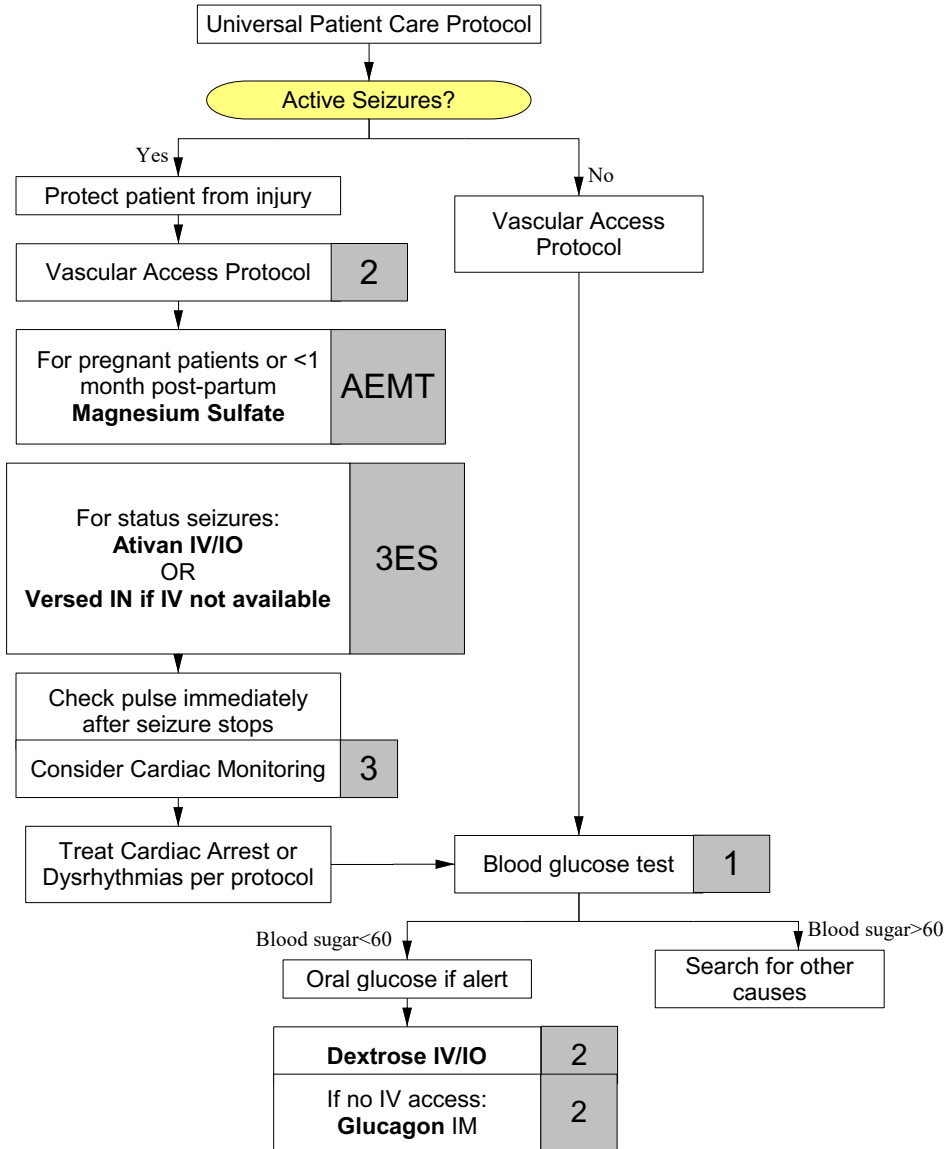
History: <ul style="list-style-type: none"> • Onset • Time between seizures • Description of seizure • History of seizures (Medic Alert tag) • Seizure medications – compliant? • Medical history <ul style="list-style-type: none"> ○ Head injuries ○ Diabetes ○ Headaches ○ Drugs/alcohol/medications ○ Recent fever, illness ○ Pregnancy 	Signs/Symptoms: <ul style="list-style-type: none"> • Decreased mental status • Injury to head, mouth, tongue, teeth • Incontinence • Observed seizure activity • Fever • Skin color, moisture, turgor 	Differential: <ul style="list-style-type: none"> • Epilepsy/Noncompliance with meds • Febrile seizure • CNS - Head trauma, stroke, TIA, tumor • Infection (meningitis) • Alcohol withdrawal (DT's) • Eclampsia • Hypoxia • Metabolic • Psychogenic nonepileptic seizure • Electrolyte abnormality (Na, Ca, Mg) • Liver or kidney failure • Drugs • Hypoglycemia • Vasovagal response • Dysrhythmias
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Focused Exam: Mental status, tonic/clonic motions, posturing, temperature, pupils, mucous membranes, skin, HEENT (mouth/tongue), neurological

Dosage Help:

- **Lorazepam (Ativan):**
 - **Status epilepticus:** 4 mg IV/IO/IM over 2-5 minutes; May repeat in 10-15 min with **Medical Control** approval.
- **Dextrose:**
 - **Adult:** 50 ml D50 IV/IO.
 - D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Glucagon:**
 - **Adult:** 1 mg IM. May repeat in 15 minutes if no increase in LOC.
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN
- **Magnesium Sulfate:**
 - **For seizures of eclampsia or 1 mo. Post-partum:** Initial dose: 4 g (8 ml of 50% solution, diluted to 20-40 ml with NS) IV/IO over 3-4 minutes
 - Maintenance infusion: 1-2 g/hr IV/IO
- **Midazolam (Versed) (for status epilepticus): **Medical Control approval required for EMT 3****
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred) if no IV in place. Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses

Seizures-Adult



Notes:

- Hypoxic seizures may result from syncope, transient dysrhythmias or airway obstruction.
- Bacterial meningitis is rare. Classic signs are sudden fever, headache, stiff neck, photophobia, and rash. Some 30-40% of pediatric patients and 20-30% of adult patients experience seizures.
- Delirium tremens (DTs) usually occurs within 72 hours of an alcoholic's last drink. Symptoms include shakiness, emotional volatility, dysrhythmias, confusion, stupor and seizures. When untreated, mortality is up to 35%.
- Post-seizure patients should be transported. When competent patients refuse transport, try to convince them to get follow-up care and leave them in a safe environment, preferably with a competent person to watch them.

Seizures-Pediatric

History:

- Fever
- Prior history of seizures/ seizure medications
- Reported seizure activity
- History of recent head trauma
- Congenital Abnormality

Signs/Symptoms:

- Observed seizure activity
- Altered mental status
- Hot, dry skin or elevated body temperature
- Posturing: Decorticate/ Decerebrate

Differential:

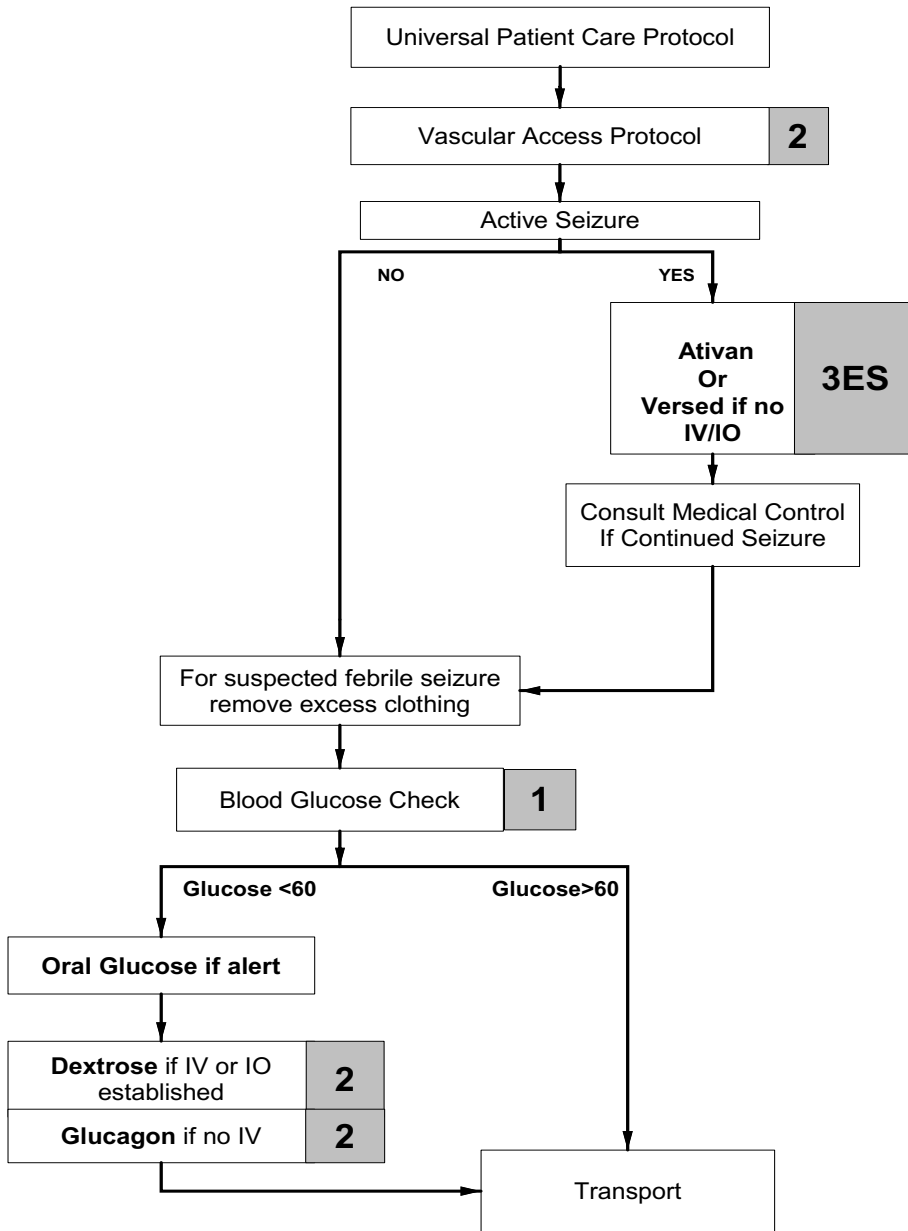
- Fever
- Infection
- Head Trauma
- Medication or Toxin
- Hypoxia or Respiratory Failure
- Hypoglycemia
- Metabolic Abnormality/ Acidosis
- Tumor

Focused Exam: General impression, (PAT), ABCDEs

Dosage Help:

- **Dextrose:**
 - **Age 8 and under:**
 - 2-4 ml/kg of Dextrose 25% IV/IO/PR. Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - **Newborn with documented hypoglycemia:**
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Glucagon:**
 - **Pediatric:** 0.1 mg/kg IM or see length-based tape/pedi wheel (max 1 mg)
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN
- **Lorazepam (Ativan):**
 - **Pediatric :** 0.05 mg/kg or see length-based tape/pedi wheel; max 2 mg; may repeat with **Medical Control** approval.
- **Midazolam (Versed) (for status epilepticus): **Medical Control approval required for EMT 3****
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.

Seizures-Pediatric



Notes:

- Febrile seizures result from rapid temperature change. Avoid rapid cooling.

Stroke

History: <ul style="list-style-type: none"> • Time symptoms began • Progression of symptoms • Hx of previous stroke or TIA • Risk factors: diabetes, hypertension, vascular disease, atrial fibrillation • Meds (Coumadin, Warfarin) • History of trauma • Past psychological problems • Check area for pill bottles, syringes etc. Transport w/ pt. 	Signs/Symptoms: <ul style="list-style-type: none"> • Sudden numbness, weakness or paralysis, especially on one side. • Confusion • Difficulty speaking or understanding • Difficulty seeing in one or both eyes • Sudden severe headache • Seizures • Syncope, vertigo, dizziness • Respiratory pattern changes • Vomiting • Hypertension/hypotension 	Differential: <ul style="list-style-type: none"> • See Altered Mental Status • Stroke <ul style="list-style-type: none"> ○ Thrombotic ○ Embolic ○ Hemorrhagic • TIA • Seizure • Hypoglycemia • Tumor • Trauma
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Focused Exam: Mental status, blood glucose check, neurological, Cincinnati Stroke Scale, blood pressure

Cincinnati Prehospital Stroke Scale

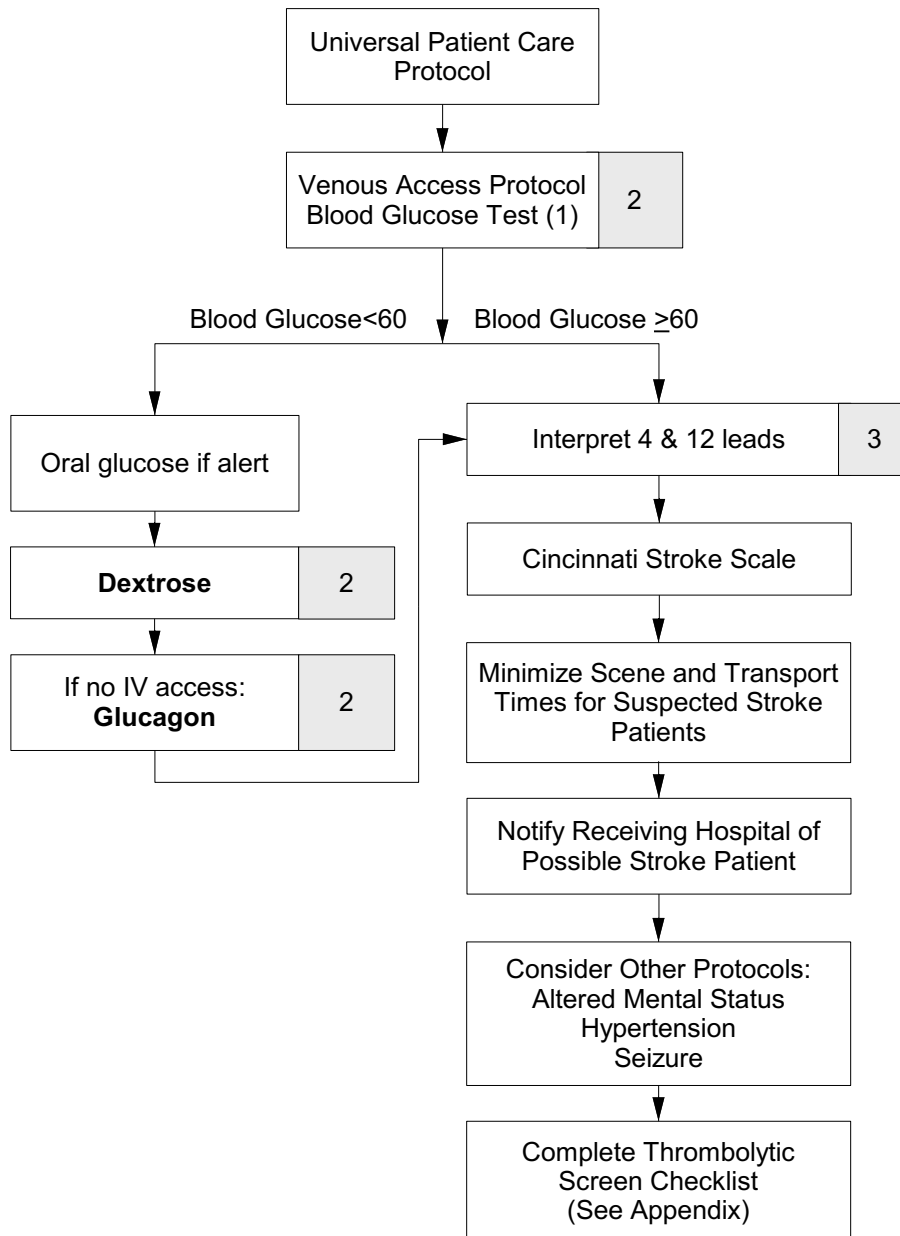
Assess facial muscles, arm movement and speech. Abnormality in any one strongly suggests stroke.

- Ask the patient to show teeth or smile
 - **Normal** – both sides of face move equally well
 - **Abnormal** – one side of face does not move as well as the other side
- Ask the patient to close both eyes and hold both arms straight out, palms up, for 10 seconds
 - **Normal** – both arms move the same or both arms do not move at all
 - **Abnormal** – one arm does not move or one arm drifts down
- Ask the patient to repeat a simple phrase, such as “You can’t teach an old dog new tricks”
 - **Normal** – patient uses correct words with no slurring
 - **Abnormal** – patient slurs words, uses the wrong words or is unable to speak

Dosage Help:

- **Dextrose:**
 - **Adult:** 50 ml D50 IV/IO.
 - D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Glucagon:**
 - **Adult:** 1 mg IM. May repeat in 15 minutes if no increase in LOC.
- **Glucose, Oral Gel:**
 - **Adult/pediatric:** Give one tube orally. Repeat PRN

Stroke



Notes:

- Time of onset is critical in determining eligibility of stroke patients for thrombolytic therapy. Onset is the last witnessed time when the patient was symptom-free. If the patient awoke in the morning with stroke symptoms, time of onset is defined as the previous evening when the patient was symptom-free.
- Notify medical control well before arrival that you are transporting a possible stroke patient.
- Be alert for airway problems – vomiting, difficulty swallowing.
- Hypoglycemia may present as focal neurological deficit, especially in the elderly.
- Use dextrose with caution in patients with increasing intracranial pressure as it may worsen the cerebral edema.
- Most TIAs last less than 5 minutes. Up to 17% of TIA pts have a stroke within 6 months.

Syncope

History:

- Onset – precipitating factors
- Was patient standing? Seated? Recumbent?
- Duration
- Last menstrual period, vaginal bleeding
- Fluid loss – nausea, vomiting, diarrhea
- History of stroke, seizure, cardiac problems
- Prior episodes
- Past medical history, medications
- Bloody vomit, stools

Signs/Symptoms:

- Loss of consciousness with recovery
- Dizziness, light-headedness
- Hypotension (orthostatic?)
- Mental status – residual mental deficit
- Palpitations, bradycardia, tachycardia, dysrhythmias
- Injury to head, mouth, tongue, teeth
- Incontinence
- Observed seizure activity
- Chest, abdominal or back pain
- Headache

Differential:

- Vasovagal
- Orthostatic hypotension
- Cardiac syncope
- Micturation/defecation syncope
- Occult blood loss – GI bleed, ectopic pregnancy, ruptured aortic aneurysm
- Pulmonary embolism
- Psychiatric
- Stroke
- Hypoglycemia
- Seizure
- Shock
- Toxicological (including alcohol)
- Medication effect (hypertension)

Focused Exam: Mental status, lung sounds, blood glucose check, neurological, Cincinnati Stroke Scale, blood pressure, cardiac monitoring (12-lead if available), orthostatic vital signs

Dosage Help:

- **Dextrose:**

- **Adult:** 50 ml D50 IV/IO.
- D10: 250ml titrate to effect IV/IO or
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)
- **Pediatric:**
 - **Age 8 and under:**
 - 2-4 ml/kg of Dextrose 25% IV/IO. Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - **Newborn with documented hypoglycemia:**
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)

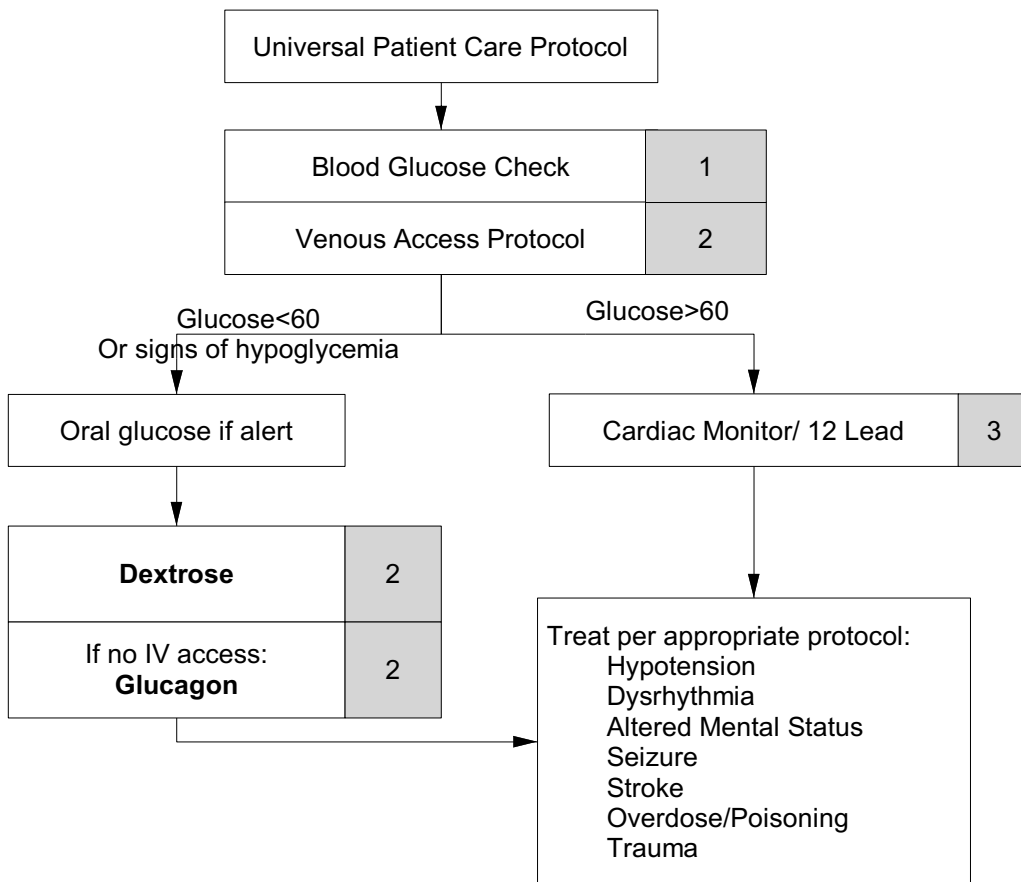
- **Glucagon:**

- **Adult:** 1 mg IM. May repeat in 15 minutes if no increase in LOC.
- **Pediatric:** 0.1 mg/kg IM or see length-based tape/pedi wheel (max 1 mg)

- **Glucose, Oral Gel:**

- **Adult/pediatric:** Give one tube orally. Repeat PRN

Syncope



Notes:

- Assess for signs and symptoms of trauma if patient fell during syncopal episode.
- Most syncope is vasovagal, preceded by a sense of unease, unsteadiness, pallor, perspiration, and sometimes nausea, vomiting, blurring and darkened vision. Recumbent position generally restores normal vital signs and level of consciousness. Incontinence and tongue-biting are not typical of syncope.
- Consider IV fluid bolus in pts where CHF is not suspected even if normotensive while lying down.
- Syncope that occurs without warning or while recumbent is often caused by dysrhythmias.
- An elderly patient with syncope and back pain should be considered to have a ruptured aortic aneurysm until proven otherwise.
- Syncope patients >40 years old should be transported due to the possibility of serious problems such as dysrhythmias, GI bleeding, seizure or ruptured aortic aneurism.

Vomiting/Nausea and Diarrhea

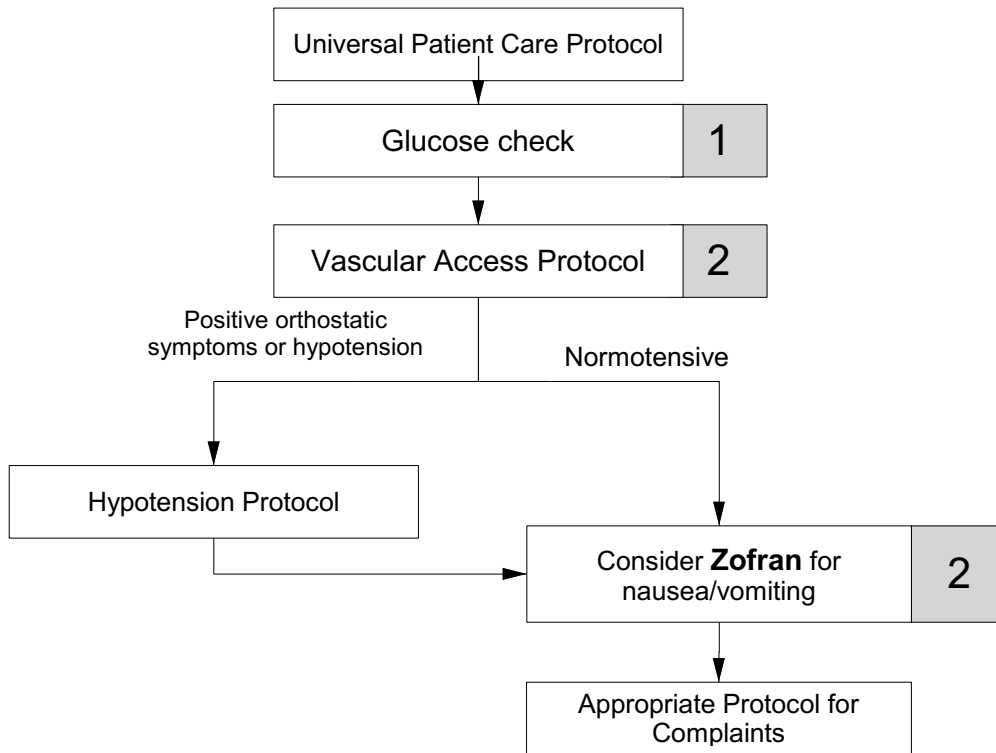
<p>History:</p> <ul style="list-style-type: none"> • Age • Time of last meal • Last bowel movement/emesis • Bloody vomit or stool • Improvement or worsening with food or activity • Frequency, duration of diarrhea/vomiting • Other sick contacts • Past medical/surgical history <ul style="list-style-type: none"> ○ Diabetes ○ Cardiac disease ○ Abdominal problems ○ Alcoholism • Medications • Menstrual history, pregnancy 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Pain and character – constant, intermittent, sharp, dull, etc. Radiation. • Abdominal pain, tenderness, guarding, rigidity, distention • Constipation, diarrhea • Anorexia • Cough, fever, malaise, myalgias, rash • Headache, blurred vision • Dysuria • Mental status changes • Signs of dehydration: skin tenting and poor color, hypotension, tachycardia, dry mucous membranes, positive orthostatic vitals, confusion, delayed capillary refill, lack of tears, sunken eyes and fontanelle 	<p>Differential:</p> <ul style="list-style-type: none"> • CNS – increased intracranial pressure, headache, stroke, CNS lesions, trauma or hemorrhage, inner ear problems. • Myocardial infarction • Drugs – NSAIDs, antibiotics, narcotics, chemotherapy • GI or renal disorders • Diabetic ketoacidosis • Gynecologic disease – ovarian cyst, pelvic inflammatory disease • Infections – pneumonia, influenza • Electrolyte abnormalities • Food or toxin induced • Medication or substance abuse • Pregnancy • Psychological
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Focused Exam: Mental status, skin turgor, heart, lungs, abdomen, orthostatic vital signs, blood glucose

Dosage help:

- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Vomiting/Nausea and Diarrhea



Notes:

- Dehydration may be severe in children with vomiting or diarrhea.
- Taking orthostatic vitals are time consuming and usually are not helpful. Positive orthostatic symptoms include patient complaining of dizziness or weakness when sitting or standing accompanied by increased heart rate.
- Vomiting may signal more serious problems such as GI bleeding or other intra-abdominal catastrophe. Rarely, vomiting may be the presenting symptom in cardiac patients.
- Consider drug overdose. A patient who does not call the ambulance for medication ingestion may call later when GI symptoms become severe.

Consider new onset Diabetic Ketoacidosis (DKA)

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Treatment Protocols: Trauma

Trauma: Multiple Trauma Overview

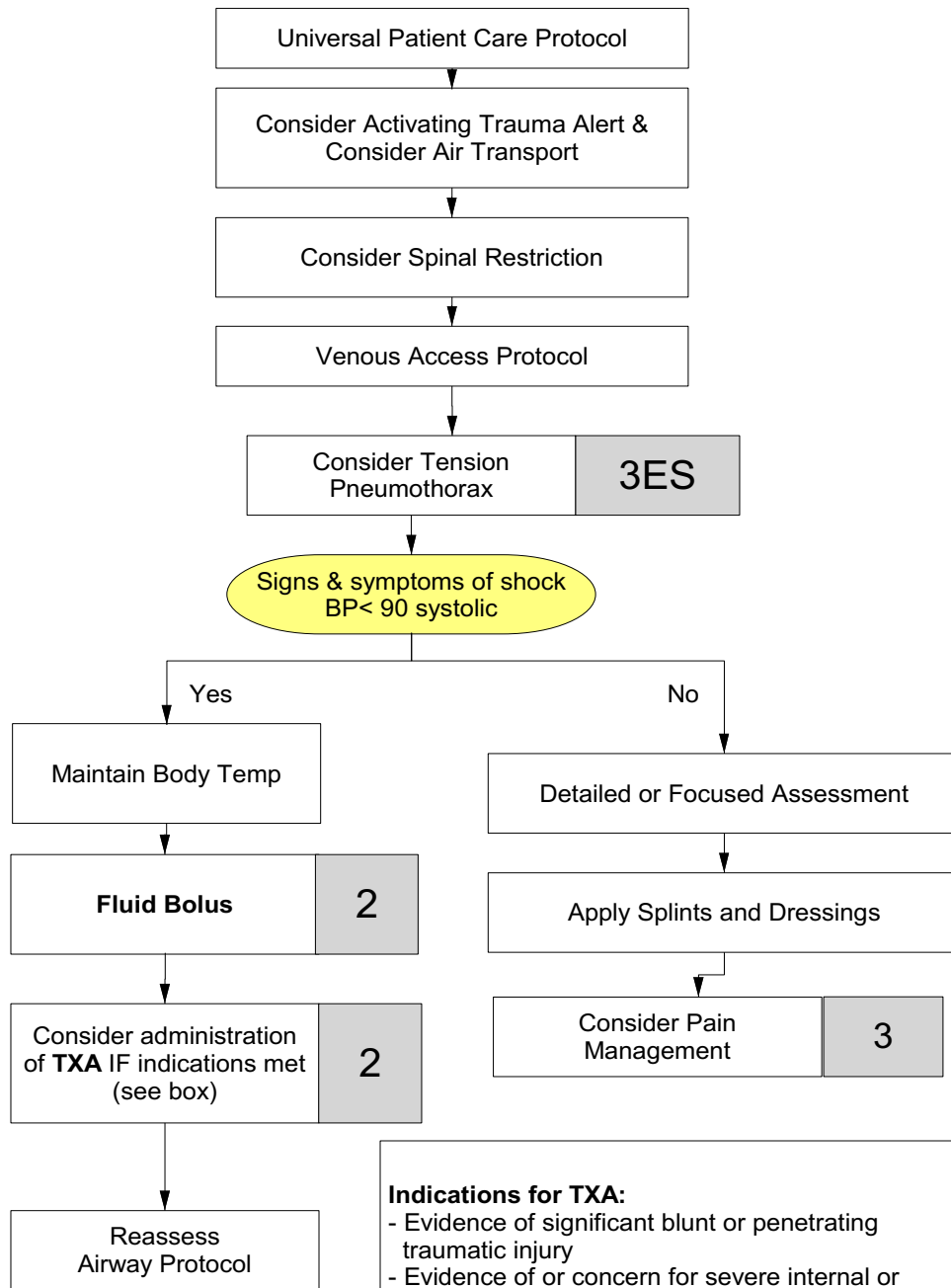
History <ul style="list-style-type: none"> • Time and mechanism of injury • Damage to structure of vehicle • Location in structure of vehicle • Others injured or dead • Speed and details of MVC • Restraints/Protective equipment • Past medical history/medications 	Signs/Symptoms: <ul style="list-style-type: none"> • Pain, swelling • Deformity, lesions, bleeding • Altered mental status or unconscious • Hypotension or shock • Cardiac or respiratory arrest 	Differential: (Life Threatening) <ul style="list-style-type: none"> • Chest: <ul style="list-style-type: none"> ○ Tension pneumothorax ○ Flail chest ○ Pericardial tamponade ○ Open chest wound ○ Hemothorax • Intra-abdominal bleeding • Pelvis/Femur fracture • Spinal fracture/Cord injury • Head injury • Airway obstruction • Hypothermia
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Focused Exam: ABCs, vital signs, mental status, skin, HEENT, heart, lung, abdomen, extremities, back, neurological, GCS

Dosage Help:

- **Fluid Resuscitation:**
 - **Adult:** Fluid bolus should be 250-500 cc. Absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding cumulative max of (3) three liters.
 - **Pediatric:** fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.
- **Fentanyl:**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg**IN route** requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical Control**
- **Lorazepam (Ativan):** (Anxiety/Sedation/Muscle Relaxation)
 - **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max dose of 4.0 mg; **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:** 4 mg, single dose.
- **Tranexamic Acid (TXA)**
 - **Adult:**
 - 2 grams mixed in 100 ml NS infused over 10 Minutes OR
 - 2 grams **Slow** IV Push

Trauma: Multiple Trauma Overview



Indications for TXA:

- Evidence of significant blunt or penetrating traumatic injury
- Evidence of or concern for severe internal or external hemorrhage
- Sustained systolic blood pressure < 90mmHg (or <100mmHg if older than 55)
- Sustained heart rate > 110 bpm

Notes:

- **Do Not Delay Transport of Trauma Patients**
- Mechanism is most reliable indicator of serious injury
- 3 and above: Consider Fentanyl for pain management in multi-trauma patients, as it has a better hemodynamic profile than morphine.

Trauma: Burns

History:

- Type of exposure
- Inhalation injury
- Time of injury
- Past medical history / medications
- Other trauma
- Loss of consciousness

Signs/Symptoms:

- Burns, pain, swelling
- Dizziness/ loss of consciousness
- Hypotension/ shock
- Airway compromise/ distress
- Singed facial or nasal hair
- Hoarseness
- Entrance and exit burns (electrical)

Differential:

- Superficial (1°) red and painful
- Partial Thickness (2°) blistering
- Full Thickness (3°) painless and charred or leather like skin
- Chemical
- Thermal
- Electrical
- Radiation

Focused Exam: Determine size of burn, assess airway for s/s of burns, lungs, abdomen, extremities, back, neurological, GCS, CBG

Dosage Help:

• Fluid Resuscitation:

- Parkland Burn Formula: $4\text{ml} \times \% \text{ TBSA} \times \text{Pt. Wt in Kg} = \text{Total ml NS or LR to be given in the first 24 hours}$
 - Half of this amount is to be given in the first 8 hrs from time of injury.
 - Remaining half is to be given over the following 16 hours

• Fentanyl (Sublimaze):

- **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.

○ Pediatric: (1-12 years):

IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.

- Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg

IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns

○ Pediatric < 1 year: **Contact Medical Control**

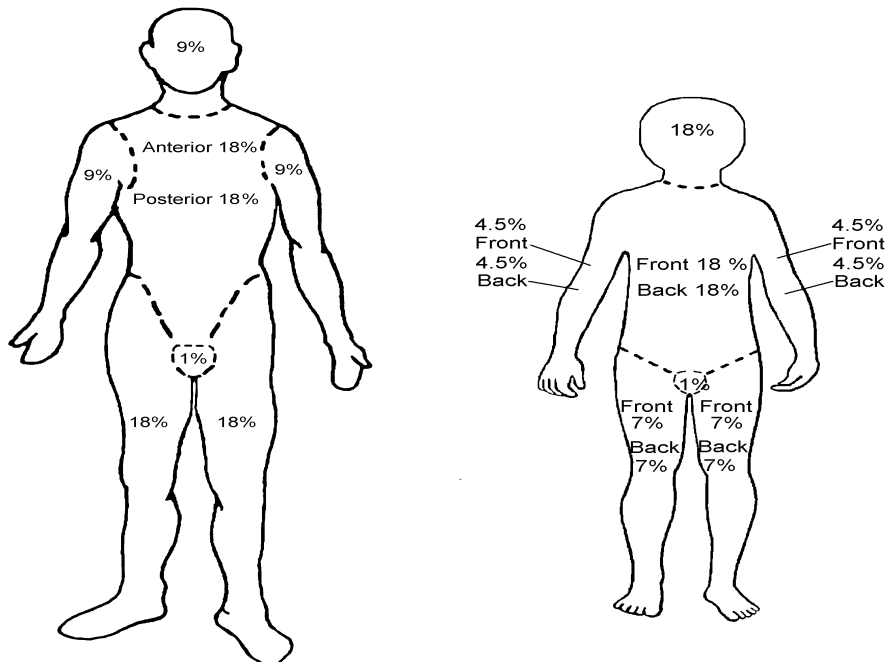
• Morphine:

- **Adult:** 4-10 mg, IV/IO every 5-30 minutes. No maximum amount, provide as needed to manage pain; monitor BP and respiratory drive. (IM not recommended in burn patients).
- **Pediatric:** 0.1 mg/kg IV/IO PRN; Max single dose is 5 mg; **Contact Medical Control** to exceed 10 mg.

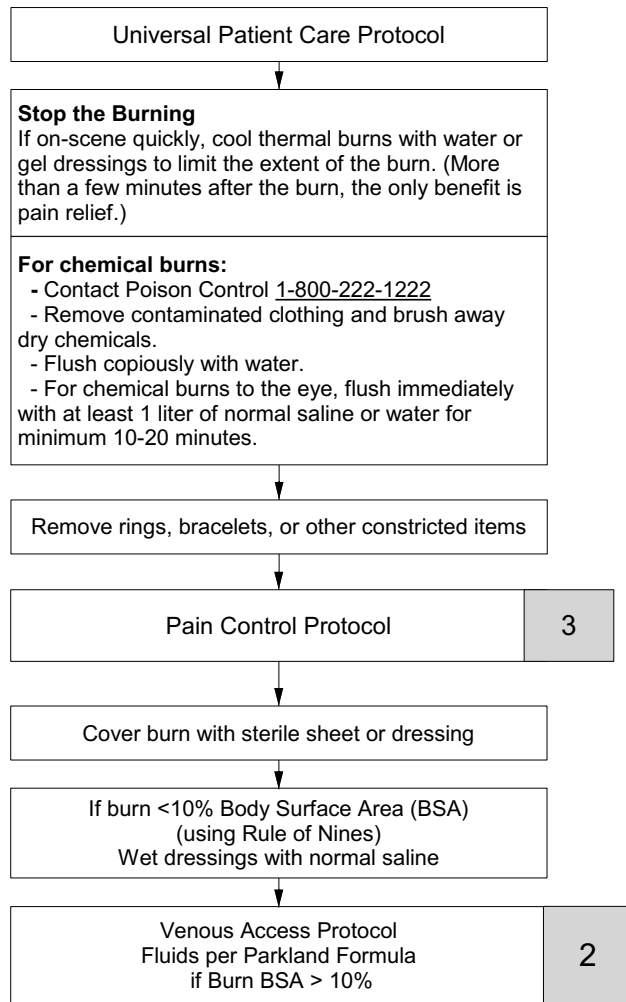
• Lorazepam (Ativan): (Anxiety/Sedation/Muscle Relaxation)

- **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max of 4.0mg; **Contact Medical Control** to exceed 4 mg.
- **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg

NOTE: The combination of a narcotic & benzodiazepine is extremely effective pain management for burn victims.



Trauma: Burns



Notes:

- Ensure rescuer safety!
- **Consider contacting medical control for increased dosages PRN for pain management**
- Provide pain management as soon as is practical
- Large burns may require larger doses of narcotic; titrate to relief; remember Fentanyl has a shorter half-life than morphine.
- Early Intubation is required in significant inhalation injuries. Watch for signs and symptoms of airway involvement such as changes in voice and hoarseness.
- Electrical injuries may cause dysrhythmias.
- 100% oxygen is necessary to treat potential carbon monoxide exposure.
- Burns requiring specialized care in a burn center or unit include:
 - 2° and 3° burns of greater than 10% TBSA (total body surface area) in patients <10 years of age or >50 years of age, or burns of greater than 20% TBSA in all other patients.
 - 3° burns totaling 5% TBSA or more in any age group.
 - 2° and 3° burns with serious threat of functional or cosmetic impairment involving the face, neck, eyes, ears, hands, feet, major joints, genitalia, and the perineum.
 - Electrical, chemical, burns with inhalation injury, circumferential burns to the chest or extremities.
 - Burns associated with major trauma, pre-existing medical disorders or in the very young or very old.
- Leave blisters intact. Pad between digits.
- If cooling for pain relief, never cool or moisten >10% TBSA, at any one time. This can cause hypothermia.
- Do not overlook the possibility for multiple system trauma.

Trauma: Chest

History:

- Time since injury
- Mechanism of Injury: force, speed of impact, seatbelt use/type
- Penetrating trauma: size of object, caliber of bullet
- Past medical history: medications / prior medical problems

Signs/Symptoms:

- Chest Pain
- Diminished breath sounds
- Open chest wound
- Paradoxical chest wall movement
- Cyanosis
- Dysrhythmias
- Asystole (confirm in 2 leads)
- Blood loss internal or external
- Impaled object
- JVD/ hyper-resonance
- Crepitus/ Subcutaneous emphysema
- Tachycardia/Tachypnea

Differential:

- Hypovolemia
- Hypoxia
- Acidosis
- Hypoglycemia
- Hypothermia
- Tension Pneumothorax
- Pericardial Tamponade
- Cardiac contusion
- Thrombosis (coronary or pulmonary)
- Hemothorax

Focused Exam: Chest, heart, lungs, abdomen, back, neurological, GCS

Dosage Help:

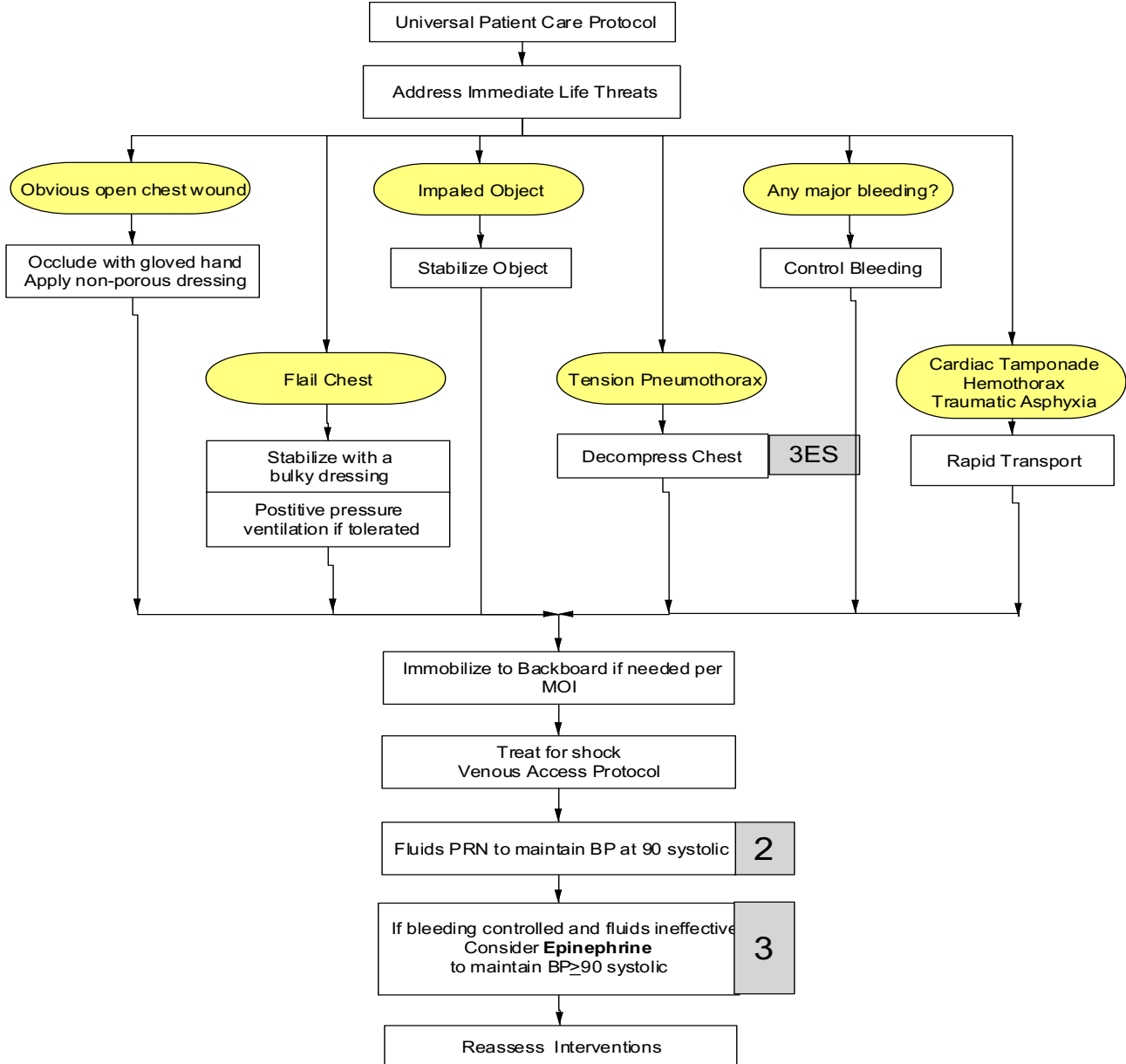
Fluid bolus:

- **Adults:** fluid bolus should be 250-500 cc. Absent pulmonary edema, repeat as needed to maintain BP of 90 systolic. Consult medical control before exceeding cumulative (3) three liters.
- **Pediatric:** fluid bolus should be 20 cc/kg over 10-15 minutes. Reassess lung sounds after each bolus. Consult medical control before exceeding cumulative max of 60 cc/kg/hr.

Epinephrine:

- Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, a MAP of > 65 mmHg, and/or adequate cerebral perfusion as evidenced by mentation

Trauma: Chest



Notes:

- Rapid transport and large bore IVs are indicated with chest trauma patients.
- It is imperative to quickly recognize, treat and transport the “deadly dozen” (airway obstruction, tension pneumothorax, cardiac tamponade, open pneumothorax, massive hemothorax, and flail chest, thoracic aortic disruption, tracheobronchial disruption, myocardial contusion, traumatic diaphragmatic tear, esophageal disruption, and pulmonary contusion.)
- Consider medical causes of respiratory distress such as asthma, pulmonary edema, or COPD that may have either caused trauma or been aggravated by it.
- Myocardial contusion pain is similar to myocardial infarct pain, think hypoxia and hypovolemia.
- Large flails are best treated with endotracheal intubation and assisted ventilation with PEEP

Trauma: Crush Injury

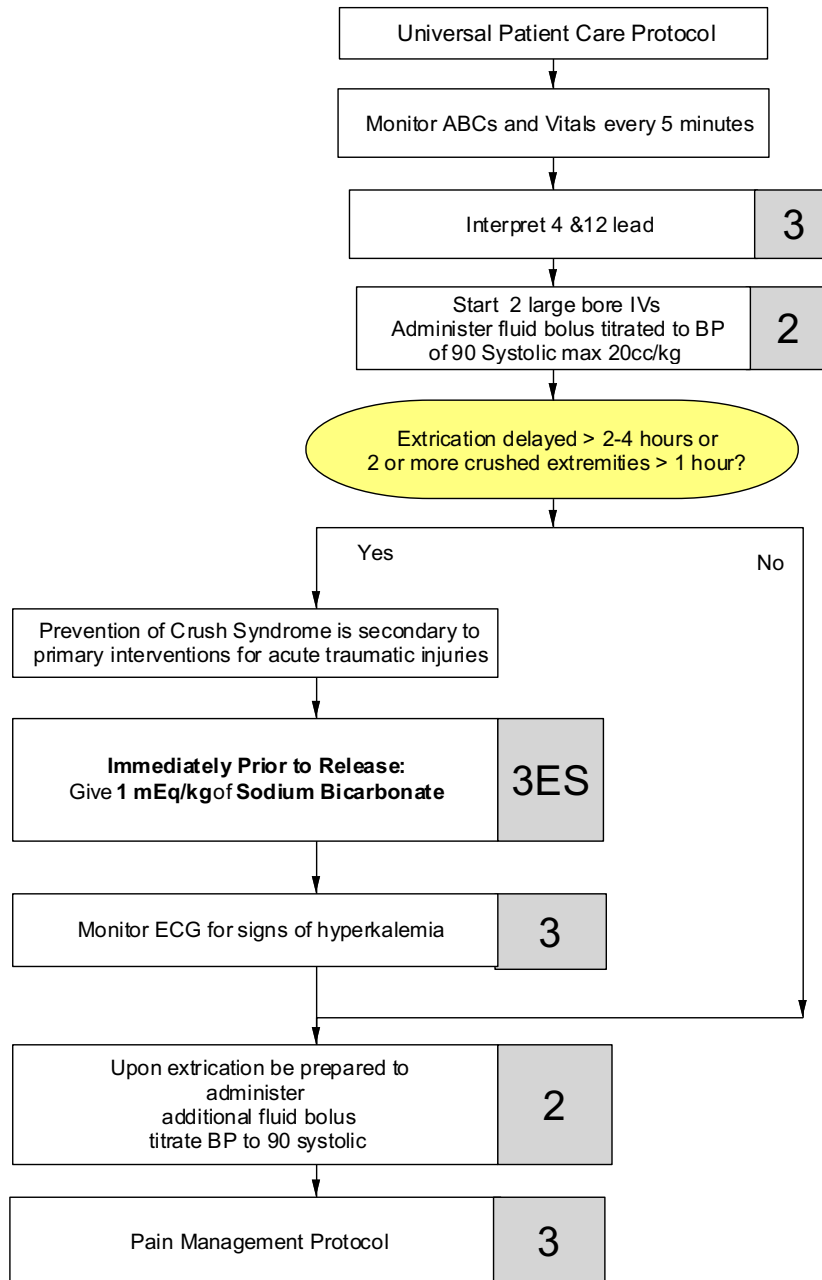
History: <ul style="list-style-type: none"> • Mechanism of Injury • Prolonged compression of large muscle mass • Length of extrication time • Time of injury • Past Medical History/ Medications 	Signs/Symptoms: <ul style="list-style-type: none"> • Six Ps: Pain, Pallor, Pulselessness, Paralysis, Paresthesia, Poikilothermic (cool to the touch) • Discoloration • Petechial hemorrhage • Loss of function • Hypotension or shock • Altered level of consciousness 	Differential: <ul style="list-style-type: none"> • Crush Injury • Compartment syndrome • Fractures • Laceration, avulsion or amputations
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Focused Exam: Heart, lung, abdomen, extremities, back, neurological, GCS, distal pulses, cardiac monitoring, extremity function & range of motion

Dosage Help:

- **Fentanyl:**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg
IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: CONTACT MEDICAL CONTROL**
- **Morphine:**
 - **Adult:** Initial dose: 4-10 mg, IV/IO every 5-30 minutes. No maximum amount, provide as needed to manage pain; monitor BP and respiratory drive.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
- **Lorazepam (Ativan): (Anxiety/Sedation/Muscle Relaxation)**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max of 4.0mg; **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg
- **Sodium Bicarbonate (use dedicated IV line):**
 - **Adult:**
 - If extrication delayed >2-4 hours or 2 or more extremities trapped >1 hour
 - Immediately before release, give initial 1 mEq/kg IV/IO bolus
 - **Pediatric:** Consult Medical Control
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Trauma: Crush Injury



Notes:

- Maintain patient temperature.
- Handle all crushed limbs gently because the ischemic tissue is prone to injury.
- Be prepared for significant bleeding and sudden cardiac arrest when the patient is freed, especially after prolonged entrapment
- Prepare to treat dysrhythmias.
- Sodium Bicarb NOT approved for pediatric use without Medical Control direction.
- Crush syndrome results from prolonged pressure or compression of large muscles, typically in situations such as building collapse, entrapment in machinery or vehicle entrapment.

Trauma: Extremity

History:

- Type of injury
- Mechanism of Injury: crush, penetrating, amputation
- Time of Injury
- Open or closed wound/
Fracture
- Contamination
- Past Medical History/
Medication

Signs/Symptoms:

- Pain, swelling
- Paralysis, numbness, tingling, loss of function
- Discoloration, deformity
- Diminished pulse or capillary refill
- Decreased extremity temperature
- Guarding
- Hypotension or shock

Differential:

- Blunt trauma
- Penetrating injury
- Fractures
- Sprains
- Abrasions
- Contusions
- Lacerations
- Compartment syndrome
- Amputation, avulsion
- Multiple trauma
- Crush injury
- Compartment syndrome

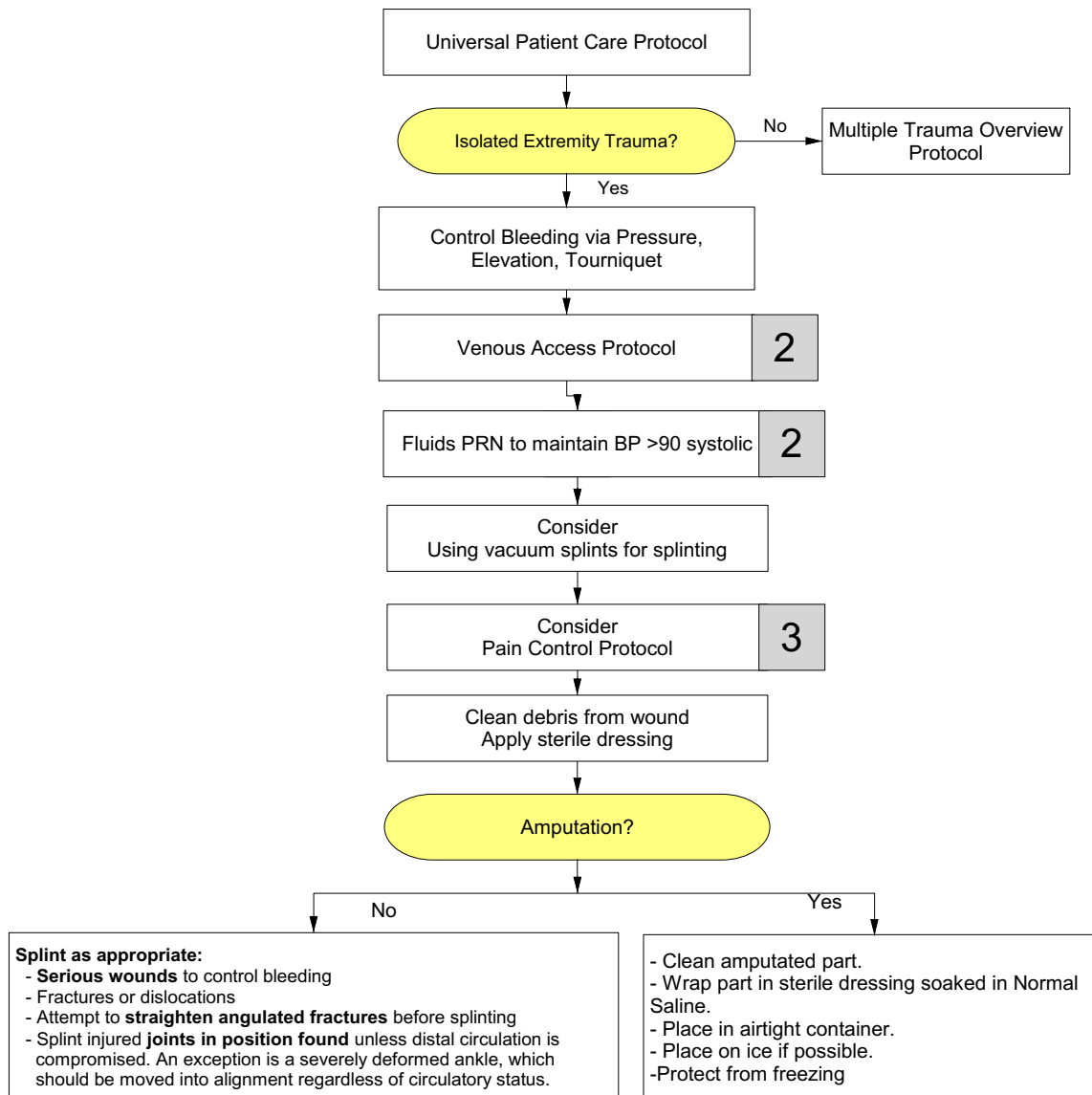
Focused Exam: Extremities, pelvis, range of motion, peripheral pulse, motor, sensation

Dosage Help:

- **Fentanyl:**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO-repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg

IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: CONTACT MEDICAL CONTROL**
- **Morphine:**
 - **Adult:** Initial dose: 4-10 mg, IV/IO every 5-30 minutes. No maximum amount, provide as needed to manage pain; monitor BP and respiratory drive.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
 -
- **Lorazepam (Ativan): (Anxiety/Sedation/Muscle Relaxation)**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max of 4.0mg; **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Trauma: Extremity



Notes:

- Do not use ice or cold packs directly on skin or under vacuum splints.
- Maintain patient temperature.
- Protect flaccid extremities from further injury/ exposure.
- When straightening grossly angulated fractures, apply gentle traction to align the extremity in its normal anatomical position. Stop if there is a significant increase in pain or resistance is felt.
- Morphine is the preferred pain medication for fractures. It has a longer half-life and offers better relief from this type of pain. Fentanyl is appropriate for injuries that will be reduced in-hospital, ie shoulders, or hips, however consider using a longer-acting narcotic for fractures.

Trauma: Eye Injuries

History:	Signs/Symptoms:	Differential:
<ul style="list-style-type: none"> • Type of injury • Vision loss • Eye pain • Visual acuity • Time of injury • Past Medical History/ Medications 	<ul style="list-style-type: none"> • Type of injury • Vision loss • Eye pain • Redness • Range of ocular motion • Disconjugate gaze • Nystagmus 	<ul style="list-style-type: none"> • Cataracts • Glass eye • Injury to eye or eyelid • Rupture of globe • Lacerated or scratched cornea • Prior injury • Prior stroke

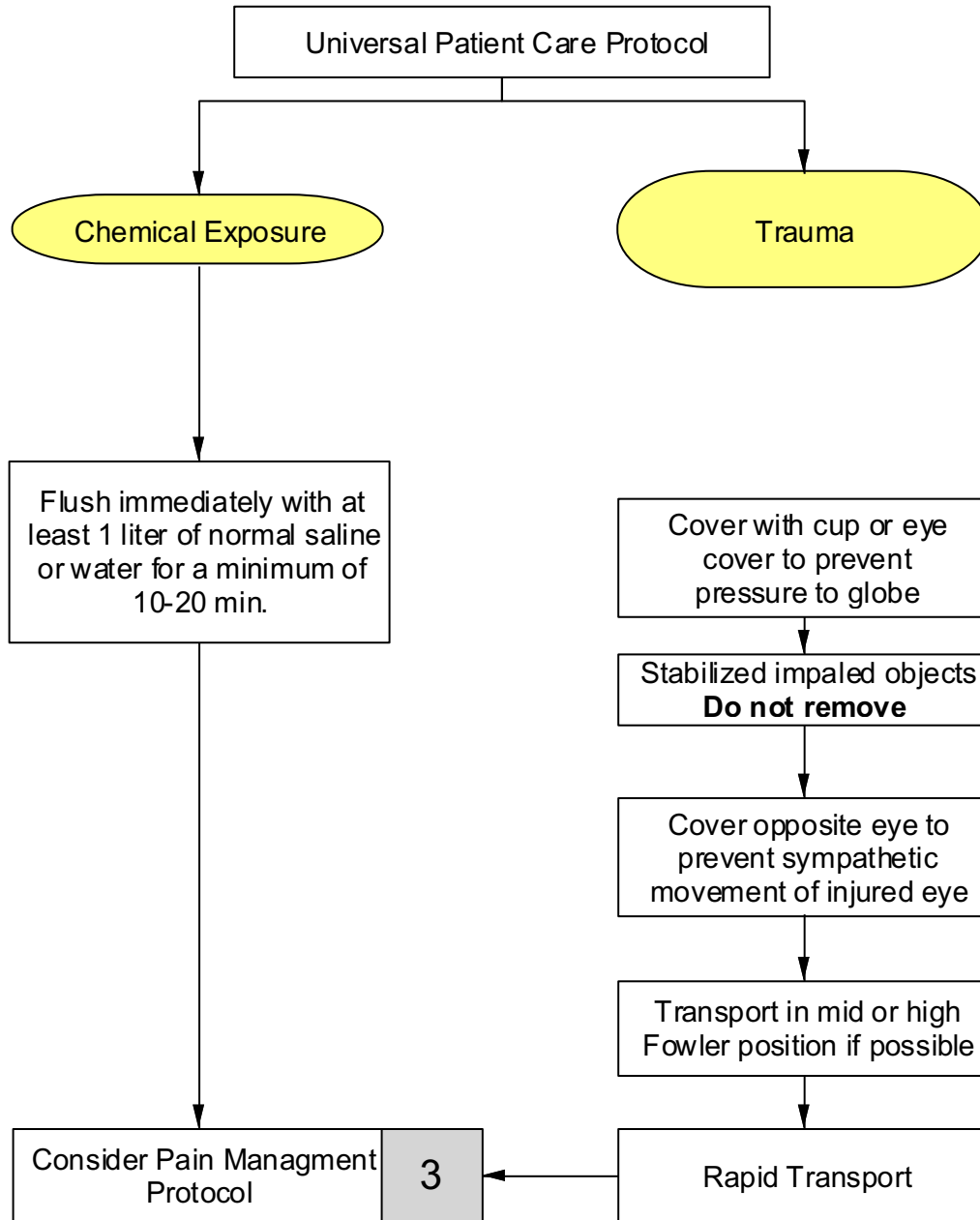
Focused Exam: Neurological, visual acuity, oculomotor exam

Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO-repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg

IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical Control**
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
- **Lorazepam (Ativan):**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max dose of 4 mg; **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Trauma: Eye Injuries



Notes:

- Do not be concerned with removing contact lenses in the field.
- With possibility of globe rupture do not apply pressure.
- Minimize intraocular pressure by elevating the head of bed, if possible.
- Try to have patient avoid coughing, sneezing, straining, or blowing nose.

Trauma: Face and Neck

History:	Signs / Symptoms:	Differential:
<ul style="list-style-type: none"> • Mechanism: impact to steering wheel, windshield or other objects • Clothesline injury • Management provided by bystanders • Patient complaints: areas of pain, trouble with vision, hearing, neck pain, abnormal bite, short of breath. • Past medical history: medications, medical illness. 	<ul style="list-style-type: none"> • Pain, swelling • DCAP-BTLS • Pupil irregularity • Blood or drainage from ears or nose • Range of ocular motion • Disconjugate gaze • Nystagmus • Lacerations • Jaw or tongue instability, loose teeth, vomitus or blood in airway • Neck: tenderness, crepitus, hoarseness, bruising, stridor 	<ul style="list-style-type: none"> • Obstructed airway • Pneumothorax • Hemothorax • Facial trauma/fractures • Fractured or dislocated jaw • Fractured larynx • Brain injury • Skull fracture • Dental injuries • Closed head injury • Injury to eye

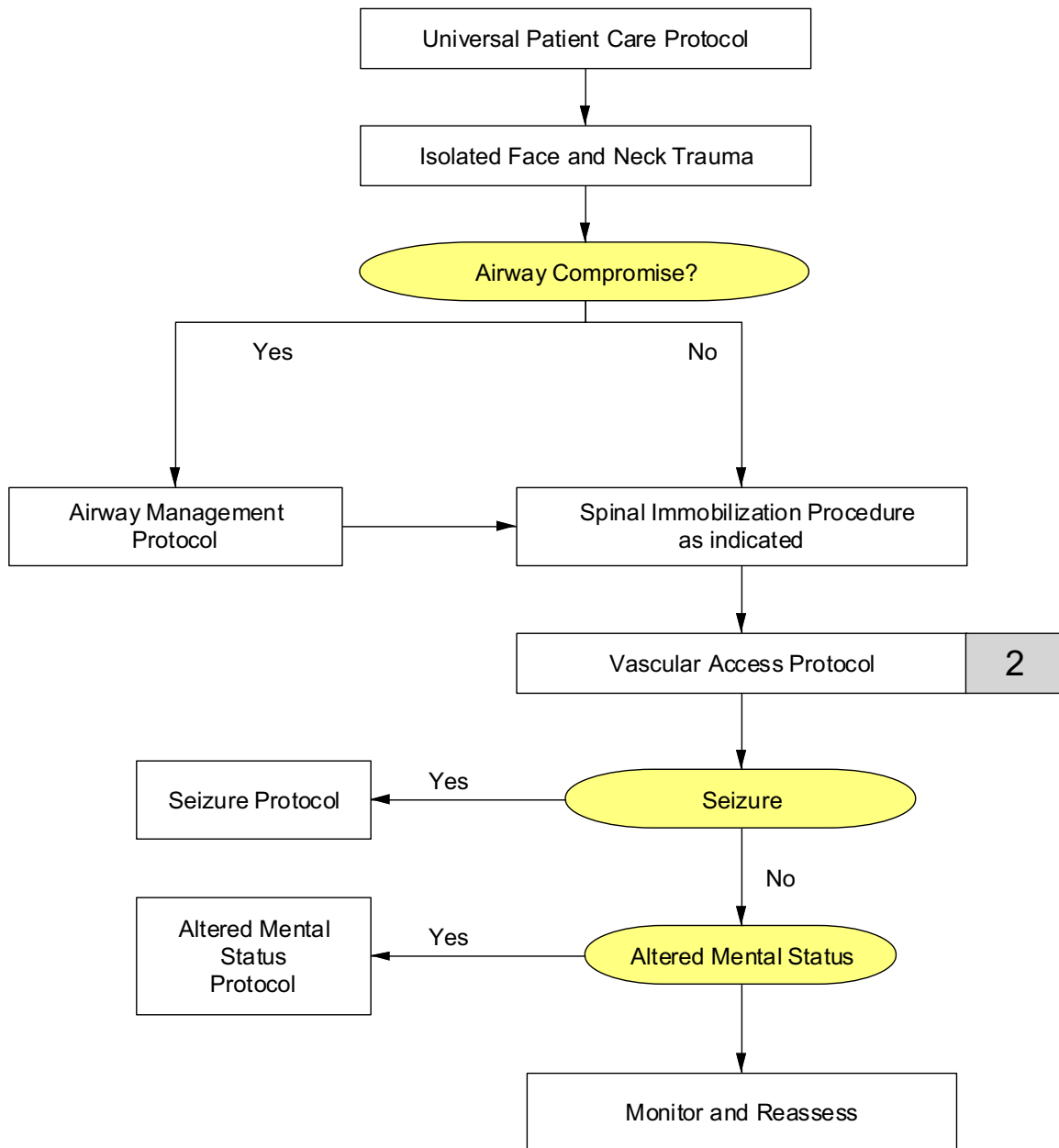
Focused Exam: Point tenderness, C-spine, neurological, GCS

Dosage Help:

- **Fentanyl (Sublimaze):**
 - **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO-repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
 - **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg

IN route requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
 - **Pediatric < 1 year: Contact Medical Control**
- **Morphine:**
 - **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.
- **Lorazepam (Ativan):**
 - **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to a max dose of 4 mg; **Contact Medical Control** to exceed 4 mg.
 - **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg
- **Ondansetron (Zofran)**
 - **Adult:**
 - 8 mg IV/IO/IM, single dose, infuse IV dose over minimum 30 seconds
 - 8 mg ODT, single dose
 - **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Trauma: Face and Neck



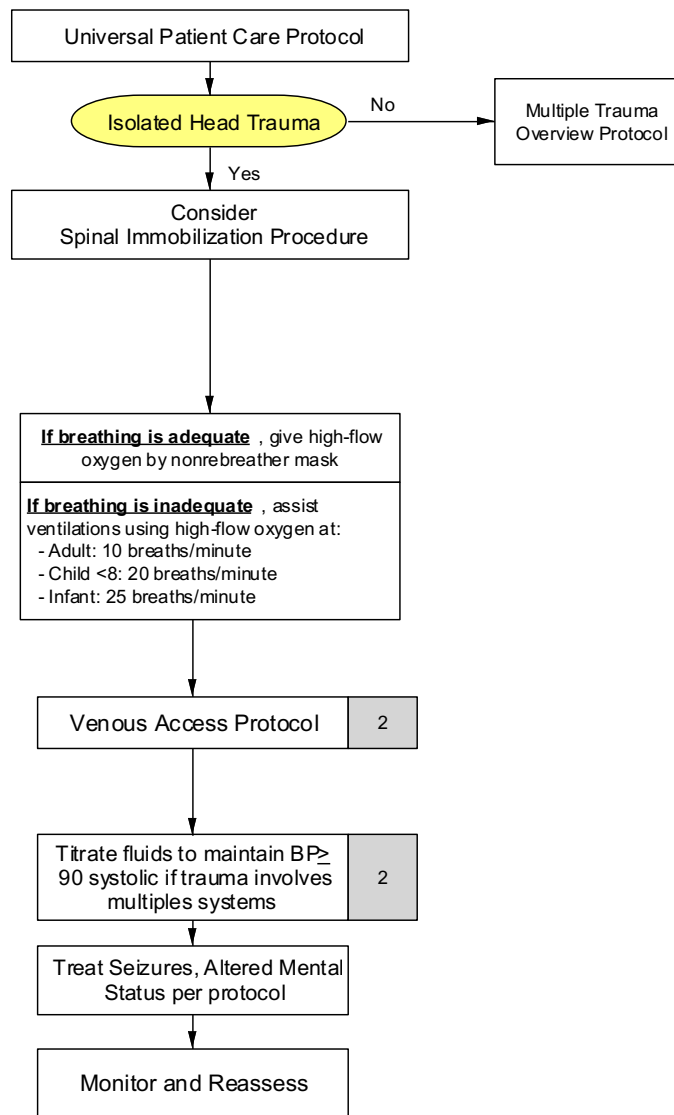
Notes:

- Fracture of the larynx should be suspected in patients with respiratory distress.
- Intubation and cricothyrotomy may be unsuccessful in the patient with a fractured larynx, do not attempt unless patient is in severe respiratory distress.
- Airway obstruction is the primary cause of death in head and neck trauma.
- Suctioning and stabilization of the tongue and mandible may be the most important treatment rendered.
- The apex of the lung extends into the lower neck and may be injured in penetrating injuries of the lower neck.

Trauma: Head

<p>History:</p> <ul style="list-style-type: none"> • Mechanism of injury • Estimated force of injury • Helmet/ No helmet • History since injury • Loss of consciousness and duration • Movement (spontaneous or moved by bystanders) • Memory loss • Past medical history: medications, medical problems, allergies, seizure disorder, alcohol or drug use 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Altered mental status • Dizziness, light headedness • Cushing's Reflex: Bradycardia, hypertension, abnormal breathing • Diaphoresis, pallor • Visual changes • Severe headache • Seizures • Vomiting • DCAP-BTLS • Battle's sign/Raccoon Eyes • CSF in nose & Ears • Irritability • Bulging fontanelle • Irregular gait, ataxia 	<p>Differential:</p> <ul style="list-style-type: none"> • AEIOU-TIPS A - Alcohol, Acidosis, Alkalosis E- Epilepsy/Environmental I - Infection O- Overdose/Oxygen U- Uremia T- Trauma/tumor (traumatic brain injury) I - Insulin (Diabetes) P - Psychosis/Poison S - Stroke/Shock
<p>Focused Exam: Mental Status, oculomotor exam, HEENT, back, neurological, GCS</p>		
<p>Dosage Help:</p> <ul style="list-style-type: none"> • NONE 		

Trauma: Head



Notes:

- Maintain oxygen saturation $\geq 90\%$. Even one instance of $SpO_2 < 90$ may significantly affect outcome.
- Manage ventilations to maintain $ETCO_2$ of 35-45 mmHg
- Most important to monitor and document is a change in the level of consciousness.
- If GCS is < 12 consider Rapid Transport or Air Transport.
- If GCS is < 8 intubation should be attempted for patient without gag reflex. (PARAMEDIC: for patient with gag reflex)
- Increased intracranial pressure may cause hypertension, bradycardia and altered respirations (Cushing's response).
- Hypotension usually indicates injury or shock unrelated to the head injury.
- Consider restraints if necessary for patient's and/ or personnel's safety.

Trauma: Spinal

History:

- Mechanism: impact to steering wheel, windshield or other objects
- Time of incident
- Location in structure or vehicle
- Damage to structure or vehicle
- Restraints/protective equipment
- Management before arrival by bystanders
- Past medical history: medications, medical illness.

Signs / Symptoms:

- Paralysis, numbness, or tingling
- Bradycardia
- Hypotension or shock
- Priapism
- Loss of thermoregulation
- Loss of bowel/ bladder control

Differential:

- Spinal fracture
- Sciatica
- Herniated disc with nerve compression
- Extremity injury
- Head injury
- Penetrating injury

Focused Exam: Neck, back, extremities, neurological, GCS

Dosage Help:

• Fentanyl:

- **Adult:** 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED Control** approval.
 - **Alternative:** 1-2 mcg/kg IN single dose until IV is established. If unable to establish IV/IO- repeat dose of ½ to full amount every 10 minutes, titrated to clinical effect to a maximum cumulative dose of 200 mcg. (Consider initial lower doses of 0.5-1 mg/kg in elderly)
 - Additional dosing requires **MED Control** approval.
- **Pediatric: (1-12 years):**
IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.
 - Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg**IN route** requires **Medical Control** approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns
- **Pediatric < 1 year: Contact Medical Control**

• Morphine:

- **Adult:** Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
- **Pediatric:** 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for cumulative dose > 10 mg.

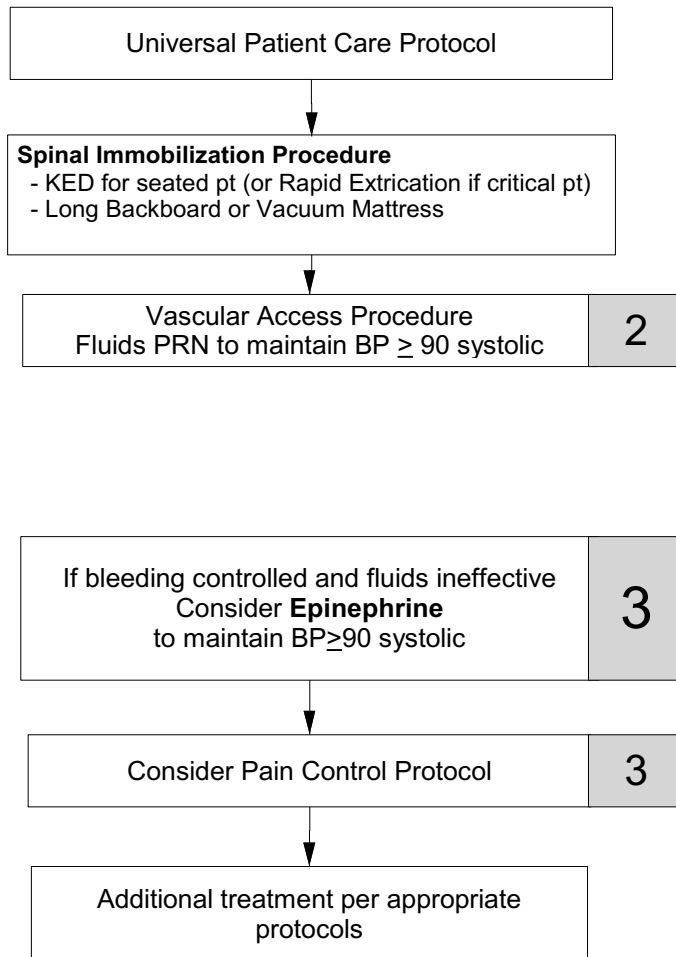
• Lorazepam (Ativan):

- **Adult:** 0.5-1 mg IV/IO/IM/IN may repeat every 15-30 min to max dose of 4 mg. **Contact Medical Control** to exceed 4 mg.
- **Pediatric:** 0.05 mg/kg IV/IO/IM max dose of 2.0 mg

Push Dose Epi

- Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine
- Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY
- Push 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, and/or adequate cerebral perfusion as evidenced by mentation.

Trauma: Spinal



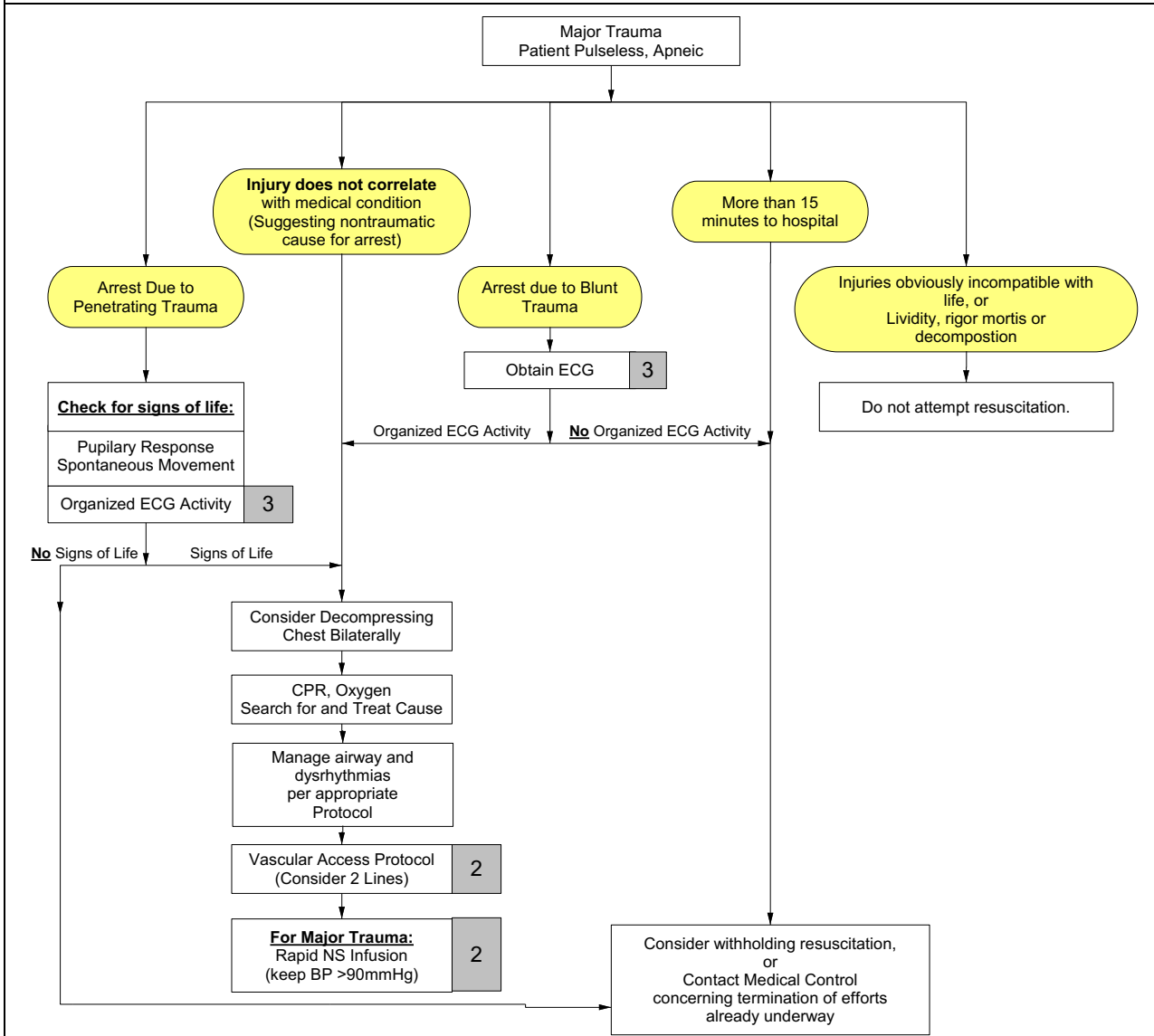
Notes:

- Maintain patient temperature
- Protect flaccid extremities from further injury/ exposure
- Be prepared to turn the entire back board on its side if the patient vomits
- Neurogenic shock is likely with significant spinal cord injury. Raise the foot of the spine board.
- Monitor patient respirations
- Look for other injuries

Trauma: Traumatic Arrest

<p>History:</p> <ul style="list-style-type: none"> • Mechanism of injury • Blunt vs. Penetrating Trauma • Drowning • Lightening strike • Electrical shock • Estimated time since arrest • Past medical history/medications • Possibility of foreign body airway obstruction • Gunshot • Knife wound • Motor vehicle accident 	<p>Signs/Symptoms:</p> <ul style="list-style-type: none"> • Unresponsive, pulseless, apneic • Pupils responsive or fixed and dilated • ECG: PEA, VF, asystole, agonal beats • Rigor mortis, dependent lividity • Cyanosis 	<p>Differential:</p> <ul style="list-style-type: none"> • FBAO • Myocardial contusion • Tension pneumothorax • Flail chest • Sucking chest wound • Hemorrhagic shock • Drowning • Electric shock • Drugs/poisons • Hypothermia • Underlying medical problems (diabetes, seizure, MI, stroke)
<p>Focused Exam: ABCs, mental status, pupils, temperature</p>		

Trauma: Traumatic Arrest



Notes:

- Aggressive airway management is crucial. Stabilize spine as indicated.
- When massive trauma is cause of arrest, chest decompression should be considered prior to starting CPR.
- **Search for and treat the underlying cause of arrest.** Prolonged hypoxemia is most common.
 - **Airway:** Obstruction (including tongue), swelling
 - **Breathing:** Tension pneumothorax, flail chest, sucking chest wound, drowning, spinal injury, smoke/CO inhalation, drugs, electrical shock
 - **Circulation:** Hemorrhagic shock, tension pneumothorax, pericardial tamponade, myocardial contusion, myocardial infarction, cardiac arrest due to electrical shock
- Fluid requirements increase for pregnant patients in traumatic arrest. Infuse 3 liters during transport.
- Chance of survival is higher for lightning strike or drowning victims.
- Aggressively resuscitate children.
- Confirm asystole in two leads.
- Withhold resuscitation for asystole with massive blunt trauma.
- Injuries obviously incompatible with life include incineration, decapitation, detraction, open head injury with loss of brain matter.

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Operational Guidelines

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Abuse-Child:Recognition and Reporting

Policy:

Child abuse is the physical and mental injury, sexual abuse, negligent treatment, or maltreatment of a child under the age of 18 by a person who is responsible for the child's welfare. The recognition of abuse and the proper reporting is critical to improving the safety of children and preventing child abuse.

AS 47.17.010 Reporting Child Abuse and Neglect

Emergency Medical Technicians are required to report suspicions of child abuse or neglect. The report must be made to the Alaska Office of Child Protective Services of the Department of Health and Social Services or, if the Division cannot reasonably be contacted, the individual may report his or her suspicions to the nearest peace officer. This statute provides immunity from civil damages for those individuals who make reports in good faith and penalties for those who do not make the required reports.

Purpose:

Assessment of a child abuse is based upon the following principles:

- **Protect** the life of the child from harm and the EMS team from liability.
- **Suspect** that the child may be a victim of abuse, especially if the injury/illness is not consistent with the reported history.
- **Respect** the privacy of the child and family.
- **Collect** as much evidence and information as possible.

Procedure:

1. For all children, assess for and document:
 - Psychological characteristics of abuse, including excessive passivity, fearful behavior, excessive aggression, violent tendencies, excessive crying, fussy behavior, hyperactivity, or other behavioral disorders.
 - Physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. The back, buttocks, genitals, and face are common sites for abusive injuries.
 - Signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.
 - Signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
2. Immediately report any suspicious findings to the receiving hospital (if transported) and to the Office of Children's Services (OCS)- (800)-478-4444 (Anchorage Office) or (907) 451-2650 (Fairbanks Office). If you cannot reasonably contact the nearest office of the department and immediate action is necessary for the well-being of the child, make the report to a peace officer.
3. EMS should not accuse or challenge the suspected abuser. This is a legal requirement to report, not an accusation. In the event of a child fatality or a child in, what you believe to be, imminent danger, law enforcement must also be notified.

Abuse- Domestic Violence: Recognition and Reporting

Policy:

Domestic violence is physical, sexual, or psychological abuse and/or intimidation which attempts to control another person in a current or former family, dating or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse.

Suspicion of domestic violence is not, in itself, a required reportable situation, unless the abuse person falls into the "vulnerable adult" category. ("vulnerable adult" means a person 18 years of age or older who, because of physical or mental impairment, is unable to meet the person's own needs or to seek help without assistance.--Title 47.24.900)

Purpose:

Assessment of an abuse case is based upon the following principles:

- **Protect** the patient from harm, as well as protecting the EMS team from harm and liability
- **Suspect** that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history
- **Respect** the privacy of the patient and family
- **Collect** as much information and evidence as possible and preserve physical evidence

Procedure:

1. If you suspect that domestic violence has occurred, contact local peace officers.
2. Assessment should follow the same guidelines provided in the "Vulnerable Adult" Policy:
 - Assess patients for any psychological characteristics of abuse, including excessive passivity, complaint or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
 - Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. The back, chest, abdomen, genitals, arms, legs, face, and scalp are common sites for abusive injuries. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
 - Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregivers, or physical signs of malnutrition.
 - Assess all patients for signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
3. Immediately report any suspicious findings to the receiving hospital (if transported)
4. EMS personnel should attempt in private to provide the patient with the phone number of the local domestic violence program, or the National Hotline, 1-800-799-SAFE (7233) (TTY 1-800-787-3224) Alaska contact number is (907) 586-3650.

Abuse- Elder Abuse: Recognition and Reporting

Policy:

Elder abuse is the physical and/or mental injury, sexual abuse, negligent treatment, or maltreatment of a senior citizen by another person. Abuse may be at the hand of a caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and well being of senior citizens.

AS 47.24.010 Reports of Harm

What must be reported: Any incident in which a vulnerable adult suffers harm from abandonment, abuse, exploitation, neglect or self-neglect. EMS providers are encouraged to use the "Report of Harm for the Protection of Vulnerable Adults" form to report incidents to Adult Protective Services. A verbal or written report **must be received by Adult Protective Services within 24 hours** of the reporter becoming aware of the alleged abuse, exploitation, or neglect. Written report may follow.

Mandated reporters who knowingly fail to report the abandonment, abuse, exploitation, neglect or self neglect of a vulnerable adult may be found guilty of a class B misdemeanor. In the case of an emergency, reporters may contact their local law enforcement before contacting Adult Protective Services.

Purpose:

Assessment of an abuse case is based upon the following principles:

- **Protect** the patient from harm, as well as protecting the EMS team from harm and liability
- **Suspect** that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history
- **Respect** the privacy of the patient and family
- **Collect** as much information and evidence as possible and preserve physical evidence

Procedure:

1. Assess patients for any psychological characteristics of abuse, including excessive passivity, complaint or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. The back, chest, abdomen, genitals, arms, legs, face, and scalp are common sites for abusive injuries. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregivers, or physical signs of malnutrition.
4. Assess all patients for signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
5. Immediately report any suspicious findings to the receiving hospital (if transported). If an elder or disabled adult is involved, also do one of the following:
 - You may call to report suspected abuse of a vulnerable adult to 1-800-478-9996 (in state only) or 907-269-3666 (M-F 8-5 only). If you believe the patient is in what you believe to be imminent danger, law enforcement must also be notified.
 - You may complete the Report of Harm Word form on-line at <http://dhss.alaska.gov/dsds/Pages/aps/apsreportinfo.aspx> or copy the form in the appendix of these Standing Orders, submit it by fax or email.
 - You may fax a Report of Harm form to 907-269-3648

Air Medevac Transport: Rotor

Policy:

Rotor transport should be considered whenever patient care can be improved by decreasing transport time, with the following considerations:

Trooper helicopters are not set up for patient care and have limited space for equipment that may be needed during transport.

If getting a military helicopter, what level of care can they provide?

Military helicopters can take 30 or more minutes to launch once cleared to take the mission.

Department medics will not be allowed to accompany the patient on a military helicopter.

Purpose:

The purpose of this policy is to:

1. Improve patient care in the prehospital setting.
2. Allow for expedient transport in serious, mass casualty settings.
3. Provide life-saving treatment in as expedient manner as possible.

Procedure:

1. Air transport should be considered if any of the following criteria apply:
 - a. Critical/unstable patient with > 60 minute transport time
 - b. Entrapped patients with extended extrication time and > 60 minute transport time.
 - c. Multiple casualty incident with red/yellow tag patients
 - d. No fixed-wing runway is available and operational.
2. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined not to be necessary, on scene command may cancel the request for air transport.
3. Request rotor transport through the Dispatch Center or the Alaska State Troopers (AST) by radio or 451-5100.
4. Minimal Information which should be provided to the air medical transport service includes:
 - a. Number of patients, weight and escorts
 - b. Mechanism of Injury (MVC, Fall, etc), Nature of Illness
 - c. Current patient condition
 - d. Location of incident using GPS coordinates if available.
5. Establish a landing zone at least 100 feet in diameter clear of overhead wires, trees and other obstacles. If no other landing zone is available, consider cordoning off a section of the roadway.
6. HAND SIGNALS- It's really only necessary to know the following two hand signals to get an immediate response:
 - a. Both arms outstretched and pointing to indicate the landing zone.
 - b. Crossing and uncrossing your arms above your head to wave off landing. This indicates a dangerous condition or situation, and the pilot will immediately abort the landing.
 - c. Do not approach the helicopter until directed by its crew. If possible, wait until the rotors have stopped turning. Keep within view of the pilot.
7. DANGER – ALWAYS KEEP WELL CLEAR OF THE TAIL ROTOR!
8. It is safest for everyone if all unauthorized personnel, news media and bystanders are kept at least 200' from the helicopter.

After the Helicopter Lands

9. The following rules are a common sense approach to helicopter safety:
 - a. Once a helicopter has landed, wait for the rotor speed to slow or stop and for the pilot to signal before anyone approaches the ship.
 - b. Always approach the helicopter in full view of the pilot-between 10 and 2 o'clock of the nose-and always make sure the pilot sees you and waves you forward.
 - c. Keep a crouching, low body profile when approaching the helicopter. There is a phenomenon with helicopters known as "flap" or "sail" at warm-up or cool-down rotor speeds, when a sudden wind gust can cause the rotor blades to dip to people level and result in serious injury or death.
 - d. If you have a helmet, secure the chin strap. No other hats should be worn, and nothing loose such as a stethoscope should be worn around your neck.
 - e. Never carry anything overhead, including IV fluids. All long objects should be carried parallel to the ground.
 - f. Always walk; never run, around a helicopter. If the landing zone is uneven, never approach or depart from the uphill side. Always use the downhill side where you are in the pilot's view.

Lift-Off and Departure

10. The landing zone coordinator will notify the pilot when the landing zone is clear of all ground personnel. Secure all loose/light items from rotor wash. If at all possible, try to maintain a secure landing zone with all personnel and emergency equipment for 5 minutes after the helicopter departs. If an in-flight emergency develops, this will allow the pilot to return safely to a secure landing zone.
11. **Remember:** The tail rotor, which is the helicopter's most serious hazard, is usually somewhere around head level and, when at speed, is almost invisible (with perfect lighting). Since most EMS operations are in less than perfect conditions, the tail rotor cannot be seen.

Cardiac/STEMI Alert Procedure (S-T Elevation MI)

Certification Requirements: EMT 3, AEMT, & PARAMEDIC

Purpose:

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)

A. Inclusion Criteria:

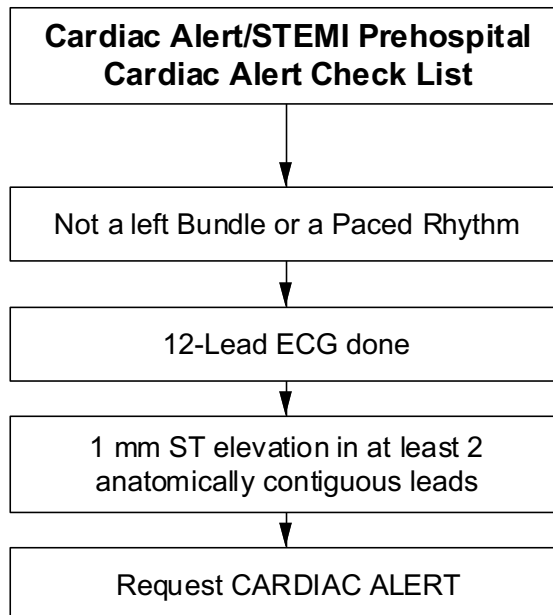
- a. Symptoms compatible with ACS (chest pain, diaphoresis, dyspnea, etc)
- b. 12-Lead ECG showing ST-segment elevation (STE) at least 1 mm in two or more anatomically contiguous leads

B. Exclusion Criteria:

- a. Wide complex QRS (paced rhythm, BBB, other)
- b. Symptoms NOT suggestive of ACS (e.g.: asymptomatic patient)
- c. If unsure if patient is appropriate for Cardiac Alert, discuss with **Medical Control**.

C. Procedure:

- a. Treat according to **Cardiac Chest Pain Protocol** enroute (cardiac monitor, oxygen, aspirin, nitroglycerin, and opiod, etc.)
- b. Rapid transport
- c. Notify receiving hospital ASAP with ETA and request **CARDIAC ALERT**. Do not delay hospital notification. If possible, notify ED before leaving scene
- d. Start two (2) 18 ga or larger bore peripheral IV's, if only one possible, start in left AC. (Do not delay transport to acquire IV's)
- e. Patient—remove shirt or blouse and place gown if possible.
- f. If patient does not meet inclusion criteria, or has exclusion criteria, yet clinical scenario and ECG suggests true STEMI, request medical consult with receiving hospital emergency physician.
- g. Additional documentation Requirements:
 - Time of first patient contact
 - Time of first ECG



Care of Minors

Policy:

Individuals under 18 years of age are considered minors in Alaska and will receive appropriate evaluation, care, and transportation in accordance with these protocols and local and state laws.

Purpose:

To provide:

1. Guidelines for "Implied Consent" to treat minors.
2. Guidelines for minors to refuse care.
3. Appropriate contacts for EMS personnel.
4. Protection of patients and EMS personnel from undue risk and liability.

Procedure:

1. Emancipated minors may consent to treatment. The individual must be married or have a court order declaring emancipation.
2. The parent or guardian's consent is required for the evaluation and treatment of unemancipated minors:
 - a. When the parent/guardian cannot be reached, all patients under 18 years of age will be evaluated to determine the need for care and transportation.
 - b. Consent is implied in the following circumstances:
 - (1) Life or limb threatening condition exists.
 - (2) Minor patient requesting transport for diagnosis or treatment of:
 - Communicable disease
 - Pregnancy
 - Substance abuse
 - Emotional disturbance
 - (3) Minor in the custody of Law Enforcement or Office of Children Services (OCS).
3. If no life or limb threatening condition exists, EMS should contact the parent or guardian. If the parent/guardian refuses transport and:
 - a. Is able to come to scene, have them sign the release form.
 - b. Is unable to come to scene, have patient's parents/guardian contact dispatch on recorded line and state that they authorize "non-transport", include the name of the service and patient name. Patient is not to be released until dispatch confirms call.
 - c. If unable to contact the parent or guardian, transport or release to law enforcement.
4. If the parent/guardian refuses care or transportation for a minor patient, a "Refusal of Treatment and/or Transport" form must be completed.

Children with Special Care Needs

Policy:

Medical technology changes in the healthcare industry, and increased home health capabilities have created a special population of patients that interface with the EMS system. It is important for EMS to understand and provide quality care to children with special health care needs.

Purpose:

The purpose of this policy is to:

- Provide quality patient care and EMS services to children with special health care needs.
- Understand the need to communicate with the parents and caregivers regarding healthcare needs and devices that EMS may not have experience with.
- When EMS is called for a child with special health care needs, the prehospital professional must anticipate dealing with a medically complex patient.

Procedure:

1. Caregivers who call 911 to report an emergency involving a child with special health care needs may state that the situation involves a special needs child.
2. EMS personnel may choose to contact the child's primary care physician for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport of the child in the specific situation.
3. Enlist the aid of the caregiver in dealing with special equipment and medical problems of the special needs child. They are usually well versed in how to deal with the patient's special circumstances. Establish the child's functional/medical baseline, drawing on the expertise of caregivers.
4. Always rule out equipment failure first.
5. Bring any special equipment and records with the child, including medications and medications list and Emergency Information Form (EIF).

Deceased Subjects

Policy:

EMS will handle the disposition of deceased subjects in a timely and consistent manner.

Purpose:

The purpose of this policy is to:

- Organize a timely disposition of any deceased subject
- Maintain respect for the deceased and family
- Allow EMS to return to service in a timely manner.

Procedure:

1. Notify the law enforcement agency with jurisdiction if applicable.
2. If evidence of accident or suspicious death, protect the scene if possible until scene is turned over to law enforcement.
3. If expected death,
 - a. If hospice is on scene and has the scene under control, return to service.
 - b. If no hospice personnel are available, and an "Expected Death" form is provided by the family, it is not necessary to contact the law enforcement agency. It is the family's responsibility to make the appropriate transport arrangements. We may offer to assist if the situation calls for it.
4. If unexpected death of apparent natural causes, contact law enforcement agency and treat scene as a crime scene.
5. Do not remove lines or tubes from unsuccessful codes.
6. At minimum, document the following on the patient care report form (PCR)
 - a. Name of the Physician or Trooper contacted (if applicable)
 - b. The agency providing transport of the deceased subject, if available
 - c. Destination of deceased.

Do Not Resuscitate/Physician Orders for Life Sustaining Treatment (POLST)

Policy:

Emergency medical personnel covered by these orders will withhold CPR and Advanced Life Support from patients in the pre-hospital setting presenting a completed Alaska POLST or Do Not Resuscitate (DNR) Form, or wearing the POLST bracelet. A POLST or DNR order may be overridden by the patient or the patient's attending physician.

Purpose:

The purpose of this policy is to:

- Honor the terminal wishes of the patient.
- Prevent the initiation of unwanted resuscitation.

Procedure:

1. The provider shall immediately proceed with patient assessment and care, including cardiopulmonary resuscitation, until establishing that the patient is a qualified DNR patient.
2. When confronted with a patient in cardiac arrest or situation involving DNR, one the following must be present:
 - a. DNR Form
 - b. POLST card or form
 - c. Patient is wearing a POLST bracelet.
3. A valid POLST Form may be overridden by the request of:
 - a. the patient
 - b. patient's attending physician
4. A Living Will or other legal document which identifies the patient's desire to withhold CPR or ALS therapy may be honored with the approval of Medical Control. This should be done when possible with consultation with the patient's family and personal physician.
5. The identity of the patient must first be clearly confirmed by one of the following methods:
 - a. The patient communicating their name.
 - b. The patient's hospital or institutional identification armband.
 - c. The patient's driver's license.
 - d. Another person identifies the patient.
6. If the patient is unconscious or unresponsive to questions regarding the patient's identity, the provider may rely solely on the DNR necklace or bracelet (POLST) worn by patient without using further methods to identify the patient.
7. A qualified DNR patient should not receive CPR if they are pulseless and not breathing. Palliative care may be provided as necessary.
8. The following resuscitations measures are to be withdrawn or withheld from a patient with a valid DNR directive:
 - a. CPR
 - b. Endotracheal intubation
 - c. Artificial ventilation
 - d. Defibrillation
 - e. ALS drugs and medications
9. The following interventions may be administered or provided in a patient that is not in cardiac or respiratory arrest:
 - a. Assist in maintenance of airway on a breathing patient.
 - b. Suctioning.
 - c. Oxygen
 - d. Control Bleeding
 - e. Assisting the patient to a comfortable position
 - f. Providing pain medication (advanced life support personnel with standing orders).

Infant Abandonment: Safe Haven for Infant Act

Purpose:

To Provide:

- Protection to infants that are placed into the custody of EMS.
- Protection to EMS systems and personnel when confronted with this issue.

Procedure:

1. Verify infant meets the criteria of HB 29 Sec.11.80.500 below:
 - a. Infant is less than 21 days of age
 - b. There is no evidence of child abuse or neglect
2. Initiate the Pediatric Assessment Procedure.
3. Per AS 47.10.013:
 - a. Inform the parent that they may, but are not required to, answer any questions regarding the name, identity, and medical history of the infant and parents of the infant
 - b. Ask the parent if they wish to relinquish their rights and release the infant for adoption; if the answer is affirmative, contact Office of Children's Services (OCS) so that the parent can discuss that option with the department;
 - c. Immediately notify the nearest office of the Office of Children's Services (OCS) (800)-478-4444 (Statewide number) or Fairbanks contact number (907) 451-2650, verifying that the infant had been surrendered in the manner outlined in AS 47.10.013.
4. Initiate treatment protocols as appropriate.
5. Keep infant warm.
6. Transport infant to medical facility as per local protocol, requesting that Office of Children's Services (OCS) or the appropriate law enforcement agency meet you there.
7. Document protocols, procedures, and agency notifications.
8. EMS will provide an organized, clear patient report for all patients transported to the receiving facility.

Multiple Casualty Incident

Policy:

Multiple Casualty Incidents (MCI's) will be handled utilizing the Incident Command System. By definition, an MCI should be declared for incidents involving 6 or more patients.

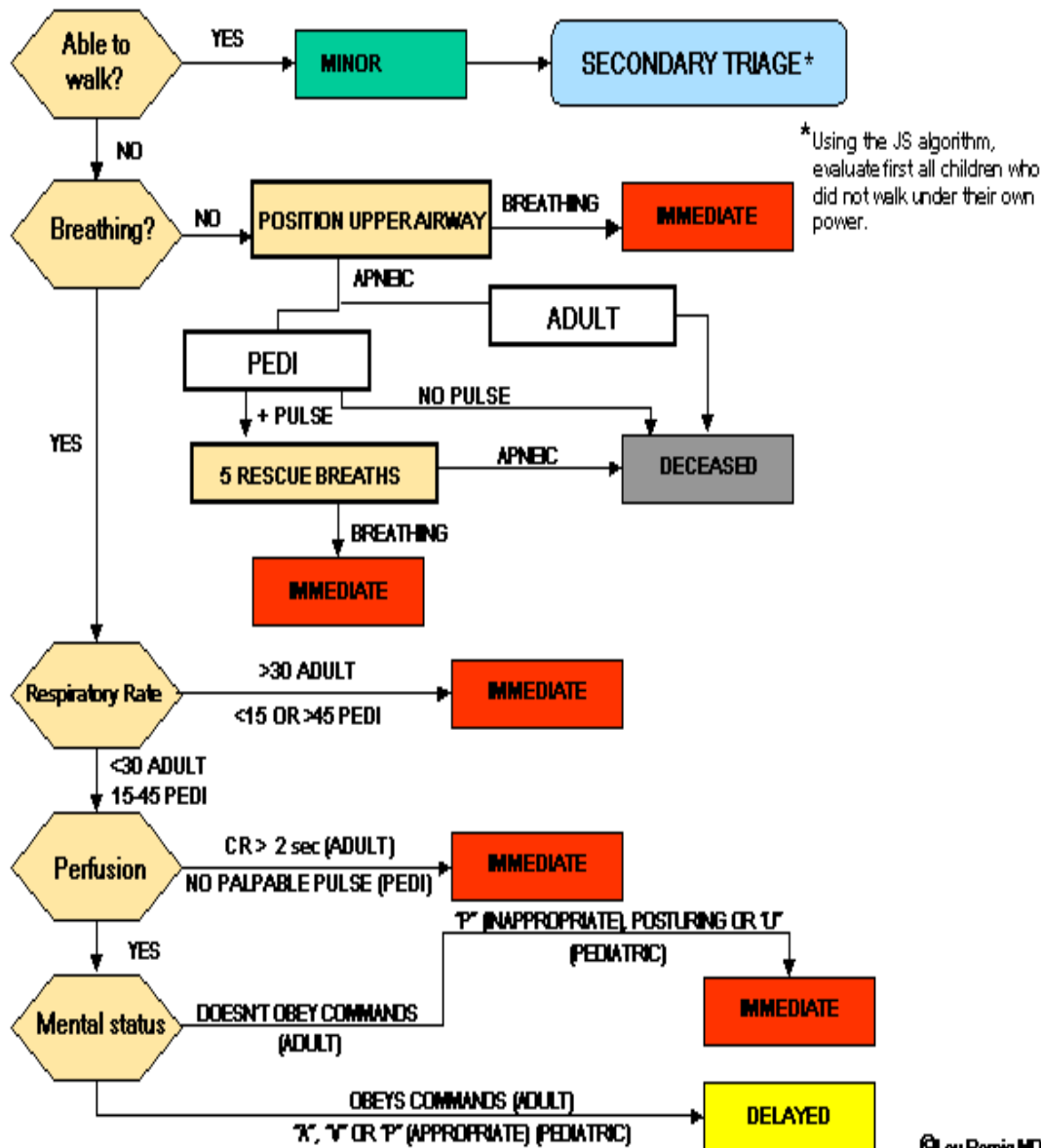
Purpose:

- To organize resources and personnel needed for an MCI.
- To establish triage criteria for multiple patients.
- To rapidly treat and transport patients according to their clinical condition.

Procedure:

1. Identify MCI, activate ICS, and request additional resources as appropriate.
2. Establish Medical Command and begin patient triage.
3. Triage and tag all patients into one of the following classifications:
 - a. Green - Minor/Stable
 - b. Yellow - Serious/Stable
 - c. Red - Critical/Unstable
 - d. Black - Dead/Non-salvageable
4. Instruct ambulatory patients to move to another area. These patients are classified as "GREEN".
5. Triage the remaining patients utilizing the "START" –
 - R**-Respirations/Ventilations;
 - P** –Pulse (Radial);
 - M**-Mental Status.
 - a. **YELLOW**
 - R** :Ventilations less than 30,
 - P** -Radial Pulse present
 - M** -can follow simple commands.
 - b. **RED**
 - R** :Ventilations greater than 30,
 - P** -Radial Pulse absent, and/or
 - M**- unable to follow simple commands
 - c. **BLACK**
 - R**: No spontaneous ventilations after repositioning the airway.
6. Patients will be tagged according to their clinical condition, then reevaluated and retagged as needed.
7. The most critical patients will be transported first.
8. Medical Command/Transportation Officer will notify receiving facilities of number and acuity condition of patients they will receive.

Combined START/JumpSTART Triage Algorithm



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Patient Care Report- Written

Policy:

Patient Care Report (PCR) will be completed accurately and legibly for each patient contact which results in assessment, treatment, transport or refusal of care.

Purpose:

To reflect the patient assessment, patient care and interactions between EMS and the patient. The Patient Care Report (PCR) must:

- Be useful for to the attending physician in the continuation of the patient's treatment.
- Be adequate to bill the patient.
- Provide statistical data as requested by State EMS and for departmental requirements.
- Provide information for quality improvement and monitoring.

General Procedure:

1. All patient interactions are to be recorded on the Patient Care Report and "Refusal of Treatment and/or Transport" Form or its electronic equivalent. (i.e. dispatched calls or station walk-ins)
2. Ensuring the form is completed correctly and completely is the responsibility of the Charge (Lead) Medic. The EMT in charge of patient care is responsible for completion of the report.
3. The report shall be completed as soon as possible after the patient has been released to the proper medical authority or the call is otherwise terminated. If the ambulance must respond on another call before the report has been completed, the report shall be completed as soon as possible and taken back to the receiving agency.
4. The basic rule in completing the PCR is that all spaces must be completed. At minimum it should include, when the information is available:
 - a. Mechanism of Injury
 - b. Patient compliant
 - c. Care provided prior to EMS arrival
 - d. Exam of the patient as required by each specific complaint based protocol
 - e. Vital signs, past medical history, medications, allergies, Living Will or DNR, and personal MD
 - f. All times related to the event
 - g. All interventions initiated and their associated time
 - h. Response to interventions
 - i. Any change in patient's condition
 - j. All communication with medical control
 - k. Name and certification level of technicians providing care
 - l. Signature of lead medic (or its electronic equivalent)
 - m. Signature of receiving individual assuming patient care at the medical facility (or its electronic equivalent).
5. There are circumstances and specific incidences where the spaces do not apply to a particular call or data cannot be obtained. Under such circumstance the spaces will contain one of the following.
 - a. None
 - b. A line thru the space or N/A for not applicable
 - c. Refused
 - d. Unknown
6. Distribution:
 - a. A copy of the report will be turned in at the station to the person or lock box designated for that purpose.
 - b. A copy should be given to the receiving facility.
 - c. A copy should be given to the appropriate billing agency.
7. Once completed and distributed, no portion of the **narrative** may be modified or changed. If such a modification or change is needed, an incident report or department approved amendment will be used.

A copy of the amendment will be taken to the clinical site the patient was left at to be included in the patient's record, a copy will be attached to the original run report.

8. If more than one patient is transported in the same ambulance, a separate report will be completed for each patient. Each separate report will have the same run number and have a unique identifier for each patient.
9. For calls with no transport, a single copy report may be filled out.

B. Additional Required Elements for FNSB Transported Patients:

1. All spaces in the section labeled Patient Information shall be completed.
2. **Vehicle No.:** the department's vehicle's call sign
3. **Scene location:** the physical street address the incident took place.
4. **Transported to:** use agency names or abbreviations such as FMH, BACH, CAIC (Chief Andrew Isaac Clinic).
5. **Code to Call:**
 - a. No Lights, No Siren (Code 1)
 - b. Lights and Siren (Code 3)
6. The "**Vitals Box**" is for the initial Vitals taken on scene by the responding Ambulance.
 - a. Record the time the vitals were taken.
 - b. A minimum set of vitals shall be recorded on all patients examined. The minimum set of vitals shall include:
 - (1) Pulse (rate and quality)
 - (2) Perfusion (either BP or skins)
 - (3) Mental status.
7. **Incident:** circle or select type of call and list a one-word description (i.e. MVA, Cardiac).
8. **Medications/Allergies:** List medications taken at home and allergies.
9. The flow chart section shall be completed as appropriate to the skill or procedure provided and will be used to record:
 - a. Follow up vital signs.
 - b. Drugs administered.
 - c. O2 flow rates and administrating device (i.e. nasal cannula, O2 mask).
 - d. IV flow rates.
 - e. EKG interpretations.
10. If IV is started, complete IV information
11. The narrative section needs to reflect an accurate chronological picture of what you found, heard, saw, your assessment of the problem, and what you did.
 - a. Document the call briefly and clearly, using simple words and avoiding unnecessary terms and duplication of information.
 - b. Do not use slang or make derogatory comments such as but not limited to, "the patient was a drunken street person".
 - c. Do not include any personal feeling about the patient such as but not limited to "the patient was faking it."
 - d. The narrative shall contain the following minimum information.
 - (1) Patient's chief complaint.
 - (2) As complete a history as possible of the illness or incident which provoked the call.
 - (3) Describe the mechanism of injury. Specific details regarding mechanism, such as direction and site of impact are important.
 - (4) A clear description of the situation you found your patient in, such as: "I found the patient prone on the bathroom floor".
 - (5) Observations of the patient's condition and physical exam. Reference to supporting evidence (i.e. EKG strips, glucose sticks, blood drawn). Attach a sample of EKG strips whenever possible.
 - (6) Your impression of the problem or conditions being treated.
 - (7) Specific emergency treatment rendered and patient response.
 - (8) A common format generally accepted is the SOAP format
 - Subjective-what the patient and bystanders tell you

- Objective-what you see and measure
- Assessment-what you think is wrong
- Plan-what you did in chronological order

(9) If it was a factor in patient care, mention somewhere in the narrative other pertinent information such as extrication problems, combativeness, any unusual or abnormal observations, or statements the patient may have made.

12. List the names of all persons responding on the ambulance or assisted at the scene.

C. Additional Required Elements for FNSB Non-Transported Patients:

1. The date, vehicle number, run number, patient's name if known, patient's sex, all times available, type of call, address of call, and code responded. The rest of the form shall be completed as listed **Transported Patients**, if information is available.
2. If the call is canceled en route, a notation shall be made in the narrative on who cancelled the call.
3. If the call is canceled because no patient was found, write that information in the narrative.
4. If the call is canceled because you were dispatched by mistake, and no injury or illness occurred, then the circumstances found must be clearly spelled out in the narrative section (e.g. "We were called to a motor vehicle accident. There was only minor damage to the vehicles and the occupants were not injured." Or, "We were called for a man down. When we arrived the person was up and moving. The person had been sleeping and had no medical complaints. The person did not appear intoxicated or under the influence of drugs. His speech was coherent and the patient was oriented to person, place and time. He had no obvious injuries noticeable (from casual observation)."
5. If the patient is not injured or ill but has been drinking or is otherwise mentally impaired then a very thorough documentation must be made on how you concluded the patient was not injured or ill and why you chose not to transport the patient. To be included in the documentation is:
 - a. Vital signs taken.
 - b. Observations made during your patient assessment.
 - c. The history the patient or bystanders gave you.
 - d. What was done with the patient before you left them (i.e. turned over to friends or police etc.).
 - e. A thorough documentation on the patient's level of consciousness.
 - f. Any other information that may justify your decision not to transport.
6. If the patient is injured and refuses care you must document the following:
 - a. Nature or mechanism of injury or illness.
 - b. A minimum set of vitals if possible.
 - c. Physical exam.
 - d. The ruling-out or weighing of factors that would impair, impede or invalidate consent (hypoxia, narcotics, dementia).
 - e. An assessment of the patient's awareness of pertinent facts necessary to make a decision about treatment.
 - f. An assessment of the patient's comprehension of the facts.
 - g. An assessment of the feasibility of the patient's choice (i.e. ability to ambulate, to call for help, to self administer insulin or to drive to the hospital).
7. If the competent injured or ill patient refuses care and you feel the patient needs treatment then have the patient sign the refusal section at the bottom of the run report. If the patient refuses to sign, then complete the report as indicated in the refusal section.
8. Special or unusual circumstances: In the event something out of the ordinary occurs or if something about the call does not feel right, document the circumstances on the form in the narrative section, using the back of the form or an incident report if needed.

D. Abbreviations

Abbreviations are generally discouraged because of lack of continuity. An acceptable list of abbreviations may be found in the Appendix.

These instructions may be modified as required to comply with state reporting requirements.

Patient Care Report: Radio & Verbal

Policy:

EMS will provide an organized, clear patient report for all patients transported to the receiving facility.

Purpose:

The purpose of this policy is to ensure the receiving hospital provided enough data to allow the Emergency Department staff to determine what preparations are necessary to appropriately meet the needs of the patient. Radio contact should only include essential, relevant information. The Verbal "Hand-off" Report should be a more thorough report of the patient's condition on scene and in transport.

Radio Report Procedure:

Report the following, to the extent pertinent, to the receiving facility:

1. Identify yourself (FMH: this is Medic 41, 45, 61, etc.).
2. Chief complaint.
3. Stable or unstable
4. Mechanism of injury/nature of injury.
5. LOC & Vital signs.
6. Pertinent medical history.
7. Pertinent localized findings.
8. Treatment in progress & patient response to treatment.
9. Estimated time of arrival. (ETA)
10. Ask if any more information is required before clearing the frequency.
11. Recontact if there is any change in patient condition.

Verbal Reports (Hand-off Report) Procedure:

Reiterate information provided in the radio report to include:

1. Chief complaint
2. Mechanism of injury (MOI)/Nature of injury (NOI)
3. Latest vital signs.
4. Pertinent medical history
5. Pertinent localized findings.
6. Treatment provided and response to that treatment.
7. Scene information that may be pertinent to Chief Complaint.
8. Any changes in patient condition or treatment since the conclusion of your radio report.

Physician On Scene

Policy:

The medical direction of prehospital care at the scene of an emergency is the responsibility of those approved as Medical Directors and most appropriately trained personnel. All care should be provided within the rules and regulations of the State of Alaska.

Purpose:

The purpose of this policy is to:

- Identify a chain of command to allow field personnel to adequately care for the patient.
- Assure the patient receives the maximum benefit from prehospital care.
- Minimize the liability of the EMS System as well as the on-scene physician.

Procedure:

1. Any on-scene physician who wishes to assume responsibility for the patient must be approved by on-line medical control before such responsibility can be assumed.
2. When responding to care for a patient in a physician's office, EMS personnel may follow orders given by the office physician if the orders conform to current EMS guidelines, medic's scope of practice, and if the physician signs the PCR.
3. Notify medical control at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.
4. When presented with an emergency where the physician calls over the phone with orders, EMS personnel should advise the physician that orders can only be accepted with approval of on-line medical control.
5. Physician must agree to go in with patient.

Reportable Conditions

Policy:

The State of Alaska has statutes that require that Emergency Medical Technicians and Paramedics to report certain illnesses and injuries. Per CFR 45 164.512(f)(1)(i) medical service providers are allowed to release patient information when that information is required by law.

AS 08.64.369 Health Care Professionals to Report Certain Injuries

Emergency Medical Technicians and Mobile Intensive Care Paramedics who initially treats or attends to a person with an injury described below shall make certain that an oral report of the injury is made promptly to the Department of Public Safety, a local law enforcement agency, or a village public safety officer.

1. Second and/or third degree burns covering 5 %, or more, of the patient's body
2. A burn to the patient's upper respiratory tract or laryngeal edema due to inhalation of superheated air.
3. A bullet wound, powder burn, or other injury apparently caused by the discharge of a firearm.
4. An injury apparently caused by a knife, ax, or other sharp object, unless the injury was clearly accidental.
5. An injury that is likely to cause death of the patient, unless the injury was clearly accidental.

Written reports must be made within three days for items 1. & 2. on forms provided by the Department of Public Safety. These forms may be found at <http://www.dps.alaska.gov/Fire/burnreports.aspx> or contact DPS for forms . A person making a report in good faith is immune from civil or criminal liability that may be incurred by making the report or participating in legal proceedings.

Procedure:

1. Assess patients for any psychological characteristics of abuse, including excessive passivity, complaint or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.
2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. The back, chest, abdomen, genitals, arms, legs, face, and scalp are common sites for abusive injuries. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes of violence.
3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregivers, or physical signs of malnutrition.
4. Assess all patients for signs of sexual abuse, including torn, stained, or bloody underclothing, unexplained injuries, pregnancy, or sexually transmitted diseases.
5. Immediately report any suspicious findings to law enforcement or the receiving hospital (if transported). If an elder or disabled adult is involved, also contact the Department of Social Services (DSS) 1-800-478-9996 (in state only) or 907-269-3666 (M-F 8-5 only).
6. EMS personnel should attempt in private to provide the patient with the phone number of the local domestic violence program, or the National Hotline, 1-800-799-SAFE (7233) (TTY 1-800-787-3224) Alaska contact number is (907) 586-3650

Transport

Policy:

All individuals served by the EMS system will be evaluated and furnished transportation (if indicated), in the most timely and appropriate manner for each individual situation.

Purpose:

The purpose of this policy is to:

- Determine when rapid emergency EMS transport is needed.
- Determine when appropriate medical stabilization and treatment at the scene when necessary.
- Facilitate protection of patients, EMS personnel, and citizens from undue risk when possible.

Procedure:

1. **If an ALS procedure or medication is administered to the patient an ALS provider whose scope of practice includes that procedure or medication administration must attend the patient during transport.**
2. All trauma patients with mechanisms or history for multiple traumas will be offered transport as soon as possible.
3. Trauma scene time for critical patients should be 10 minutes or less unless extenuating circumstances.
4. Medical patients will be offered transport in the most efficient manner possible considering the medical condition.
5. Advanced life support therapy should be provided at the scene only if it would positively impact patient care. Justification for scene times greater than 20 minutes should be documented.
6. No patients will be transported in initial response non-transport vehicles except in unusual circumstances when transport in other vehicles may be appropriate and will be directed by Scene Commander.
7. **Pediatric Transport:**
 - a. Transport adults and children who are not patients, properly restrained, in an alternate passenger vehicle, whenever possible.
 - b. Do not allow parents, caregivers, or other passengers to be unrestrained during transport.
 - c. Avoid having the child/infant held during transport. Transport in approved safety seats and/or pedi-boards whenever possible.
8. **FNSB Family Member Transport:**
 - a. Under no circumstances may a family member or friend accompany a patient in the ambulance if the ambulance is or is anticipating going lights and siren to the hospital.
 - b. Family member or friend will only be allowed to ride in the cab of the ambulance, unless the Lead Medic deems it is in the best interest of the patient to have the family member or friend ride in the patient compartment (i.e. a parent with a small child).
 - c. All family members or friends must remain seated and wear seatbelts while the vehicle is in motion.
 - d. No passengers who are intoxicated or under the influence of drugs will be allowed to accompany a patient on the ambulance.
 - e. If the family member or friend is not allowed to ride in the ambulance, battalion may choose to provide a ride in their vehicle.
9. **Non-Transport of Patients:**
 - a. General Principle
 - 1) A patient who has decision-making capacity may refuse treatment, examination or transport.
 - 2) A person probably has decision-making capacity sufficient to refuse treatment or transport if he/she:
 - a) Understands the nature of the illness/injury or risk of injury/illness.
 - b) Understands the possible consequences of refusing treatment or refusing transport; and
 - c) Given the risks and options, the patient voluntarily refuses treatment or transport.
 - 3) The pre-hospital provider is responsible for deciding if the patient's refusal is informed and voluntary. The EMT should consider the nature of the incident, potential mechanism, obvious actions of the patient, as well as the verbal statements of the patient. The EMT is responsible for a reasonable assessment of the patient to determine if there is an injury/illness or reason for transport/treatment. Only then is a patient's refusal an informed refusal. Do not attempt to diagnose, but do assess carefully.
 - 4) Remember; it is your assessment and advice to the patient that are most important in the non-transport, not how well you write a report after the fact or what document the patient signs.
 - b. Procedure
 - 1) If a patient has no injury, no complaint of illness or injury and this is consistent with the history/mechanism, the EMT shall document this on the form and write no transport indicated.

- 2) For the patient who has only an isolated soft tissue injury and has decision-making capacity, treatment and transport should be offered. If the patient refuses, then warn the patient of the risks of non-transport and delay in treatment.
- 3) Patients with medical conditions/injuries that may recur or deteriorate or may render the patient unable to seek medical care, should be carefully evaluated and warned to not delay in obtaining medical treatment. (High risk areas in EMS are head injury, chest pain, abdominal pain, "flu" like symptoms, alcohol related illnesses or injuries.)
- 4) For the patient refusing transport or treatment:
 - a) Assess patient to the extent possible. Look for objective causes of injuries or illnesses that may impair decision-making. Evaluate mechanism, history, scene and potential for unseen injuries/illnesses. (Do not diagnose.)
 - b) Inform patient of findings, possible injuries or illnesses that warrant treatment or transport, and of the risks of non-transport and delaying of treatment.
 - c) If the patient still refuses treatment/transport, then determine the patient's ability to understand the immediate medical situation and need for treatment. Questions asked might include:
 - Why don't you want to go to the hospital?
 - What other means of transport do you have?
 - What will you do if you get sick again?
 - What are the risks I just explained to you about delaying treatment?
- 5) The following must be documented for every patient examined, offered and refused treatment/transport:
 - a) All assessment findings
 - b) Description of mechanism or scene factors (damage, environment, etc.).
 - c) Description of the mental status and decision-making capacity.
 - d) Vital signs, unless patient refuses.
 - e) Patient's response to warning about risks of non-transport/non-treatment.
- 6) In any instance when the patient has an injury or is ill and is refusing transport you need to have the patient sign a release.
 - a) If the patient will not let you examine them and the mechanism suggests a possible injury, than ask them to sign the form.
 - b) Have a witness sign the form.
 - c) If the patient refuses to sign the form, document the facts on the front of the form.

Termination of Resuscitation (TOR) and Field Pronouncement

Certification Requirements: EMT 1, 2, 3, AEMT, & PARAMEDIC

Purpose:

To provide guidelines for resuscitation and field termination of patients in cardiac arrest in the prehospital setting.

General Principles:

A. Contacting Medical Control:

- **Resuscitation may be withheld or terminated as described below without online authorization from Medical Control. However, the EMT/Paramedic may choose to consult Medical Control.**
- **When consulting Medical control, contact should be made by phone whenever possible.**
 1. Provide, at minimum, the following information:
 - a. Possible cause of cardiopulmonary arrest
 - b. Treatment provided to reverse causes (if applicable)
 - c. Approximate time of arrest and/or resuscitative efforts.
 - d. Conditions related to decision to terminate resuscitation.
 2. Once authorization has been acquired, document all of the above as well as the following on the PCR:
 - a. Physician's name contacted to confirm termination of resuscitation
 - b. Date and Time of termination of resuscitation
 - c. The presence of a contagious disease, if known
 3. Provide a copy of the PCR to the emergency department, even if the patient was not transported.

B. Withholding Resuscitation

Attempt resuscitation for all patients found pulseless and apneic, unless any of the following are present:

1. A valid "Do Not Resuscitate" form or State of Alaska "POLST" form or bracelet
2. Dependent lividity or rigor mortis
3. Arrest unwitnessed by either EMS or bystanders, no bystander CPR has been performed and asystole is found in two (2) leads.
4. Injuries are incompatible with life, including:
 - a. Incineration
 - b. Decapitation/Detruncation
 - c. Evidence of massive blunt head, chest or abdominal trauma
 - d. Blunt trauma of any type that resulted in an apneic, pulseless patient with no pupillary response, spontaneous movement or organized ECG activity.
 - e. Third degree burns over more than 90% of the total body surface area
 - f. Chest is frozen or there is ice in the airway.
5. Traumatic Arrest and you are more than 15 minutes from the hospital.

C. Termination of Resuscitation (TOR): The EMT/PARAMEDIC may terminate resuscitation in the following situations

1. Traumatic Arrest:

- a. EMS-witnessed cardiopulmonary arrest and 30 minutes of resuscitation efforts¹ with no signs of life or response to BLS care (chest compressions & BVM ventilations).
- b. Traumatic cardiopulmonary arrest patients with transport time to the ED of more than 15 minutes from the time the arrest was identified.

2. Medical Pulseless Arrest.

- a. Resuscitate according to Cardiac: Arrest protocol on scene (unless unsafe) until one of the following endpoints are met:
 - (1) Return of spontaneous circulation (ROSC). Transport to ED and follow current FNSB/AHA ROSC protocol.
 - (2) No ROSC after 20 (unwitnessed)-30 (witnessed) minutes of ALS care assess ETCO₂ values.
 - ETCO₂: less than 10 discontinue CPR
 - 10-40 continue CPR assessing ETCO₂ every 5 minutes

- 40 and greater, continue CPR, check for a pulse, assess H & TS

- (3) No ROSC in continuous asystole despite 20 (unwitnessed)-30 (witnessed) minutes of provision of ALS care and/or BLS care with AED and no reversible causes have been identified. Terminate resuscitation and do not transport. Contact appropriate authorities.
- (4) **BLS-only Providers: contact Medical Control** for TOR on scene when all of the following criteria is met:
 - No AED shock advised
 - No ROSC
 - Arrest un-witnessed by either EMS or bystanders
 - No bystander CPR before EMS arrival

C. **Special Situations:** Special situations may require that resuscitation be continued despite meeting the criteria listed above. The following patients found pulseless and apneic warrant resuscitation efforts beyond 20-30 minutes and should be transported:

1. Moderate to Severe Hypothermia as defined by Alaska Cold Injury Protocols
2. Drowning with hypothermia and submersion less than 60 minutes
3. Pregnant patient with estimated gestational age greater than or equal to 20 weeks.
4. Patients in public areas (such as shopping malls, grocery stores, movie theaters, etc.) where discontinuing CPR may pose serious crowd control issues.
5. **All Pediatric arrests should be transported**

Consider transporting patients in refractory VFIB/Vtach after 2-3 shocks (6-8 minutes). Patients in refractory Vfib do not benefit from extended scene times as long as good quality CPR (mechanical) can be maintained during transport.

D. **Procedure:**

1. After termination of resuscitation or the determination to withhold resuscitation, do not alter condition in any way or remove equipment (lines, tubes, etc.) as the patient is now a potential coroner's case.
2. After termination of resuscitation or the determination to withhold resuscitation, and an Expected Death form is not present, the following procedures should be performed.
 - a. Notify and request the law enforcement agency (if they are not already present).
 - b. Treat the scene as if it were a crime scene.
 - 1) Minimize the number of personnel at scene.
 - 2) If in a residence or building, avoid touching objects and using the telephone.
 - 3) Personnel exiting the scene should retrace the same route they took to enter, if possible.
3. If the patient's death was expected (Patient's family has approved "Expected Death" documentation), notify the appropriate law enforcement agency, or patient's physician of the event, inform them of the expected event documentation.
4. The *Deceased Subjects Operational Guideline* should be followed.
5. If unable to contact a Public Safety agent, or they are unable to respond as required, for "Pronouncement of Death", (different from termination or withholding of resuscitation), follow AS18.08.089. Authority to Pronounce Death –see appendix.

¹ *Resuscitative Efforts* Definition:

1. Achieve airway control via BLS airway, tracheal intubation or supra-glottic airway device.
2. Achieve effective oxygenation and ventilation and BLS CPR
3. Defibrillate when appropriate
4. Obtain vascular access and administer EPI and antiarrhythmics as appropriate
5. Consider, search for and correct reversible causes or special resuscitation circumstances (profound hypothermia, toxin/drug overdose are not present)
6. Maintain continuous ETCO₂ of greater than 10 mmHg (maintained effective compressions)

PRE-HOSPITAL TRAUMA TEAM ROLE SUMMARY

PURPOSE: To provide organized methodology in caring for the injured trauma patient utilizing effective communication and a team approach.

GUIDELINE: For optimal results, the trauma team should be activated in the field at the request of the pre-hospital personnel. Ultimately, the decision to activate or upgrade the trauma team is the responsibility of the Emergency Department Registered Nurse and/or Emergency Medicine Physician.

PRIOR TO PATIENT ARRIVAL:

- Pre-hospital personnel to activate Full or Limited Trauma Alerts for all persons who meet the criteria listed below.
- Prior to patients arrival to FMH, Pre-hospital personnel to provide FMH ED with a report to include specific trauma alert criteria that the patient meets for activation, a full set of vital signs, respiratory status, GCS and mechanism of injury.
- After notification of an incoming trauma activation patient, members of the FMH trauma team will respond to the trauma room.
- Pre-hospital personnel to provide bedside report to Primary (Lead) Register Nurse and Emergency Medicine Physician.

****Limited Trauma Criteria MUST be within 4 hours of injury to activate****

****Full Trauma Criteria with NO time frame to activate****

FULL TRAUMA CRITERIA									
Persons who sustain injury with any of the following:									
Adult (13+ years)									
Airway	Intubated or are in need of an Emergent Airway								
Breathing	Respiratory Compromise, Unable to Adequately Ventilate, or Assisted Ventilations								
Circulation	Systolic BP < 90 mm/Hg at any time								
Deficit	GCS < or = 8 with Mechanism Attributed to Trauma								
<ul style="list-style-type: none"> • <u>Gunshot Wounds to the Head, Neck, Chest, Abdomen, Pelvis, or Extremities Proximal to elbow/knee</u> • <u>Receiving Blood Products to Maintain Vital Signs</u> • <u>Physician Discretion to Activate</u> 									
Pediatrics (12 years and younger)									
<ul style="list-style-type: none"> • Any signs of Abnormal Perfusion (cyanosis, weak pulses, cap refill >2sec, BP low for age) • Age-Specific Hypotension 									
<table border="1" style="width: 100%;"> <thead> <tr> <th style="font-size: small;">AGE</th> <th style="font-size: small;">SBP (mm/Hg)</th> </tr> </thead> <tbody> <tr> <td style="font-size: x-small;">< 1 year</td> <td style="font-size: x-small;">< 60</td> </tr> <tr> <td style="font-size: x-small;">1 -10 years</td> <td style="font-size: x-small;">< 70 + 2x age</td> </tr> <tr> <td style="font-size: x-small;">>10 years</td> <td style="font-size: x-small;">< 90</td> </tr> </tbody> </table>	AGE	SBP (mm/Hg)	< 1 year	< 60	1 -10 years	< 70 + 2x age	>10 years	< 90	
AGE	SBP (mm/Hg)								
< 1 year	< 60								
1 -10 years	< 70 + 2x age								
>10 years	< 90								
<u>This is in addition to all adult criteria</u>									

LIMITED TRAUMA CRITERIA	
Persons who sustain injury with any of the following: **MUST BE WITHIN 4 HOURS OF INJURY TO ACTIVATE**	
Adult (13+ years)	
<ul style="list-style-type: none"> • <u>Falls > 20 feet</u> • <u>High Risk Auto Crash:</u> <ul style="list-style-type: none"> ▪ Ejection from Automobile, Motorcycle, ATV, Animal, etc. ▪ Motorcycle Crash >20mph ▪ Death in same Passenger Compartment ▪ Auto vs. Ped/Cyclist Thrown, Run over, or with significant impact (>20mph) • <u>Paralysis with Mechanism Attributed to Trauma</u> • <u>Crushed, Degloved, Mangled or Amputated Extremity proximal to the wrist or ankle</u> • <u>High Energy Electrical Injury</u> • <u>Burns >10% TBSA (2nd or 3rd degree) and/or Inhalation Injury</u> • <u>Medical Judgment to Activate</u> 	
Pediatrics (12 years and younger)	
<ul style="list-style-type: none"> • Falls > 10 feet or two times the height of the child • GCS 9-13 with Mechanism Attributed to Trauma 	
<u>This is in addition to all adult criteria</u>	

Medications

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Intentionally

ADENOSINE (Adenocard)

EMT 3ES, AEMT, PARAMEDIC

Class/Description:

Antiarrhythmic

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
- Stable, undifferentiated, regular, monomorphic wide-complex tachycardia
- 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

Adverse Reactions

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

Drug Interactions

- Methylxanthines (e.g. caffeine and theophylline) 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 adenosines

How Supplied

- Prefilled syringe; 6 mg/2 ml or 12 mg/4 ml

Dosage and Administration

- **Adult:**
 - 6 mg RAPID IV push, followed immediately by a 10-20 ml NS flush
 - Insert adenosine and saline-flush needles into same IV port. Push adenosine rapidly, followed immediately by saline flush. Elevate IV arm.
 - If no response in 1-2 minutes, give 12 mg rapid IV push followed by a 10-20 ml NS flush.
- **Pediatric:**
 - Initial dose: 0.1 mg/kg (max 6 mg) rapid IV push; follow with ≥ 5 ml saline flush.
 - Additional Doses: 0.2 mg/kg (max 12 mg) rapid IV push, follow with ≥ 5 ml saline flush.
 - **Contact Medical Control** for further considerations

Protocol

- Cardiac: Tachycardia-Adult & Pediatric

Special Consideration

- 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
-

ALBUTEROL SULPHATE

EMT-1

EMT-2 , 3, AEMT, PARAMEDIC

Class/Description:

- Sympathomimetic, bronchodilator
- Selective B-2 adrenergic receptor agonist. It is positive chronotrope.

Onset & Duration

- Onset: 5-15 min. after inhalation
- Duration: 3-4 hours after inhalation

Indications

- Bronchospasm
- Second line drug for Anaphylaxis
- Suspected hyperkalemic pulseless arrest: consider in patients with renal failure or high suspicion of hyperkalemia with no chest pain

Contraindications

- Severe tachycardia is a relative contraindication

Adverse Reactions

- Tachycardia
- Palpitations
- Dysrhythmias

Drug Interactions

- Sympathomimetics may exacerbate adverse cardiovascular effects
- B-blockers may antagonize albuterol

How Supplied

- MDI: 90 mcg/metered spray
- Pre-diluted nebulized solution: 2.5 mg in 3 mL NS (0.083%)

Dosage and Administration

- **Adult**
 - Initial Nebulizer Dose
Albuterol sulfate solution, 2.5 mg by nebulizer, at a flow rate (6-8 LPM) that will deliver the solution over 5-15 minutes. May be repeated twice (total of 3 doses)
 - Continuous Nebulizer dose
In more severe cases, place 3 premixed containers of albuterol (2.5 mg/3 mL) 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: 1 year and greater**
 - Initial Nebulizer Dose
Albuterol sulfate solution, 2.5 mg by nebulizer, at a flow rate (6-8 LPM) that will deliver the solution over 5-15 minutes. May be repeated twice (total of 3 doses)

Protocol

- Allergy and Anaphylaxis
- Near-Drowning/Drowning
- Respiratory Distress- Adult Universal Algorithm
- Respiratory Distress: Asthma -Adult
- Respiratory Distress- Pediatric

Special Consideration

- 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

AMIODARONE (Cordarone)

EMT 3 and above **CARDIAC ARREST ONLY**, Use as a Antiarrhythmic for 3ES and PARAMEDICabove

Class/Description:

- Antiarrhythmic
- Amiodarone has multiple effects showing 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.

Onset & Duration

- Onset: immediate. Peak: 20 minutes.
- Duration: Duration of infusion.

Indications

- Cardiac arrest in patients with shock refractory VF/VT
- Stable wide complex tachycardia
- For ventricular ectopy following successful cardioversion of VF/VT

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

- Severe Hypotension
- Bradycardia

How Supplied

- Vial or prefilled syringe – 150 mg in 3 ml

Dosage and Administration

- **Adult:**
 - Pulseless Arrest (Refractory VT/VF)
 - 300 mg IV bolus.
 - Repeat once 150 mg IV bolus in 3-5 minutes.
 - Post arrest for ventricular ectopy following successful conversion of VT/VF
 - 150 mg IV bolus infusion over 10 minutes
 - Wide Complex tachycardia with poor perfusion (EMT 3ES and AEMTs call med control to administer)
 - 150 mg IV bolus infusion over 10 minutes.
- **Pediatric:**
 - Pulseless Arrest
 - 5mg/kg IV/IO bolus, max 300mg/dose; may repeat up to 15 mg/kg
 - Wide Complex tachycardia with poor perfusion
 - 5mg/kg IV over 20-30 min; may repeat up to 15 mg/kg, max 300 mg/dose

Protocol

- Cardiac: Arrest- V-Fib/Pulseless V-Tach- Adult & Pediatric
- Cardiac: Post-Resuscitation- Adult & Pediatric
- Cardiac: Tachycardia- Adult & Pediatric
- Cardiac: Ventricular Ectopy- Adult

Special Consideration

- A 12-lead EKG should be performed and documented, when available.

ASPIRIN (ASA)

EMT-1 and above

Class/Description:

- Platelet inhibitor
- 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.

Onset & Duration

- Onset: 5-30 min
- Duration: 4-6 hr

Indications

- Suspected acute coronary syndrome

Contraindications

- Hypersensitivity to aspirin or salicylates
- Bleeding disorders (e.g. hemophilia)
- Active GI bleeding or ulcers

Precautions

- Use with caution in patients with the following:
 - History of aspirin or NSAID-induced asthma
 - Anticoagulant use
 - Recent trauma or surgery

Adverse Reactions

- Prolonged bleeding times
- Allergic reactions, anaphylaxis

How Supplied

- 81 mg chewable tablets

Dosage and Administration

- **Adult:**
 - 324 mg (4 baby aspirin) PO
- **Pediatric:**
 - As instructed by Medical Control

Protocol

- Cardiac: Chest Pain

Special Consideration

- If patient has already taken a daily dose of aspirin of 1 baby aspirin, it is appropriate to administer at least 3 more. If they have taken 324 mg, there is no need to give more.
-

ATROPINE SULFATE

EMT-3 and above

Class/Description:

- Atropine is an endogenous antimuscarinic, anticholinergic substance.

Onset & Duration

- Onset: Immediate.
- Duration: 4 hr.

Indications

- Symptomatic Bradycardia
- 2nd & 3rd degree heart block
- Organophosphate poisoning

Contraindications

- No absolute contraindications for life-threatening emergencies (ACLS)

Precautions

- Will not be effective for 2nd or 3rd degree AV block. May cause paradoxical slowing. Be prepared to pace or give catecholamines per protocol
- Pushing atropine too slowly or giving adults <0.5 mg may cause paradoxical slowing of the heart.

Adverse Reactions

- Bradycardia; tachycardia, palpitations, tremor
- Overdose effects: Dilated pupils (mydriasis), blurred vision, dry mouth, dry skin
- Anaphylaxis

How Supplied

- Vial or prefilled syringe – 1 mg in 10 ml

Dosage and Administration

- **Bradycardia (including AV block)**
 - **Adult:** 1 mg IV IV/IO q 3-5 min PRN, not to exceed total dose of 0.04 mg/kg (maximum 3 mg) ; ET Dosage: 2-3 mg
 - **Pediatric:** 0.02 mg/kg IV/IO, may repeat once.
 - Minimum 0.1 mg per dose. Less may cause paradoxical bradycardia.
 - Maximum child: 0.5 mg single dose, 1 mg total
 - Maximum adolescent: 1 mg single dose, 3 mg total
- **Organophosphate Poisoning, (Insecticide/Nerve Gas exposures)**
 - **Required: Contact Poison Control for dosage.**
 - **Adult:** Typical starting dose is 2-6 mg IV depending on severity of symptoms. Subsequent doses 1-2 mg IV q 10-20 min PRN. Titrate to clear lung sounds.
 - **Pediatric:** Contact Poison Control for dose

Protocol

- Cardiac: Bradycardia- Adult & Pediatric
- Poisoning/Overdose

Special Consideration

- Atropine causes pupil dilation, even in cardiac arrest settings.
 - The mnemonic for clinical effects of typical atropine poisoning is: “Blind as a bat, mad as a hatter, red as a beet, hot as a hare, dry as a bone, the bowel and bladder lose their tone, and the heart runs alone”
-

DEXTROSE 10%, 25%, 50%

EMT-2 and above

Class/Description:

- Carbohydrate
- 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.

Onset & Duration

- Onset: Immediate; may be delayed in elderly patients with poor circulation
- Duration: depends on the needs and demands of the body

Indications

- Hypoglycemia evidenced by blood glucose <60 mg/dl
- When a blood glucose test cannot be obtained:
 - Altered LOC, coma or neurological deficit of unknown origin

Contraindications

- No absolute contraindications for in emergency setting

Precautions

- Dextrose 50% is hypertonic and may cause thrombosis or phlebitis at the injection site. Give slowly to minimize venous irritation.
- Use dextrose with caution in patients with increasing intracranial pressure as it may worsen the cerebral edema. (E.G. Stroke patients or Trauma patients with intracranial or intraspinal hemorrhage)

Adverse Reactions

- Thrombosis, phlebitis, tissue necrosis due to extravasation

How Supplied

- Prefilled syringe – 25 g in 50 ml

Dosage and Administration

- **Adult:**
 - 25 g (50mL of a 50% solution) IV/IO
 - D10 (250mL- titrate to effect) IV/IO
- **Pediatric:**
 - **Age 8 & under:** 2-4 ml/kg of D 25% IV/IO (dilute D50% 1:1 with normal saline)
 - Repeat if blood glucose remains <100 mg/dl with neurological deficit.
 - To make D25, mix 1 part D50 with 1 part normal saline. (For 50 ml syringe of D50, push out 25 mls and pull up 25 mls normal saline.)
 - **Newborn with documented hypoglycemia:**
 - For full-term infant with blood glucose <40 mg/dl or premature infant with blood glucose <30 mg/dl: give a single bolus of 5 ml/kg of D10 IV/IO.
 - To make D10, mix 1 part D50 with 4 parts normal saline. (For 50 mls syringe of D50, push out 40 mls and pull up 40 mls normal saline.)

Protocol

- Altered Mental Status
- Behavioral – Agitated or Combative Patient
- Hypotension/Shock – Pediatric
- Neonatal Resuscitation
- OB: Obstetrical/Gynecological
- Seizures- Adult & Pediatric
- Stroke
- Syncope

Special Consideration

- 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.
- 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.

DIPHENHYDRAMINE (Benadryl)

EMT-2 (allergy & anaphylaxis only), 3, AEMT PARAMEDIC

Class/Description:

- Antihistamine: Treating histamine-mediated symptoms of allergic reaction.
- Anticholinergic and antiparkinsonian effects used for treating dystonic reactions caused by antipsychotic and antiemetic medications (e.g.: haloperidol)

Onset & Duration

- Onset: < 15 minutes.
- Duration: 4-6 hours

Indications

- Allergic reaction
- Dystonic medication reactions or akathisia (restlessness)
- To prevent nausea and vomiting in patients allergic to Ondansetron (Zofran)
- Motion sickness prevention
- Last resort for sedation of combative or severely agitated patients

Contraindications

- Hypersensitivity to Benadryl
- Do not give to neonates or premature infants

Precautions

- Asthma or COPD, thickens bronchial secretions

Side Effects

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

How Supplied

- Prefilled syringe or Vial – 50 mg in 1 ml

Dosage and Administration

- **Adult:**
 - 50 mg IV/IO/IM; slow IV/IO push (over 1-2 min)
- **Pediatric:**
 - <8 years: 1-2 mg/kg slow IV/IO/IM (not to exceed 50 mg)

Protocol

- Anaphylaxis/Allergic Reaction
- Behavioral- Agitated or Combative Patient

Special Consideration

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

EPINEPHRINE (Adrenalin)

EMT 1- Assist with patient's prescribed autoinjector

EMT 1- Epinephrine 1:1,000 for anaphylaxis only

EMT 2 Epinephrine 1:10,000 cardiac arrest only

EMT-3 and above Bradycardic, hypotension, asthma, and anaphylaxis

PARAMEDIC Epi drip

Class/Description:

- Sympathomimetic
- 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.

Onset & Duration

- Onset: SQ/IM 5-10 minutes. Peak: 20 min; IV/IO: Immediate. Peak: within 1 min
- Duration: SQ/IM 1-4 hrs; IV/IO: Several minutes

Indications

- Pulseless Arrest
- Anaphylaxis
- Asthma unresolved by Albuterol
- Bradycardia with poor perfusion to pacing

Contraindications

- None in life-threatening situations

Precautions

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

Adverse Reactions

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

How Supplied

- Epinephrine 1:1,000
 - 1mg in 1 ml, glass ampule
 - 30 mg in 30 ml, multidose vial
- Epinephrine 1:10,000
 - 1mg in 10 ml, Prefilled syringe

Dosage and Administration

- **Adult:**

Pulseless Arrest

- 1 mg (10 ml of a 1:10,000 solution), IV/IO bolus.
Repeat every 3-5 minutes.

Bradycardia/ hypotension refractory to other interventions:

- Continuous infusion titrated to effect: 1 mg in 250 or 500 ml of Normal Saline IV/IO infused at 2 mcg/min until desired BP of > 90 mmHg systolic achieved. (Paramedic only)
- Push Dose Epi: Push small aliquots of 0.5 ml to 1.0 ml IV every 1-2 minutes to achieve systolic BP > 90 mmHg, a MAP of > 65 mmHg, and/or adequate cerebral perfusion as evidenced by mentation **To make Push dose epi:** Empty 9 ml of Epinephrine from a 10 ml 1:10,000 cardiac epinephrine. Draw up 9 ml of normal saline from IV bag and MIX THOROUGHLY

Asthma:

- 0.3 mg (0.3 ml of a 1:1,000 solution) SQ. May repeat dose x 1 PRN.

Anaphylaxis:

- 0.3 mg (0.3 ml of a 1:1,000 solution) IM/SQ every 5-15 min PRN.

Anaphylaxis refractory to IM Epi:

0.1-0.25 mg (1-2.5 ml) epi 1:10,000 slow IV over 5 minutes; repeat q 5-15 to achieve and maintain desired BP of > 90 mmHg systolic

Epinephrine Auto-Injector for Systemic allergic reaction:

- o Adult: 0.3 mg IM with autoinjector (adult EpiPen)

Pediatric: 0.15 mg IM with autoinjector (EpiPen Jr.) **Pediatric:**

Cardiac arrest:

- o 0.01 mg/kg IV/IO (0.1 ml/kg of 1:10,000 solution). Max of 1 mg per dose. Subsequent doses repeated every 3-5 min: 0.01 mg/kg IV/IO (0.1 ml/kg of 1:10,000 solution)
- o Alternative: 0.1 mg/kg epinephrine 1:1,000 (dilute with NS to 3-5 ml) ET every 3-5 min.

Bradycardia

- o 0.01 mg/kg (0.1 ml/kg of 1:10,000 solution) IV/IO

Asthma

- o 0.01 mg/kg (0.01 ml/kg of **1:1,000** solution) SQ/ IM max 0.3mg per dose

Anaphylaxis (Moderate to Severe Allergic Reactions)

- o 0.01 mg/kg (0.01 ml/kg of **1:1,000** solution) IM/SQ max 0.3 mg per dose

Anaphylaxis refractory to IM Epi 0.01 mg/kg (0.1 ml/kg of 1:10,000 solution) IV/IO

Protocol

- Anaphylaxis/ Allergic Reaction
- Cardiac: Arrest Asystole/PEA – Adult & Pediatric
- Cardiac Arrest V-Fib/Pulseless V-Tach—Adult & Pediatric
- Cardiac: Bradycardia- Pediatric
- Neonatal Resuscitation
- Respiratory Distress Universal Algorithm—Adult & Pediatric
- Respiratory Distress: Asthma- Adult & Pediatric
- Shock

Special Consideration

- May increase myocardial oxygen demand and angina pectoris. Use with caution in patients with known or suspected CAD.
- Be sure to use a filtered needle or straw to draw up the 1:1,000 Epi ampule

Epi Drip Rate Dose (mcg/min)						
	2 mcg/min	4 mcg/min	6 mcg/min	8 mcg/min	10 mcg/min	
1000 mcg /250 ml	30	60	90	120	150	microdrips/min (60 gtt drip set)
1000 mcg /250 ml	5	10	15	20	25	microdrips/min (10 gtt drip set)
1000 mcg /500 ml	60	90	120	180		macrodrrips/min (60 gtt drip set)
1000 mcg /500 ml	10	20	30	40	50	macrodrrips/min (10 gtt drip set)

FENTANYL (Sublimaze)

EMT-3, AEMT, PARAMEDIC

Class/Description:

- Synthetic opioid analgesic. Binds opioid receptors in the CNS.
- Fentanyl is 100 times more potent than morphine.

Onset & Duration

- Onset: IV/IO: immediate; IM: 7-15 min; IN immediate
- Duration: IV/IO: 30-60 min; IM: 1-2 hrs; IN 15-20 min

Indications

- Moderate to severe pain associated with medical or traumatic conditions.
- Premedication for cardioversion and transcutaneous pacing
-
- NOTE: 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

Contraindications

- Hypotension, hemodynamic instability or shock
- Respiratory depression

Precautions

- Naloxone should be readily available when Fentanyl is given.
- The elderly and debilitated may require reduced doses

Side Effects/Adverse Reactions

- Respiratory depression, including apnea: May occur suddenly, and more commonly in children and the elderly
- Hypotension, especially when used in combination with other sedatives such as alcohol or benzodiazepines.
- Can increase intracranial pressure
- Chest wall rigidity has been reported with rapid administration
- Pediatric patients may develop apnea without manifesting significant mental status change

How Supplied

- Ampule or vial – 100 mcg (0.1 mg) in 2 ml or 250 mcg (0.25 mg) in 5 ml

Dosage and Administration

• Adult:

IV/IO route:

- 50-100 mcg, SLOW IV/IO bolus (over 1-2 min). Reduce to 25-50 mcg for abdominal pain.
- Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED CONTROL CONTACT**.

IN/IM route:

- 1-2 mcg/kg IN single dose
- If unable to establish IV- repeat dose of ½ to full dose every 10 minutes, titrated to clinical effect to a maximum cumulative dose 200 mcg. Additional dosing requires **MED CONTROL CONTACT**.
 - Consider initial lower dose of 0.5-1 mcg/kg in elderly

• Pediatric

○ (1-12 years):

IV/IO/IN route: 1-2 mcg/kg SLOW IV/IO bolus.

- Dose may be repeated after 10 minutes and titrated to clinical effect to a maximum cumulative dose of 3 mcg/kg

IN route **requires MEDICAL CONTROL** and approval for any patient < 5 years old, or any patient < 12 years old with indication other than isolated orthopedic injury or burns

-
- **Pediatric < 1 year: CONTACT MEDICAL CONTROL**

Protocol

- Abdominal Pain
- Cardiac: Chest Pain
- Cardiac: Tachycardia- Adult & Pediatric
- Dental Problems
- Frostbite
- Pain Control Protocol
- Sedation
- Trauma: Multiple Trauma Overview
- Trauma: Burns
- Trauma: Crush Injury
- Trauma: Extremity
- Trauma: Eye Injuries
- Trauma: Face and Neck
- Trauma: Spinal

Special Consideration

- IV route is preferred for more accurate titration. Continuous pulse oximetry is recommended. Frequent evaluation of the patient's vital signs is also indicated. Emergency resuscitation equipment and naloxone must be immediately available.
-

GLUCAGON

EMT 2 and above

Class/Description:

- Pancreatic hormone
- 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.
- Increases heart rate and contractility, improves AV conduction

Onset & Duration

- Onset: Variable: 5-20 min.

Indications

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

Contraindications

- Hypersensitivity to Glucagon

Adverse Reactions

- Tachycardia
- Headache
- Nausea and vomiting

How Supplied

- Prefilled syringe –1 mg in 1 ml (two part kit)

Dosage and Administration

- **Adult:**
 - **Hypoglycemia:** 1.0 mg, IM/IN May repeat in 15 minutes if no increase in LOC
 - **Beta Blocker/Calcium Channel Blocker overdose:** 2.0 mg IV bolus
- **Pediatric:**
 - **Hypoglycemia:** 0.5-1 mg/kg IM/IN. or see length-based tape/pedi wheel. Maximum dose 1.0 mg;
 - **Beta Blocker/Calcium Channel Blocker overdose** 2.0 mg IV bolus (Contact Med Control)

Protocol

- Altered Mental Status
- Behavioral – Agitated or Combative Patient
- Hypotension/Shock – Pediatric
- OB: Obstetrical/Gynecological
- Poisoning/Overdose
- Seizures- Adult & Pediatric
- Stroke
- Syncope

Special Consideration

- May become ineffective if added to alkaline solution.
 - Give carbohydrates (milk, orange juice, prompt meal etc.) as soon as patient is alert and able to eat.
-

GLUCOSE, ORAL GEL (Glucose 15)

EMT 1 and above

Class/Description:

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

Onset & Duration

- Onset: Variable: Within seconds but may be delayed in the elderly patient.

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

Adverse Reactions

- Nausea and vomiting

How Supplied

- Plastic squeeze tube containing 15- 24 gm glucose suspended in gel

Dosage and Administration

- **Adult/pediatric:** Give one tube orally. Repeat PRN

Protocol

- Altered Mental Status
 - Behavioral – Agitated or Combative Patient
 - Hypotension/Shock – Pediatric
 - OB: Obstetrical/Gynecological
 - Seizures- Adult & Pediatric
 - Stroke
 - Syncope
-

IPRATROPIUM BROMIDE (Atrovent)

EMT- 1 and above

Class/Description:

- Anticholinergic, Antimuscarinic, Bronchodilator
- Chemically related to atropine.

Onset & Duration

- Onset: 5-15 min. after inhalation
- Duration: 6-8 hr. after inhalation

Indications

- Bronchospasm

Contraindications

- Do not administer to children < 2 years
- Soy or peanut allergy is a contraindication to use of Atrovent metered dose inhaler, not the nebulized solution, which does not have the allergen contained in propellant

Precautions

- Atrovent should not be used as a single agent -- **it must be given in combination with albuterol.**
- **Not indicated for repetitive dose or continuous neb use**

Adverse Reactions

- Palpitations
- Tremors
- Dry mouth

How Supplied

- Premixed Container: 500 mcg in 2.5 ml NS

Dosage and Administration

- **Adult**
 - **Bronchospasm:**
Ipratropium (0.5 mg/2.5 ml) along with albuterol in a nebulizer. Do not repeat, subsequent nebulizer treatments are with Albuterol only.
- **Child (2yrs – 12yrs)**
 - **Moderate and Severe Bronchospasm**
Ipratropium (0.5 mg/2.5 ml) along with albuterol in a nebulizer Do not repeat, subsequent nebulizer treatments are with Albuterol only.

Protocol

- Anaphylaxis/Allergic Reaction
 - Respiratory Distress: Adult-Adult Universal Algorithm
 - Respiratory Distress: Asthma: Adult
 - Respiratory Distress: Pediatric
-

KETAMINE (KETALAR)

AEMT(Excited delirium only) and PARAMEDIC

Class/Description:

- General Anesthetic

Onset & Duration

- Onset: within minutes. Duration: 10-20 min

Indications

- Sedation agent as an alternative or in conjunction with Midazolam
- Sedation agent in severely combative patients, ie Spice patient
- Adult patient with signs of excited delirium where the safety of patient and/or providers is substantial concern

Contraindications

- AMI, unstable angina
- Severe Hypertension
- Acute globe injury or glaucoma
- Suspected aortic dissection

Precautions

- May have additive and/or synergistic effects when other sedatives are present.
- IV Ketamine can cause severe laryngospasm, but is safe IM.

Side Effects

- Cardiac: Hypertension, flushing, tachycardia
- GI: Increased oral secretions, nausea & vomiting
- Respiratory: Increased secretions, bronchorrhea
- Reemergence Reaction- anxiety, agitation, apparent hallucinations or nightmares as ketamine is wearing off.
- Can cause muscle rigidity

How Supplied

- 100 mg/1mL (10mL vial)

Dosage and Administration

- **Adult**

Behavioral Emergencies & Excited Delirium

- 4 mg/kg IM, (repeat in 5-10 min as needed) Max dose 500 mg. (*First line Treatment for Excited Delirium is consider cause*)

Pediatric: 5 years or greater

- IM- 4mg/kg IM

Protocol

- Behavioral Emergencies

Special Consideration

- Excited delirium is a medical emergency. Expedite rapid and safe transport.
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LIDOCAINE 2% SOLUTION

EMT 2- (Analgesic for intraosseous infusion only), EMT 3 and above

Class/Description:

- Antiarrhythmic
- Local anesthetic for relief of pain during intraosseous fluid administration.

Onset & Duration

- Onset: Immediate
- Duration: 10-20 minutes

Indications

- V-Fib, pulseless V-Tach
- Symptomatic ventricular tachycardia with a pulse
- Significant PVCs with signs and symptoms MI (chest pain, hypotension) with an underlying heart rate of greater than 50 bpm.
 - R on T
 - Multifocal PVCs, couplets, salvos, bigeminy, trigeminy
- Analgesic for intraosseous infusion

Contraindications

- Hypersensitivity to lidocaine, xylocaine, novocaine
- Second Degree Type II or Third degree heart block

Precautions

- Hypoxia is a frequent cause of PVC's; assure adequate oxygenation before giving lidocaine.
- Lidocaine is metabolized in the liver. Adverse effects are more likely in the elderly and in patients with liver disease or poor liver perfusion due to shock or congestive heart failure.

Adverse Reactions

- Seizures
- Drowsiness
- Tachycardia
- Bradycardia
- Confusion
- Hypotension

How Supplied

- Prefilled syringe – 100 mg in 5 ml

Dosage and Administration

Pulseless V-tach, V-Fib, Significant PVC's

- **Adult:**
 - Initial dose 1-1.5 mg/kg IV/IO; repeat doses 0.5-0.75 mg/kg every 5-10 min--max of 3 mg/kg.
 - Patients over 70 yo or patients with known liver disease:
 - Initial dose 1-1.5 mg/kg IV/IO; repeat doses 0.25-0.375 mg/kg (1/4 of the initial dose)
 - ET: 2-3 mg/kg
- **Pediatric:**
 - 1 mg/kg IV/IO (max 100 mg/dose) every 5-10 min—max 3 mg/kg
 - Alternative: 2-3 mg/kg ET. IV/IO preferred over ET.

Analgesic for Intraosseous Infusion

- **Adult:** 20-40 mg bolus, slowly, into IO site prior to fluid resuscitation, repeat as needed for pain relief from fluid infusion.
 - **Pediatric:** 0.5 mg/kg bolus, slowly, into IO site prior to fluid resuscitation, repeat as needed for pain relief from fluid infusion, **max single dose 50 mg**
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Protocol

- Cardiac: Arrest --V-Fib/Pulseless V-Tach- Adult & Pediatrics
- Cardiac: Chest Pain
- Cardiac: Post-Resuscitation-Adult & Pediatric
- Cardiac: Tachycardia –Adult & Pediatric
- Cardiac: Ventricular Ectopy-Adult

Special Consideration

- Seizures from lidocaine toxicity are likely to be brief and self-limited. If prolonged, or status epilepticus, treat per seizure protocol.

LORAZEPAM (Ativan)

EMT 3 (ES for seizures only), AEMT (Seizures only) PARAMEDIC

Class/Description:

- Benzodiazepine
- Anti-anxiety, sedative/hypnotic, amnesiac, anticonvulsant, skeletal muscle relaxant
- DEA Schedule IV drug

Onset & Duration

- Onset:
 - IV/IO: 15-30 minutes
 - IM: 30-60 minutes
- Duration:
 - IV/IO/IM: 8-12 hours and 1 mg is equivalent to 5 mg of diazepam, so be cautious with dosages

Indications

- Management of anxiety or agitation requiring sedation
- Status seizures:
 - Any seizure that has lasted more than 5 minutes. If patient is actively seizing on ambulance arrival, assume status epilepticus.
 - Two consecutive seizures without return to consciousness
 - Use only if the patient is actively seizing
 - Physician order required for pregnant patients.
- Premedication for cardioversion or transcutaneous pacing
- Alcohol withdrawal (DT's- Delirious Tremens)
- Behavioral emergencies
- Skeletal muscle relaxation (e.g. severe muscle spasm due to acute back strain)

Contraindications

- Hypersensitivity to lorazepam or benzodiazepines
- Severe hypotension, respiratory depression or CNS depression
- Liver or kidney failure
- Pregnancy (except on physician order for status epilepticus)

Precautions

- May cause CNS depression in neonates
- Lorazepam has a relatively long half-life (8-12 hrs)

Adverse Reactions

- Sedation, weakness, respiratory depression, hypotension
- Paradoxical reactions including hyperactivity or aggressive behavior, particularly in adolescent, pediatric or psychiatric patients

How Supplied

- Prefilled syringe – 2 mg/ ml or 4mg/ml

Dosage and Administration

- **Anxiety/Sedation/Muscle Relaxation/ Abdominal Pain (EMT3 ES and AEMT must contact Med Control for authorization)**
 - **Adult:** 0.5-1 mg IV/IO/IM every 15-30 minutes, max 4.0 mg, **contact Medical Control** for additional amounts.
 - **Infants, children:** 0.05 mg/kg IV/IM, max 2 mg; For additional doses, contact Medical Control
- **Status epilepticus (EMT 3 must have Expanded Scope or contact med control. AEMTs DO NOT need to contact Med Control for use in seizures.)**
 - **Adult:** 4 mg IV/IO/IM over 2-5 minutes, may repeat in 10-15 minutes with Medical control approval
 - **Infants, children:**
 - 0.05 mg/kg IV/IO/IM over 2-5 minutes, max 2 mg/dose. For additional doses, contact Medical Control

Protocol

- Behavioral – Agitated or Combative Patient
- Cardiac: Bradycardia-Adult & Pediatric
- Cardiac: Tachycardia –Adult & Pediatric
- OB: Obstetrical/Gynecological
- Pain Control Protocol
- Respiratory Distress: CHF/Pulmonary Edema Adult
- Seizures-Adult & Pediatric
- Trauma: Multiple Trauma Overview
- Trauma: Burns
- Trauma: Crush Injury
- Trauma: Extremity
- Trauma: Eye Injuries
- Trauma: Face and Neck
- Trauma: Spinal

Special Consideration

- Intact vials should be refrigerated. Protect from light. Do not use discolored or precipitate-containing solutions.
 - Lorazepam has a slower onset of action than midazolam or diazepam, making it less useful for treatment of acute agitation.
 - Administration considerations: IM: administer deep into muscle mass; IV: inject slowly; IN: onset of action is slightly longer than administration by IV but quicker than IM.
 - Ativan has a room-temperature shelf life of 30 days for vials and 60 days for tubex
 - Status epilepticus can be assumed if:
 - Seizure that has lasted more than 5 minutes. If patient is actively seizing on ambulance arrival, assume status epilepticus.
 - Two consecutive seizures without return to consciousness
 - Use only if the patient is actively seizing
 - Physician order required for pregnant patients.
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MAGNESIUM SULFATE

AEMT, PARAMEDIC

Class/Description:

- Electrolyte, antiarrhythmic, anticonvulsant
- 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.

Onset & Duration

- Onset: Immediate
- Duration: 30 minutes

Indications

Antiarrhythmic

- Torsades 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 post partum with seizures

Contraindications

- Hypersensitivity
- Heart block, diabetic coma

Precautions

- Give slowly to avoid inducing hypermagnesemia or drop in blood pressure
- ACLS recommends magnesium in cardiac arrest for torsades de pointes or suspected hypomagnesemia, only.

Adverse Reactions

- Bradycardia
- Hypotension
- Respiratory depression

How Supplied

- Prefilled syringe or vial – 1 gm/ 2ml

Dosage and Administration

- **Adult:**

- **Torsades de Pointes suspected caused by prolonged QT interval:**

- 1-2 gm, diluted in 10 ml NS over 5-10 minutes. May also place in bag of D₅W and drip over 5-10 minutes

- **Refractory Severe Bronchospasm:**

- 2 gm, diluted in 10 ml NS over 5-10 minutes.

- **For seizures of eclampsia or 1 mo. Post-partum:**

- Initial dose: 4 g (8 ml of 50% solution, diluted to 20-40 ml with NS) IV/IO over 3-4 minutes
 - Maintenance infusion: 1-2 g/hr IV/IO

- **Pediatric:**

- **Uncontrolled asthma (refractory status asthmaticus) or Torsades de Pointes:**

- 25-50 mg/kg (max 2 gm) IV/IO, diluted in 10 ml NS , over 5-10 minutes.

Protocol

- Cardiac: Arrest- V-Fib/Pulseless V-Tach- Adult & Pediatrics
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- OB: Obstetrical/Gynecological
 - Respiratory Distress- Adult Universal Algorithm
 - Respiratory Distress: Asthma-Adult
 - Respiratory Distress- Pediatric
 - Seizures-Adult
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METHYLPREDNISOLONE (Solu-Medrol)

EMT 3ES, AEMT ES, and PARAMEDIC

Class/Description:

- Synthetic Steroid
- Methylprednisolone suppresses acute and chronic inflammation and may alter the immune response. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity.

Onset & Duration

- Onset: IV 1-2 hr, IM: 4-8 d
- Duration: IV 30-36 hr, IM: 1-4 wk

Indications

- Anaphylaxis
- Severe asthma
- COPD

Contraindications

- Evidence of active GI Bleeding

Adverse Reactions

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

- Gastrointestinal bleeding
- Hypertension
- Hyperglycemia

How Supplied

- Act-O-Vial – 2 ml

Dosage and Administration

- **Adult:**
 - 125 mg, IV/IO bolus, slowly over 2 minutes; IM in large muscle (not deltoid)
- **Pediatric:**
 - 2 mg/kg IV/IO/IM consult with Medical Control for concentration and rate of infusion. Max 80 mg.

Protocol

- Anaphylaxis/Allergic Reaction
- Respiratory Distress- Adult Universal Algorithm
- Respiratory Distress: Asthma-Adult
- Respiratory Distress-Pediatric

Special Consideration

- Must be reconstituted and used immediately
 - The full 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.
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MIDAZOLAM (Versed)

EMT 3 (ES for seizures only), AEMT (Seizures only) PARAMEDIC

Class/Description:

- Benzodiazepine, water-soluble & short acting
- Anti-anxiety, sedative/hypnotic, amnesiac, anticonvulsant, skeletal muscle relaxant
- DEA Schedule IV drug

Onset & Duration

- Onset: 3-5 min IV, 15 min IM, 6-14 min IN
- Duration: 2 hours IV, 1-6 hours IM

Indications

- Seizures
- Management of anxiety or agitation requiring sedation
- Premedication for cardioversion or transcutaneous pacing
- Skeletal muscle relaxation (e.g. severe muscle spasm due to acute back strain)

Contraindications

- Hypotension
- Pregnancy (except on physician order for status epilepticus).

Precautions

- **Intravenous midazolam is associated with respiratory depression and arrest,** especially when used with opioid analgesics for conscious sedation or when given rapidly IV. Monitor respirations, pulse oximetry and cardiac function closely. Resuscitative drugs, bag valve mask and intubation equipment should be immediately available when administering.

Adverse Reactions

- Respiratory depression, including apnea
- Hypotension
- Sedative effect of midazolam may be heightened by associated use of opioids, alcohol, or other CNS depressants.

How Supplied

- Prefilled syringe or vial 10 mg / 2 ml or 5 mg / 1 ml

Dosage and Administration

Sedation of severely agitated or combative patient (EMT3 ES and AEMT must contact med control for authorization)

- **Adult:**
 - 2 mg IV or 5 mg IN or IM (IN preferred) if no IV in place. Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses, unless **Excited Delirium Syndrome** present, in which case up to 3 doses may be given as standing order)

Seizures, Skeletal muscle relaxant & Sedation before cardioversion or pacing: (EMT3 ES and AEMT must contact med control for authorization)

- **Adult:**
 - 2 mg IV or 5 mg IN or IM (IN preferred). Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses.
- **Pediatric:**
 - 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.

Protocol

- Abdominal Pain
 - Behavioral – Agitated or Combative Patient
 - Cardiac: Bradycardia – Adult & Pediatric
 - Cardiac: Tachycardia – Adult & Pediatric Sedation
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- Seizure-Adult & Pediatrics
 - OB: Obstetrical/Gynecological
 - Pain Control Protocol
 - Respiratory Distress: CHF/Pulmonary Edema –Adult

Special Consideration

- Onset of action for midazolam IM may be up to 15 minutes and peak serum levels may not be reached for up to 30 minutes. For this reason, intranasal (IN) route preferred over IM if no IV available.
 - Provide continuous cardiac and pulse-oximetry monitoring, and ETCO₂ if available
 - Have resuscitation equipment readily at hand.
 - In elderly patients > 65 years old or small adults < 50kg, lower doses may be sufficient and effective.
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MORPHINE SULFATE

EMT 3, and above

Class/Description:

- Opiate analgesic, vasodilator, CNS depressant
- DEA/FDA Schedule II
- Morphine causes analgesia, euphoria, respiratory depression and complex hemodynamic effects, including hypotension caused by histamine release.

Onset & Duration

- Onset: Immediate
- Duration: 2-7 hr

Indications

- Pain management
- Cardiac chest pain unresponsive to nitroglycerine
- Premedication for cardioversion and transcutaneous pacing

Contraindications

- Hypovolemia
- Hypotension (BP<100 systolic)
- Hypersensitivity
- Head Injury & increased ICP
- Respiratory depression

Adverse Reactions

- Respiratory depression
- Hypotension
- Nausea and vomiting
- Itching (histamine release)

How Supplied

- Prefilled syringe , 10 mg/ 1ml

Dosage and Administration

- **Adult:**
 - Initial dose 2-4 mg IV/IM/IO. Repeat doses every 5 minutes of 2.0 mg, up to 10 mg. **CONTACT Med Control** for cumulative dose >10 mg.
 - **BURNS, EXTREMITY TRAUMA & CRUSH INJ:** Initial dose: 4-10 mg, IV/IO every 5-30 minutes. No maximum amount, provide as needed to manage pain; monitor BP and respiratory drive. (IM not recommended in burn patients).
- **Pediatric:**
 - 0.1 mg/kg IV/IM/IO **SLOWLY**. Maximum single dose is 5.0 mg. **CONTACT Med Control** for any single or cumulative dose > 10 mg

Protocol

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|---|-------------------------|
| • Abdominal Pain | • Trauma: Burns |
| • Cardiac: Chest Pain | • Trauma: Crush Injury |
| • Cardiac: Tachycardia –Adult & Pediatric | • Trauma: Extremity |
| • Dental Problems | • Trauma: Eye Injuries |
| • Frostbite | • Trauma: Face and Neck |
| • Pain Control Protocol | • Trauma: Spinal |

Special Consideration

- IV is the preferred route for all indications. IM should only be used if an IV cannot be obtained **and** IN Fentanyl is not available or contraindicated
 - Provide continuous monitoring of respiratory and cardiac function. Naloxone and resuscitation equipment should be readily available if administering morphine or other opioid analgesics
-

NALOXONE (NARCAN)

EMT-1 and above

Class/Description:

- Opioid receptor antagonist

Onset & Duration

- Onset: Within 5 minutes
- Duration: 1-4 hours

Indications

- For reversal of suspected opioid-induced CNS and respiratory depression
- Coma of unknown origin
- Seizure of unknown etiology (rule out narcotic overdose, specifically propoxyphene)

Contraindications

- Hypersensitivity to Naloxone

Precautions

- Patients who have received Naloxone **must** be transported.
- For unconscious patients of unknown etiology, check blood sugar/give dextrose or glucagon before using Naloxone.
- Reversing narcotic effects too rapidly may induce nausea, vomiting, increased blood pressure and tachycardia.
- Narcotic-dependent patients may experience violent withdrawal symptoms. Before administering naloxone to a suspected opioid overdose, consider if supportive care alone may be adequate. Be prepared to restrain the patient. Titrate dose to reverse cardiac and respiratory depression but keep the patient groggy.
- The duration of some narcotics exceeds that of Naloxone. Repeat doses may be required.

Adverse Reactions

- Tachycardia
- Nausea and vomiting
- Pulmonary Edema

How Supplied

- Prefilled syringe 2mg/2ml

Dosage and Administration

- **Adult:**
 - 0.5 mg IV/IO/IM/IN and titrate to desired effect, up to 2 mg total
 - If chronic abuse is suspected, be sure the patient is restrained and start with 0.2 mg, slowly administer subsequent doses to avoid acute withdrawal.
 - In cases of severe respiratory compromise or arrest, 2 mg bolus IV/IO/IM is appropriate, otherwise drug should be titrated
- **Pediatric:**
 - 0.1 mg/kg IV/IO/IM/IN and titrate to desired effect; repeat every 2-3 min as needed up to 2 mg total or see the length-based tape/pedi wheel for dosage

Protocol

- Altered Mental Status
- Neonatal Resuscitation
- OB: Obstetrical/Gynecological
- Poisoning/Overdose

Special Consideration

- When administering Intra-nasally (IN): be patient, most “failures” of IN naloxone are due to the expectation on an instant arousal. It takes 3-5 minutes (similar to injected naloxone) to take effect. The goal is breathing, not full arousal –IN naloxone leads to breathing in these situations, but not full arousal in every case.
- Narcotic drugs include morphine, meperidine (Demerol), heroin, hydromorphone (Dilaudid), oxycodone (OxyContin, Percodan, Percoset), codeine, propoxyphene (Darvon), pentazocine (Talwin).

NITROGLYCERIN (Nitrolingual, Nitrostat)

EMT 2 and above/PARAMEDIC (EMT-1 – assist with patient's prescribed nitroglycerin)

Class/Description:

- Peripheral Venodilator
- Short-acting, decreases 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
- Hypertensive Crisis

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. Viagra, Cialis, Levitra, Revatio)

Precautions

- Check blood pressure before and after each dose. If hypotension develops, raise the patient's feet, give fluids.

Adverse Reactions

- Hypotension
- Headache
- Syncope

How Supplied

- Metered-spray pump bottle, 0.4 mg per spray
- Aerosol spray container, 0.4 mg per spray
- Tablets, 0.4 mg

Dosage and Administration

- **Adult:**
 - 0.4 mg (1/150 gr) sublingually (tablet or spray), every 5 minutes PRN up to a total of 3 doses for persistent chest pain.
 - If nitroglycerin works to relieve pain, continue as long as BP is greater than 100 Systolic
 - If three doses of nitroglycerin are ineffective for cardiac chest pain, use fentanyl if available (preferred) or morphine.
 - **Hypertensive Crisis**
 - 1.2 mg SL every 3-5 minutes PRN

Protocol

- Cardiac: Chest Pain
- Hypertensive Crisis
- Respiratory Distress: CHF/Pulmonary Edema -Adult

Special Consideration

- **EMT-1s may assist with the patient's prescribed nitroglycerin.** If that is expired or empty, EMT-1s may use the ambulance's nitroglycerin.
- Nitroglycerin may be effective even in patients using paste, discs or long-acting oral nitrate preparations.
- Before using the pump bottle, spray to the side to ensure that the pump is primed.
- Do not shake the metered spray before using. Hold the canister upright and near the open mouth. Press button firmly to release the spray onto or under the tongue.
- Nitroglycerin tablets lose potency easily. They should be stored in dark glass bottle with a tight-fitting lid and not exposed to heat or light.

NITROUS OXIDE, 50% (Nitronox)

EMT- 2 and above

Class/Description:

- Gaseous analgesic

Onset & Duration

- Onset: 20 seconds
- Duration: 2-5 minutes after discontinuation

Indications

- Musculoskeletal pain, especially fractures
- Pain due to burns
- Ischemic chest pain
 - When IV access is unavailable
 - When BP less than 100 systolic

Contraindications

- Cyanosis or any patient requiring >50% oxygen to maintain oxygen saturation >90%
- Head or chest trauma
- COPD or suspected pneumothorax or respiratory compromise
- Impaired LOC or inability to follow instructions
- Undiagnosed abdominal pain or marked distention
- Decompression sickness (the bends)
- Patient or EMTs are pregnant and less than 20 weeks gestation

Precautions

- Monitor LOC and vital signs. Remove mask from semi-conscious patient.

Adverse Reactions

- Dizziness, confusion, euphoria, nausea, vomiting, cyanosis, apnea

How Supplied

- Compressed gas
- Nitrous oxide is mixed 50-50 with oxygen

Dosage and Administration

- Adult:
 - Self administered as a fixed mixture of 50% nitrous oxide, 50% oxygen via demand valve mask
 - Must be self-administered by patient.
 - Advise the patient of the need for a tight seal around the mouth and nose in order to open the supply valve. Instruct patient to breathe normally.
- Pediatric:
 - Not approved for use in the field for pediatrics

Protocol

- | | |
|-------------------------|-------------------------|
| • Cardiac: Chest Pain | • Trauma: Burns |
| • Dental Problems | • Trauma: Extremity |
| • Pain Control Protocol | • Trauma: Face and Neck |
| | • Trauma: Spinal |

Special Consideration

- Consider simultaneous oxygen by nasal cannula to continue oxygen therapy when Nitronox is not in use.
- Nitrous oxide is heavier than air and may pool on the floor of the ambulance so be sure to ventilate patient compartment during use.
- Nitrous oxide is a nonexplosive, nonflammable, sweet-smelling colorless gas.

ONDANSETRON (Zofran)

EMT-2 and above

Class/Description:

- Antiemetic
- Selective serotonin 5-HT₃ receptor antagonist antiemetic.
- Blocks serotonin on peripheral vagal nerve terminals and in the central chemoreceptor zone

Onset & Duration

- Onset: Immediate
- Duration: 3-5 hrs

Indications

- Nausea and vomiting

Contraindications

- Hypersensitivity

Precautions

- Be cautious with patients with impaired liver function

Adverse Reactions

- Anxiety
- Fatigue
- Dizziness

How Supplied

- Vial, 4 mg in 2 ml; ODT: 4mg or 8 mg tablets or melt-aways

Dosage and Administration

- **Adult:**
 - 8 mg IV/IO/IM, single dose; Infuse IV dose over minimum 30 seconds.
 - ODT: 8mg, single dose
- **Pediatric: Age 1 mo-12 IV/IO/IM:**
 - 0.1 mg/kg (max 4 mg) single dose.
 - Infuse IV dose over minimum 30 seconds
 - **Age 4-11 ODT:**
 - 4 mg, single dose.

Protocol

- | | |
|---|------------------------------------|
| • Abdominal Pain | • Trauma: Multiple Trauma Overview |
| • Cardiac: Chest Pain | • Trauma: Crush Injury |
| • Cardiac: Tachycardia –Adult & Pediatric | • Trauma: Extremity |
| • Dental Problems | • Trauma: Eye Injuries |
| • Frostbite | • Trauma: Face and Neck |
| • Pain Control Protocol | |
| • Vomiting & Diarrhea | |

OXYGEN

ALL LEVELS

Class/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. Breathing, in most people, is regulated by small changes in the acid-base balance and CO² levels. It takes relatively large decreases in oxygen concentration to stimulate respiration.

Indications

- Suspected hypoxemia or respiratory distress from any cause
- Acute chest or abdominal pain
- Hypotension/shock states from any cause
- Trauma
- Suspected carbon monoxide poisoning
- Obstetrical complications, childbirth

Contraindications

- None

Precautions

- If the patient is not breathing adequately, the treatment of choice is assisted ventilation, not just oxygen.
- When pulse oximetry is available, titrate SpO² to ≥ 94- 99% is recommended. This may take some time. However, if your patient appears to be having respiratory difficulties with SpO² to ≥ 94%, DO NOT WITHHOLD Oxygen.
- Do not withhold oxygen from a COPD patient out of concerns for loss of hypoxic respiratory drive. This is never a concern in the prehospital setting with short transport times

Administration

Flow	LPM Dosage	Indications
Low Flow	1-2 LPM	Minor Medical/Trauma
Moderate Flow	3-9 LPM	Moderate Medical/Trauma
High Flow	10-15 LPM	Severe Medical/Trauma

Admin Type	LPM Dosage	O ² Inspired Air
Room Air		21%
Nasal Cannula	1 LPM	24%
	2 LPM	28%
	6 LPM	44%
NRB	10 LPM	90 %
Mouth to Mask	10 LPM	80%
	15 LPM	50%
BVM	Room Air	21%
	12 LPM	40%
FROPVD	Approx 40 LPM	100%

Special Consideration

- Adequate oxygenation is assessed clinically and with the SpO² while adequate ventilation is assessed with clinically and with ETCO².
- Consider nasal cannula for stroke and cardiac patients. Research shows that increase free O² radicals complicate recovery.

SODIUM BICARBONATE

EMT 3ES, AEMT, PARAMEDIC

Class/Description:

- Alkalinizing agent, buffer
- Neutralizes acids found in the body. Acids are increased when body tissues become hypoxic due to cardiac or respiratory arrest.

Onset & Duration

- Onset: 15 min
- Duration: 1-2 hrs

Indications

- Crush Injuries where extrication is greater than an hour
- Tricyclic overdose with arrhythmias, widened QRS complex, hypotension, seizures
- Suspected hyperkalemic pulseless arrest: consider in patients with renal failure or high suspicion of hyperkalemia.
- Suspected pulseless arrest due to one of the following: diabetic ketoacidosis, tricyclic or aspirin overdose, cocaine, diphenhydramine.

Contraindications

- Metabolic and respiratory alkalosis
- Hypocalcemia
- Hypokalemia

Precautions

- Avoid extravasation (may cause chemical cellulitis, tissue necrosis, ulceration & sloughing due to alkalinity)
- IV-incompatible with many drugs, including Epinephrine. Use dedicated IV line, if possible, or flush well to avoid mixing.

Adverse Reactions

- Metabolic alkalosis
- Hyperosmolarity may occur, causing cerebral impairment

How Supplied

- Prefilled syringe, 50 mEq in 50 ml

Dosage and Administration

- **For crush injury with one complete extremity crushed for more than 2 hours, or two complete extremities crushed for more than one hour:**
 - **Adult:**
 - If extrication delayed >2-4 hours or 2 or more extremities trapped >1 hour
 - Immediately before release, give initial 1 mEq/kg IV/IO bolus
 - **Pediatric:** Consult Medical Control
- **Tricyclic OD with hypotension or prolonged QRS > 0.10 sec or Suspected hyperkalemia related pulseless arrest:**
 - **Adults and children (>10 kg)**

1 mEq/kg slow IV push, Repeat at 0.5 mEq/kg if needed in 10 minutes.

Protocol

- Cardiac: Arrest- Asystole/PEA-Adult
- Poisoning/Overdose
- Trauma: Crush Injury

Special Consideration

- Sodium bicarbonate administration increases CO² which rapidly enters cells, causing a paradoxical intracellular acidosis.
 - Sodium bicarbonate is no longer recommended for routine use in prolonged cardiac arrest. Adequate ventilation and CPR are the primary treatments for acidosis. Its use in pulseless arrest should be limited to known or suspected hyperkalemia (e.g. dialysis patient).
-

TRANEXAMIC ACID (TXA)

EMT 2 and above

Class/Description:

- Anti-Fibrinolytic

Onset & Duration

- Onset: Immediate
- Duration: 3 hours (after 1 Dose)

Indications

- Time since the initial injury is known to be less than 3 hours.
- Age greater than or equal to 16
- Evidence of significant blunt or penetrating traumatic injury (e.g. MVC with ejection, rollover MVC, fall > 20 ft, pedestrian struck, penetrating injury to torso)
- Evidence of or concern for severe internal or external hemorrhage (e.g., bleeding requiring a tourniquet, unstable pelvic fracture, two or more proximal long-bone fractures, etc.)
- Sustained systolic blood pressure < 90mmHg (or <100mmHg if older than 55)
- Sustained heart rate > 110 bpm

Contraindications

- Non-traumatic hemorrhagic shock
- Hemorrhagic shock stabilized with other hemostatic agents/measures.

Adverse Reactions

- Seizures
- Nausea, vomiting, diarrhea

How Supplied

- Vial - 100mg/mL in 10 mL

Dosage and Administration

- **Adult:**
 - 2 grams mixed in 100 ml NS infused over 10 Minutes or
 - 2 grams slow IV push
 - If time of injury to arrival at hospital is greater than 3 hours, contact Medical Control for repeat dose protocol.

Protocol

- Trauma: Multiple Trauma Overview
-

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Procedures

Follow Alaska State Skill-Sheets for procedures not addressed specifically in these Standing Orders

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Airway Management: Obstructed Airway

Certification Requirements: ALL LEVELS

Clinical Indications:

- Complete or partial obstruction of the airway due to foreign body.

Procedure:

A. For complete airway obstruction in the conscious patient:

- Follow Current AHA Guidelines

B. Complete airway obstruction, unconscious patient:

1. **ETT, EMT 1**

- Follow Current AHA Guidelines

2. **,PARAMEDIC**

- a. If airway remains obstructed, visualize with a laryngoscope and remove any obvious foreign body with McGill forceps.
 1. Take standard precautions
 2. Check and assemble equipment:
 - Appropriate size Magill forceps
 - ET handle and appropriate size blade (straight or curved)
 - Suction unit
 - Oxygen setup with BVM
 - **Intubation kit, in case not effective(PARAMEDIC ONLY)**
 3. Place head in sniffing position
 4. Insert blade while displacing tongue, lifting mandible, and visualize larynx without using teeth as a fulcrum
 5. Identify obstruction
 6. Insert Magill forceps in a closed position.
 7. Open forceps to grasp object and remove obstruction
 8. Visualize hypopharynx to ensure that all pieces of the foreign object have been removed.
 9. Remove laryngoscope.
 10. Reassess airway and breathing
 11. Ventilate the patient with 100% oxygen and repeat the procedure if necessary.
- b. If the airway still remains obstructed, attempt to force the object into the right mainstem bronchus with ET tube, withdraw to before the carina and attempt to ventilate.
 - Attempt Cricothyrotomy. (see Cricothyrotomy Procedure)

C. For a partial airway obstruction:

1. Have patient assume most comfortable position.
2. Apply O₂, high-flow by non-rebreather mask.
3. If the patient is cooperative, attempt suctioning of upper airway.
4. If patient is unable to move air, confused, or otherwise deteriorating, follow orders for Complete Airway Obstruction above.

Airway: Cricothyrotomy via Needle

Certification Requirements: PARAMEDIC

Clinical Indications:

- Absolute need for an airway with no other practical option.

Contraindications:

- Inability to identify landmarks (cricothyroid membrane)
- Underlying anatomical abnormality (tumor)
- Tracheal transection
- Acute laryngeal disease due to infection or trauma

Note:

In a needle cricothyrotomy, puncture is made through the cricothyroid membrane in between the thyroid cartilage and the cricoid cartilage. A needle cricothyrotomy is similar to a scalpel cricothyrotomy, but instead of making a scalpel incision, a large over-the-needle catheter is inserted (10 to 14 gauge). This is considerably simpler than the scalpel procedure. However, it provides limited airflow. In particular, a needle cricothyrotomy is insufficient to adequately clear waste carbon dioxide, and so is a stopgap measure. This procedure can buy about 45 - 60 minutes of time, after which the patient must receive more definitive care.

Procedure: USE A commercial KIT IF AVAILABLE

1. Prepare equipment:
 - a. iodine prep pad
 - b. 5 cc syringe
 - c. 9 mm endotracheal tube (proximal 1.5", with airway connector left on)
 - d. 10 gauge needle catheter
 - e. BVM device
 - f. ½ or 1" tape to secure syringe barrel to skin of neck
 - g. [Can substitute 3 cc syringe and airway connector from 7mm ET tube]
2. Have suction supplies available and ready
3. Hyperextend the head and neck.
4. Grasp the larynx with your thumb and middle finger, locate the cricothyroid membrane with your index finger.
5. Use the non-dominant hand to secure the membrane.
6. Prep the area with an antiseptic swab.
7. Using a 5-cc syringe attached to a 10 to 14 gauge catheter-over-needle device, insert the needle through the cricothyroid membrane at a 45 to 60 degree caudal angle.
8. You will feel the needle "pop" into the airway space. Aspirate for air with the syringe at this point to confirm proper positioning.
9. Once air returns easily, stop advancing the device. Advance catheter over needle. Remove needle and place in sharps container. Hold securely onto syringe barrel.
10. Remove syringe plunger. Insert distal 1.5 inches of a size 9 ET tube into syringe. Attach a bag valve mask to the airway connector on the end of the ET tube.
11. Ventilate and assess for breath sounds. Make certain ample time is used not only for inspiration but expiration as well.
12. Secure barrel of syringe by best method available, recognizing that this method may be direct hands-on control of the device throughout the entire transport.
13. If unable to obtain an adequate airway, resume basic airway management and transport the patient as soon as possible. If skill level allows, consider surgical cricothyrotomy.
14. Regardless of success or failure of needle cricothyrotomy, notify the receiving hospital at the earliest possible time of a surgical airway emergency.

Airway: Cricothyrotomy, Surgical

Certification Requirements: PARAMEDIC

Clinical Indications:

- Absolute need for an airway with no other practical option.
- Patient greater than 12 years of age

Procedure:

1. Prepare equipment:
 - a. Recommended Kit: PCK Portex® Cricothyrotomy Kit



2. Hyperextend the head and neck.
3. Prep the area with an antiseptic swab
4. Follow manufacturers recommended guidelines for insertion
5. Confirm placement by observing chest rise and fall, breath sounds, and ETCO₂ detection.
6. Secure the tube.

Airway: Emergent Airway Management

Certification Requirements: EMT 3ES, AK-AEMTES, PARAMEDIC

Clinical Indications:

Deteriorating airway due to swelling caused by trauma, superheated gasses, or anaphylaxis unresponsive to epinephrine, and where an IGEL or other supraglottic device will not work.

Procedure:

For complete airway obstruction in the conscious or Unconscious patient:

1. Cricothyrotomy (see Cricothyrotomy Procedure)
2. Intubation:

If the patient is still breathing on their own do the following while getting intubation equipment ready.

1. Place one if not two NPA and administer O2 high flow using a nasal cannula, in conjunction with NRB. (preoxygenation and denitrogenation)
2. If the patient still has a gag reflex use the following medications to assist in intubation:
 - Ketamine- AK-AEMT
 - To facilitate pre-oxygenation and de-nitrogenation in uncooperative patients who require intubation
 - 4 mg/kg IM
 - 2 mg/kg IV, IV bolus given over 2 minutes
 - Repeat every 10-20 min PRN
 - Prepare for airway management and ventilation prior to initiation therapy
 - Benzodiazepine – AK-AEMT ES, EMT 3ES
 - Benzodiazepines used in combination with opioids should be administered with extreme caution and careful patient monitoring
 - Midazolam 0.2 - 0.3 mg/kg IV/IN/IM
 - Repeat every 10 min PRN
 - Fentanyl – AK-AEMT ES, EMT 3ES (preferred Opioid Analgesic)
 - 0.5 - 2 mcg/kg IV/IN/IM
 - Repeat every 10 minutes PRN to initially achieve analgesia
 - Repeat every 20-30 minutes to maintain analgesia
3. Take standard precautions
4. Check and assemble equipment:
 - Bougie
 - ET handle and appropriate size blade (straight or curved) (video laryngoscope preferred if possible)
 - Suction unit
 - Oxygen setup with BVM
 - Intubation Kit, (remember with a swelling airway you will need a smaller tube than normal).
5. Place head in sniffing position
6. Insert blade while displacing tongue, lifting mandible, and visualize larynx without using teeth as a fulcrum
7. Using any recognizable structures, place the bougie into the trachea and thread an ET tube over it visualizing insertion into the trachea. (this is a two-person operation) (If there are no recognizable structures go to cricothyrotomy)
8. Remove laryngoscope.
9. Inflate ET cuff, check for proper placement of tube, and secure.
10. Apply ETCO2

As this is for an emergent airway closing due to swelling of any type you will probably not have more than one chance to get the patient intubated. Have a cricothyrotomy kit at the ready and do not delay in using it if the ET attempt fails.

Airway: Intubation-Nasotracheal

Certification Requirements: PARAMEDIC

Clinical Indications:

- A spontaneously breathing patient in need of intubation

Contraindications:

- Apnea
- Suspected Basal skull fracture or mid-face fractures

Procedure:

1. If you suspect cervical spine injury, maintain the head and neck in neutral position with manual in-line stabilization.
2. Pre-oxygenate the patient.
3. Select an endotracheal tube that is one half to one full size smaller than you would typically use for orotracheal intubation. You should not have to force the tube in.
4. Select the largest and least obstructed nostril (most commonly the right side).
5. Prepare your equipment.
- 6.
7. Prepare the ET tube: wrap it into a circular shape for 1 minute and attach a BAAM® device, if available.
8. Lubricate tip with water –based lubricant (Lidocaine jelly is preferred, if available).
9. Reassure your patient, they may cough, buck, strain, or gag during placement.
10. Insert the ET tube into the nostril, with the bevel along the floor of the nostril or facing the nasal septum. If minor resistance is encountered, use a slight twisting motion to facilitate insertion.
11. If significant resistance is encountered, remove the tube & insert into the other nostril.
12. Listen for air movement in the tube, establish the respiratory rhythm.
13. Advance tube on inhalation until the tube rests with the hub at the nose.
14. Inflate the distal cuff with 5-10 ml of air.
15. Confirm tube placement by assessing lung sounds and lack of epigastric sounds and a confirmation device.
16. Secure the tube.
17. Document procedure, confirmation, patient response, and any complications in the PCR (Patient care report).

NOTE:

- Colorimetric devices stop working (remain yellow) after prolonged use.
- Esophageal detector devices may not work effectively if used after breaths have been provided via BVM after intubation.

Airway: Supra-Glottic Airway Device

Certification Requirements: EMT I and above

Clinical Indications:

- An apneic patient with no gag reflex
- Primary airway if intubation anticipated to be difficult and rapid airway control is necessary

Contraindications:

- Intact gag reflex
- Caustic substance ingestion.

Precautions:

- Consider and treat hypoglycemia or narcotic overdose prior to inserting Supra-glottic airway device.
- If patient is less than 4 ft. tall, an appropriately sized pediatric King tube must be used.
- Use with caution in patients with broken teeth, which may lacerate balloon.
- Use with caution in patients with known esophageal disease.
- Do not remove a properly functioning supraglottic airway device in order to attempt intubation.

Procedure:

1. Suction airway as needed and pre-oxygenate the patient.
 - a. Select proper size. If King airway device it is based on patient height:
 - b. 4ft-5ft tall = #3
 - c. 5ft-6ft tall= #4
 - d. Greater than 6ft tall = #5
2. Gather equipment
 - a. Proper size
 - b. KY Jelly or other water-based lube
 - c. Stethoscope
 - d. Eye protection, mask, and gloves
3. If King airway is being used test cuff integrity by inflating each cuff, note correct volume for inflation marked on tube itself.
4. Lubricate the tube.
5. If trauma: have assistant hold in-line spinal immobilization in neutral position.
6. If no trauma: sniffing position or slight cervical hyperextension is preferred.
7. Hold tube in dominant hand at the connector. With other hand, open mouth and lift chin.
8. If king airway is being used Rotate King tube so blue index line is facing corner of mouth.
9. Introduce tip into mouth and advance airway behind tongue into the hypopharynx.
10. As tube passes tongue, rotate King so that blue index line is again facing the chin.
11. Without excessive force, advance tube so that base is aligned with teeth or gums.
12. Using supplied syringe, inflate cuff balloon with correct volume of air (marked on King tube):
 - a. Size 3 = 50 mL
 - b. Size 4 = 70 mL
 - c. Size 5 = 80 mL
13. Attach BVM to tube and begin ventilating patient. While bagging, slowly and slightly withdraw tube until ventilations are easy and chest rise is adequate.
14. Confirm tube placement by auscultation, chest movement, and ETCO₂
15. If sounds are not heard in either location, deflate the balloons and remove the tube and consider alternative airway management.
16. Monitor patient for vomiting and aspiration. Continuously monitor ETCO₂, SpO₂, vital signs.
17. Document procedure, confirmation, patient response, and any complications in the PCR (Patient care report).

Airway: Suctioning-Tracheal

Certification Requirements: PARAMEDIC

Clinical Indications:

- Obstruction of the airway in an intubated patient or a patient with a tracheostomy tube due to secretions, blood, or any other liquid substances.

Complications:

- Hypoxia due to excessive suctioning time without adequate ventilation between attempts.
- Trauma from forced use of equipment
- Bradycardia from vagal stimulation.

Procedure:

1. Pre-oxygenate the patient.
2. Explain the procedure to the patient, if applicable
3. Test suction device .
4. Use as sterile a technique as possible throughout the procedure.
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Insert suction catheter until resistance is met or patient coughs, withdraw catheter approx 1 inch, apply suction and slowly remove the suction catheter.
8. Suction should not exceed 10-15 seconds.
9. Re-attach the ventilation device and ventilate the patient.
10. Clear suction tubing by suctioning sterile water through the tube, keep tube inserted in the sterile water bottle until needed again.
11. Document procedure, confirmation, patient response, and any complications in the PCR (Patient care report).

Airway: Tracheostomy Tube Replacement

Certification Requirements: EMT 1,2,3, AEMT ES& PARAMEDIC

Clinical Indications:

- Presence of tracheostomy site.
- Urgent or emergent indication to change the tube, such as obstruction that will not clear with suction, dislodgement, or inability to oxygenate/ventilate the patient without other obvious explanation.

Precautions:

- More difficulty with tube changing can be anticipated for tracheostomy sites that are immature - i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheostomy sites.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment for orotracheal intubation and failed airway.
2. Remove the tracheostomy tube from mechanical ventilation device and use a bag-valve apparatus to pre-oxygenate the patient as much as possible
3. Have airway device (ET tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place, as well as ½ size smaller, available (e.g., if the patient has a #6.0 tube, then have a 6.0 and a 5.5 tube).
4. Lubricate the replacement tube(s) and check the cuff.
5. Once all equipment is in place, remove devices securing the tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to deflate.
7. Remove the tracheostomy tube.
8. Insert the replacement tube.
9. Inflate cuff if present.
10. Confirm placement via assessment of lung sounds and a confirmation device.
11. If there is any difficulty placing the tube, reattempt procedure using the smaller tube.
12. If difficulty is still encountered, use standard airway procedures such as BVM or orotracheal intubation (as per protocol).
13. Secure the device.
14. Document procedure, confirmation, patient response, and any complications in the PCR (Patient care record).

Blood Glucose Analysis

Certification Requirements: EMT1 & above

Clinical Indications:

- Patients with altered mental status or suspected abnormal blood sugar

Procedure:

1. Ensure body substance isolation before beginning procedures.
2. Assemble and prepare equipment per manufacturer's guidelines
3. Select and prepare puncture site
4. Obtain sample
5. Dispose of sharps
6. Apply adequate drop of blood to the test strip.
7. Obtain glucose concentration measurement
8. Place an adhesive bandage on the finger stick site if desired by patient
9. Perform appropriate management of patient
10. Document procedure, patient response, and any complications in the PCR (Patient care report).

Notes:

- Normal fasting blood glucose is 70-100 mg/dl; patients with diabetes may be hypoglycemic at a higher level. Treat your patient's signs and symptoms.
- Test strips must be used immediately after being removed from the vial, and the vial must be recapped immediately after removing the strip. Discard unused strips found outside the vial. Always store strips according to the manufacturer's instructions.
- Good sample quality is essential for accurate results. Good blood flow at the puncture site will ensure a quality sample. Note the following:
 - a. Allow alcohol to dry to avoid contaminating the test sample.
 - b. Avoid excessive squeezing to get a drop of blood to form. The sample may be diluted with tissue fluid.
 - c. Each test must be performed from a new skin puncture. Even if an old puncture appears to bleed freely, clotting likely has begun and it will skew the results.
 - d. Warming the puncture site will increase blood flow.

Capnography

Certification Requirements: EMT 2 and above

Clinical Indications:

- To rule out esophageal intubation and confirm endotracheal tube position in all intubated patients.
- To identify late endotracheal tube dislodgement
- To monitor ventilation and perfusion in any ill or injured patient

Precautions:

1. To understand and interpret capnography, remember the 3 determinants of ETCO₂:
 - a. Alveolar ventilation
 - b. Pulmonary perfusion
 - c. Metabolism
2. Sudden loss of ETCO₂:
 - a. Tube dislodged
 - b. Circuit disconnected
 - c. Cardiac Arrest
3. High ETCO₂ (>45)
 - a. Hypoventilation/ CO₂ retention
 - b. ROSC in cardiac arrest patient
4. Low ETCO₂ (<25)
 - a. Hyperventilation
 - b. Low perfusion: shock, PE, sepsis
5. Cardiac Arrest:
 - a. In low-pulmonary blood flow states, such as cardiac arrest, the primary determinant of ETCO₂ is blood flow, so ETCO₂ is a good indicator of quality of CPR
 - b. If ETCO₂ is dropping, change out person doing chest compressions (less than 10 usually means poor compressions)
 - c. In cardiac arrest, if ETCO₂ not > 10 mmHg after 20 minutes of good CPR, this likely reflects very low CO₂ production (dead body) and is a 100% predictor of mortality.
 - d. When the ETCO₂ starts to climb, you may have return to spontaneous circulation (ROSC)—check the pulse.

Procedure:

1. In patient with ETT or advanced airway: place ETCO₂ detector in-line between airway adaptor and BVM after airway positioned and secure
2. Patients without ETT or advanced airway in place: place ETCO₂ cannula on patient. May be placed under CPAP or NRB facemask
3. Assess and document both capnography waveform and ETCO₂ value

Cardioversion

Certification Requirements: EMT 3, AEMT, and PARAMEDIC

Clinical Indications:

- Unstable supraventricular tachycardia
- Perfusing monomorphic ventricular tachycardia with signs and symptoms related to tachycardia.

Signs and symptoms indicating an unstable tachycardia include:

- Hypotension
- Acutely altered LOC with hypotension
- Signs of shock: light-headedness, syncope, cyanosis or diaphoresis
- Ischemic chest discomfort
- Acute heart failure

Precautions:

- Tachycardic adults with rates less than 150 generally do not require cardioversion.

Complications:

- Pain from delivery of the shock
- Skin burns due to inadequate contact between pads and skin
- Dysrhythmias including bradycardia, blocks, V-tach, V-fib or asystole
- Hypotension
- Hypoventilation due to sedation

Procedure:

1. Consider Oxygen and IV
2. If patient condition allows, consider sedation (see sedation protocol)
3. Set the defibrillator to appropriate setting for cardioversion (per mfg guidelines).
4. Confirm the dysrhythmia and evaluate the patient's hemodynamic status.
5. Run continuous strip during actual cardioversion.
6. Apply defibrillation pads/paddles per manufacturer guidelines, generally:
 - a. Anterior / Posterior
 - b. Apex / Sternum
7. Before each shock, set the defibrillator to the cardioversion mode by depressing the "SYNC" button.
8. Verify that the sync dots are:
 - a. Clearly visible on the R wave.
 - b. Consistent from beat to beat.
 - c. If they are not, try switching leads or increasing EKG size.
9. **Initial Shock: Adult**
 - a. Narrow regular: 50J (biphasic) 100J (monophasic)
 - b. Narrow irregular-New Onset: 120J (biphasic) 200J (monophasic)
 - c. Wide regular: 100J biphasic OR monophasic
 - d. Subsequent Shocks: increase stepwise per manufacturer's recommendations:
10. **Initial Shock: Pediatric:**
 - a. 0.5- 1 J/kg
 - b. Subsequent shocks: 2 J/kg
11. Charge unit to the appropriate energy level.
12. For paddles, use conductive gel and apply 15- 25 pounds of pressure.
13. Assertively state "CLEAR" and check that no one, including you, is in contact with the patient or stretcher.
14. Deliver the countershock by pressing the SHOCK button(s) and holding until the shock is delivered. There may be a momentary delay before the machine detects the R wave.
15. Assess the patient's response.
16. If tachycardia persists, increase energy and RESET THE SYNC BUTTON (if necessary for your defibrillator) before charging for subsequent shocks.
17. If the patient deteriorates into ventricular fibrillation or pulseless ventricular tachycardia, perform immediate unsynchronized defibrillation.
18. Document procedure, patient response, and any complications in the PCR (Patient care report).

Chest Decompression

Certification Requirements: EMT 3ES, AEMT ES, and PARAMEDIC

Clinical Indications:

- Tension Pneumothorax- a simple pneumothorax that is deteriorating with the following signs or symptoms:
- Progressive respiratory distress (severe)
- Progressive difficulty in bagging
- Distended neck veins
- Narrowing pulse pressures
- Shock – low BP
- Tracheal shift away from affected side (late sign)
- Hyper-expanded chest on affected side (late sign)

Complications:

- Creation of pneumothorax if none existed previously.
- Laceration of lung
- Laceration of blood vessels (slide the needle above rib). If the insertion of the needle is medial to the mid-clavicular line (nipple line) there is a danger of cardiac puncture or great vessel laceration.
- Severe pain: If you are doing this in the field, patient should be sick enough not to require anesthesia.
- Infection: clean rapidly but vigorously, use sterile gloves if possible.

Procedure:

1. Assess the patient to make sure that his condition is due to a tension pneumothorax. (see indications)
2. Maintain oxygenation and establish IV
3. Maintain aseptic technique.
4. Locate the appropriate site and prep by thoroughly cleaning with an antiseptic.
 - a. **Anterior site for Decompression:**
 - i. Locate the insertion site at the second intercostal space at the mid-clavicular line. This may be done by feeling for “angle of Louis”- the bump located on the sternum about a quarter of the way inferior from the suprasternal notch.
 - ii. The insertion site should be slightly lateral to the mid-clavicular line on the affected side of the chest.
 - iii. Insert the large bore IV catheter (14 gauge X 1.5” catheter for adults, 18 gauge X 1.25” IV catheter in patients less than 8 years) by directing the needle just over the top of the rib at a 90° angle to avoid intercostal nerves and vessels which are located on the inferior rib borders.
 - b. **Lateral site for Decompression:**
 - i. Locate the intersection of the nipple (fourth rib) and anterior axillary line on the affected side of the chest.
 - ii. Remove the cap from a 14-gauge catheter needle at least 2 inches long and insert the needle into the intercostals space at a 90° angle to the superior border of the fourth rib to avoid the neurovascular bundle. If the patient is muscular or obese, you may need a 2-3.5 inch catheter needle.
5. As the needle enters the pleural space, there will be a “pop”. If a tension pneumothorax is present, there will be a hiss of air. Caution: this is frequently missed due to ambient noise.
6. If using an over-the-needle catheter, advance the catheter into the chest. Remove the needle and leave the catheter in place. The hub must be stabilized to the chest.
7. Place a one-way valve on or over the decompression needle. Asherman Chest Seal goes over the needle to provide a one-way valve and to protect the needle from dislodgement. Needles through a glove finger will not work well as a one-way valve.
8. Dispose of the needle properly and never reinsert into the catheter
9. Secure the catheter with tape and rapidly transport the patient providing appropriate airway assistance.
10. Document procedure, patient response, and any complications in the PCR (Patient care report).
11. Monitor for reoccurrence of tension pneumothorax and decompress as needed. It is not necessary to remove initial decompression needles.

Childbirth

Certification Requirements: ETT, EMT 1 and above

Clinical Indications:

- Imminent delivery with crowning.
- Symptoms include: urge to push, contractions (regularity and timing), ruptured membranes, pain, cramping, passage of clots or tissue, dizziness, weakness

Procedure-

A. Delivery imminent:

1. Administer high-flow oxygen.
2. If time allows, start a large bore IV (on mother), run TKO or as needed.
3. Use aseptic technique including sterile gloves. Use full body PPE.
4. Apply gentle pressure to baby's head to allow a slow controlled delivery.
5. Support the head as it presents.
6. Check whether the umbilical cord is wrapped around the neck. If it is present, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
7. If meconium is present, suction infant's mouth then nose with a bulb syringe.
8. Support the head as anterior shoulder is delivered. (Guide the baby's head downward to facilitate delivery of shoulder).
9. Gently lift up on the head to allow delivery of the posterior shoulder.
10. Maintain control of baby as remaining body is delivered.
11. Clamp the cord 8-10 inches from the infant's abdomen with 2 clamps, 1 inch apart and cut the cord between the clamps.
12. Dry, warm, and stimulate the baby. Suction if needed. Place a hat on baby and wrap in dry blanket.
13. Follow the Neonatal Protocol for further treatment.
14. Record time of birth.
15. Record APGAR scores at 1 and 5 minutes.
16. The placenta should deliver spontaneously, usually within 5 -20 minutes of the infant's delivery. Do not force the placenta to deliver. (there may be a gush of blood associated with delivery of placenta)
17. Keep placenta as clean as possible and place in a biohazard bag to be transported to the hospital with the patient.
18. Assess firmness of uterus by placing one hand immediately above the symphysis pubis and the other on top of uterus. If the uterus has contracted appropriately, you should feel a grapefruit-sized object. If it has not contracted, initiate massage by firmly compressing the uterus between your hands. You may also have the baby nurse to encourage uterine contractions
19. Place sanitary napkin over vaginal opening. If vaginal bleeding is significant, reassess uterine firmness.
20. Document delivery, APGAR scores, and any complications in the PCR (Patient care report). Remember, baby should have a separate patient report that documents assessment and any procedures performed.
21. Transport in position of comfort. Transport may be initiated prior to delivery of placenta.

B. Delivery not imminent:

1. Administer oxygen as appropriate.
2. Transport in left lateral recumbent position.
3. Consider starting a large bore IV.
4. Monitor contractions including strength, frequency and duration.
5. Notify hospital of impending arrival.
6. Be prepared to stop ambulance and prepare to deliver.

CPAP

(Continuous Positive Airway Pressure)

Certification Requirements: EMT I and above

Clinical Indications:

Symptomatic patients with moderate-to-severe respiratory distress as evidenced by at least two (2) of the following:

- Rales (crackles)
- Dyspnea with hypoxia (SpO₂ < 90% despite O₂)
- Dyspnea with verbal impairment- i.e. cannot speak in full sentences
- Accessory muscle use
- Respiratory rate > 24/minute despite O₂
- Diminished tidal volume

Contraindications

- Respiratory or cardiac arrest.
- Systolic blood pressure <90 systolic.
- Lack of airway protective reflexes
- Significant altered level of consciousness (unable to follow verbal instructions or signal distress).
- Vomiting or active upper GI bleed.
- Signs and symptoms of pneumothorax.
- Significant facial injury or physical deformity preventing mask seal.
- Suspected significant intracranial hemorrhage.

Procedure:

1. Place patient in a seated position and EXPLAIN THE PROCEDURE TO THE PATIENT
2. AVOID INTERRUPTED THERAPY:
 - a. CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or experiences continued or worsening respiratory failure
3. Assess vital signs (BP, HR, RR SpO₂, and ET/CO₂ if available).
4. Place patient on continuous pulse oximetry.
5. Place patient on nasal capnography, if available.
6. Set up your equipment per your manufacturer's recommendations.
7. Place and secure the mask, per manufacturer's recommendations. Secure with provided straps, progressively tightening as tolerated to minimize air leak. Ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the nose and mouth.
8. Administer oxygen per manufacturer's recommendations. Start with lowest continuous pressure that appears effective. Adjust pressure following manufacturer instructions to achieve the most stable respiratory status utilizing the signs listed in (12. & 13.) below as a guide.
9. For oxygen flow driven devices such as Boussignac device:
 - a. Adjust oxygen flow to 15 LPM initially. Monitor patient continuously, recording vital signs every 5 minutes
10. Actively coach patient to improve tolerance of therapy.
11. Inline nebulization should be initiated as necessary per standing orders for asthma, wheezing, COPD and other pulmonary conditions as indicated.
12. Assess patient for improvement as evidenced by the following:
 - a. Reduced dyspnea
 - b. Reduced verbal impairment, respiratory rate and heart rate.
 - c. Increased SpO₂
 - d. Stabilized blood pressure
 - e. Appropriate ET/CO₂ values and waveforms
 - f. Increased tidal volume.
13. 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 increased BP
 - c. Sustained low or decreasing SpO₂ readings

- d. Rising ETCO_2 levels or other ETCO_2 evidence of ventilatory failure
 - e. Diminished or no improvement in tidal volume
14. If patient deteriorates, or does not improve rapidly in a relatively short period of time:
- a. Troubleshoot equipment.
 - b. Consider BVM or endotracheal intubation!**
 - c. Assess need for chest decompression due to pneumothorax.
 - d. Assess for possibility of hypotension and resultant hypoxia due to significantly reduced preload.
 - e. Patient may suffer from relative hypotension and a resultant hypoxia if chronically hypertensive.
15. Document procedure, patient response, and any complications in the PCR (Patient care record).

SPECIAL NOTES:

- a. Advise receiving hospital as soon as possible so they can be prepared for patient.
- b. Do not remove CPAP until hospital therapy is ready to be placed on patient.
- c. Watch patient for gastric distention.
- d. Continuous observation and assessment is critical.

Oxygen Consumption:

At 28-30% FIO_2 , a full tank should last approximately:

- 1) "D" cylinder = 28 minutes
- 2) "E" cylinder = 40-50 minutes
- 3) "M" cylinder = about 4 hours
- 4) "H" cylinder = About 8 hours

ECG Diagnostics- 12 Lead

Certification Requirements: Min Level: EMT 1 and 2(Placement and transmission only) EMT 3, AEMT, PARAMEDIC

Clinical Indications:

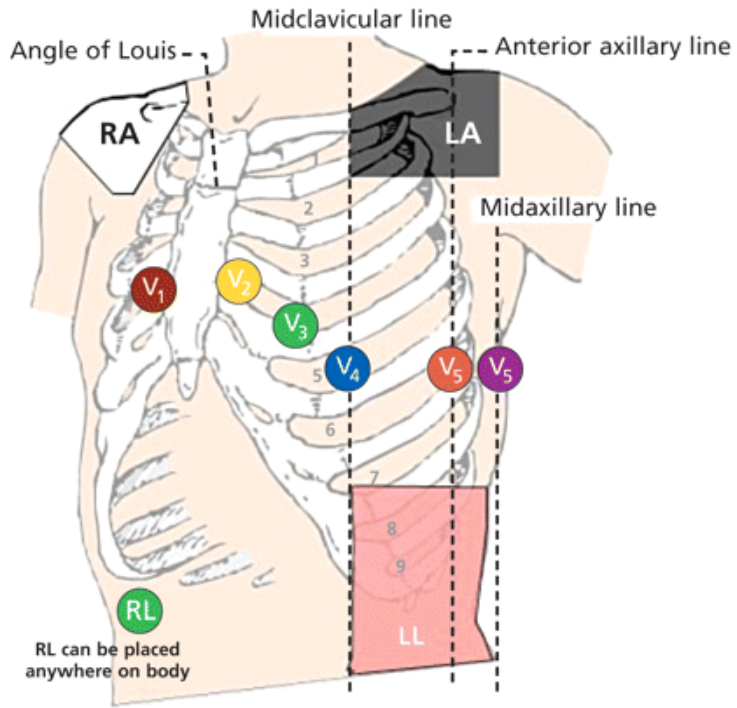
- Suspected AMI or acute coronary syndrome (symptoms may include indigestion, nausea, arm or jaw pain).
- Non-traumatic chest pain
- Narrow Complex Tachycardia - Obtain pre-adenosine 12-lead. Try to get continuous strip during conversion with adenosine (leads I, II and V2).
- CHF, pulmonary edema, acute respiratory distress that might be due to cardiac etiology.
- Unexplained diaphoresis (age appropriate).
- Unexplained tachycardia or hypoxemia in a patient with known coronary artery disease.
- Unexplained syncope or near-syncope in non-pregnant patient greater than age 40.
- After Return of Spontaneous Circulation (ROSC).

Procedure:

1. Avoid placing monitoring electrodes over bone, large muscle masses and excessive hair. If necessary, shave a small area for the electrode.
2. If possible, clean each electrode area with alcohol or 4x4 to remove dirt and body oil, ensure area is dry.
3. Limb Lead placement: (if not already placed)
 - a. White (RA) electrode on the right arm.
 - b. Black (LA) electrode on the left arm.
 - c. Red (LL) electrode on the left leg.
 - d. Green (RL) electrode on the right leg.
4. Precordial leads placement:
 - a. V1 Right side of the sternum in the fourth intercostal space
 - b. V2: Left side of the sternum in the fourth intercostal space
 - c. V3: Left side: Midway between V2 and V4.
 - d. V4:Left side: Midclavicular line in the fifth intercostal space.
 - e. V5: Left side: Anterior axillary line at the same level as V4
 - f. V6: Midaxillary line at the same level as V4.
5. Optional: Enter patient information.
6. Ask the patient to remain as still as possible. Press Acquire to print a 12-lead tracing.
7. Consider doing a 15-lead view if any of the following are found:
 - a. ST depression is found in Leads V1-V3
 - b. ST elevation is found in Leads II, III and AVf
 - c. Blood pressure is low and cause is not evident (NSTEMI)
8. Precordial leads placement for right-sided view (15-Lead)- move the left V4-V6 and place as follows:
 - a. RV4:Right side: Midclavicular line in the fifth intercostal space.
 - b. RV5: Right side: Anterior axillary line at the same level as V4 **OR** in V8 position of right posterior mid-scapular line
 - c. RV6: Midaxillary line at the same level as V4. **OR** V9 position of right posterior in line with V8 at paraspinal border
9. Ask the patient to remain as still as possible. Press Acquire to print a 12-lead tracing. Mark V4-V6 as RV4-RV6, respectively on the tracing or RV4; V8 & V9 depending on location of leads.
10. Make a verbal report at earliest appropriate time alerting the receiving hospital of the
 - patient's history
 - physical exam
 - response to therapy
 - 12 lead ECG findings (rate, rhythm and evidence of injury, ischemia or infarction).
 - report the findings by describing ST elevation or depression, q-waves and other abnormalities in each lead in which the abnormality is seen.

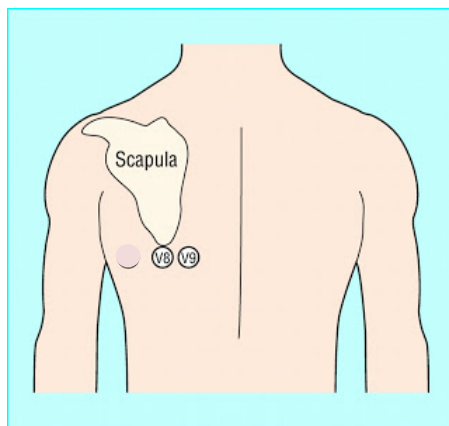
Notes

- Try to get the 12-lead before giving nitroglycerin to patients with cardiac chest pain. If this will result in significant delay (>60sec), treat symptoms prior to 12-lead acquisition.
- If signal is poor, check the cable connections and clean the patient's skin as described above. Common causes of a poor signal include excessive body hair, dried conductive gel (expired electrodes), dirt/oil on skin, poor electrode placement and diaphoresis.



<http://ajcc.aacnjournals.org/content/20/3/226.full>

I Lateral	AVR	V1 Septal	V4 Anterior
II Inferior	AVL Lateral	V2 Septal	V5 Lateral
III Inferior	AVF Inferior	V3 Anterior	V6 Lateral



Med Administration: Epinephrine Auto-Injector

Certification Requirements: EMT 1 and above

Clinical Indications:

- Anaphylaxis, severe allergic reactions (BP<90 systolic and/or severe respiratory distress)

Procedure:

1. Take standard BSI precautions
2. Confirm the patient's allergies, signs & symptoms.
3. Select appropriate epinephrine auto-injector (EpiPen, Twinject, Epi EZ Pen etc.),
4. Check expiration date.
5. Inform the patient of procedure.
6. Select site for medication administration, lateral thigh area.
7. Remove protective cap from back of injector.
8. Press injector firmly onto site (90 degree angle to skin) until clicking noise is heard.
9. Hold the injector firmly against skin for 10 seconds.
10. Rub the injection site.
11. Single dose: dispose of the injector in sharps container. Multi dose: follow mfg guidelines for administration of additional dose as needed.
12. Monitor the patient for the desired effects and possible side effects.
13. Record the medication, route, dosage, time of administration, and patient response on the PCR.

Med Administration: Hypodermic Medications

Certification Requirements: EMT 1 and above

Clinical Indications:

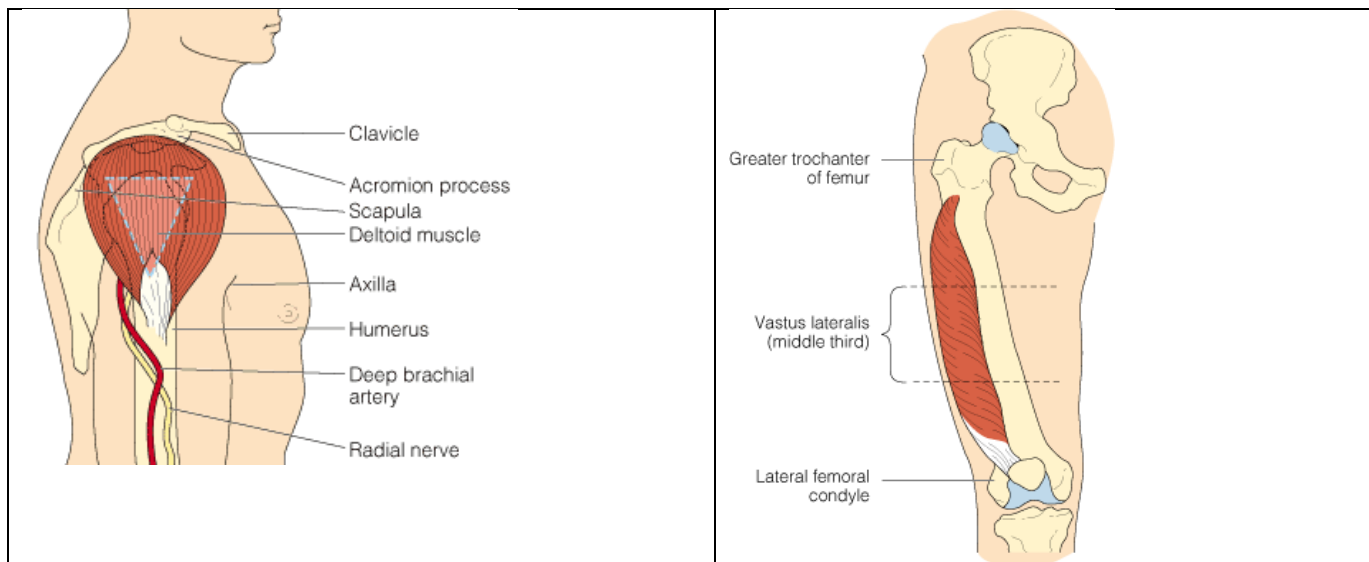
- When medication administration is necessary via the IM or SQ route.

Procedure-

1. Take standard BSI precautions
2. Inform patient of need for therapy and ask about known allergies to drugs and foods.
3. See table to select appropriate size and site for method (IM or SQ) and volume.
4. Confirm indication, medication, dose, and expiration date.
5. Prepare equipment and medication expelling air from the syringe. Ensure you only have the desired amount in the syringe to deliver to the patient.
6. Cleanse site. (chlorhexidine is preferred to alcohol)
7. Perform needle insertion:
 - a. **IM:** Stretch skin and hold tight. Insert needle at 90° angle with a sharp and controlled motion. Release tension
 - b. **SQ:** Pinch the skin between two fingers. Insert needle at 45° angle with a sharp and controlled motion.
8. Aspirate for absence of blood return, if there is no blood return, inject medication.
9. Withdraw the needle quickly, dispose properly without recapping.
10. Massage injection site with sterile gauze. Place a Band-Aid if necessary to control slight bleeding.
11. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
12. Record the medication, route, dosage, time of administration, and patient response on the PCR.

Medication Administration Sites

	Deltoid	Dorsogluteal/ Ventrogluteal	Vastus Lateralis	Arm, ABD Thigh	Peds: Thigh
Type	IM	IM	IM	SC	IM
Recommended Size	23-25 ga 5/8-1 inch	20-23 ga 1 ½ - 3 inch	23-25 ga 5/8-1 ½ inch	25-27 ga ½ -5/8 inch	23-25 ga 5/8-1 inch
Vol Range	0.5-2 mL	1-5 mL	1-5 mL	0.5-1.5 mL	0.001-1ml



Med Administration: IN

Internasal: Mucosal Atomization Device (MAD)

Certification Requirements: EMT 1 and above

Clinical Indications:

- Administration of Narcan, Midazolam, Lorazepam, Fentanyl, Glucagon (last resort)

Procedure:

1. Take standard BSI precautions
2. Gather the necessary equipment.
 - a. Suction unit
 - b. 1ml or 3 ml syringe
 - c. Mucosal Atomization Device
 - d. Medication
3. Prepare MAD with appropriate dosage. Expel excess air from syringe, if needed.
4. Confirm indication, medication, dose, and expiration date.
1. Have the patient blow their nose or suction nostril if needed.
2. Tilt head backward.
3. Place atomizer into nostril, aiming slightly upward and outward, and squirt $\frac{1}{2}$ of the medication in each nostril. Maximum amount of medication is 1 mL per nostril to avoid medication running back out of nostril.
4. Hold the nostril shut and/or tilt the head forward to distribute the medication.
5. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
6. Record the medication, route, dosage, time of administration, and patient response on the PCR



Med Administration:Nebulizer

Certification Requirements: EMT 1 and above

Clinical Indications:

Respiratory distress from lower airway constriction

- Asthma
- Bronchiolitis
- COPD
- Anaphylaxis

Procedure:

1. Take standard BSI precautions
2. Gather the necessary equipment.
 - a. Nebulizer kit
 - b. Oxygen source
 - c. Medication
3. Pour the medication into the reservoir of the nebulizer and assemble.
4. May be attached to an oxygen mask or mouthpiece.
5. Connect the nebulizer to oxygen at 6 – 10 LPM minute or adequate flow to produce a steady, visible mist.
6. Instruct the patient to inhale normally.
7. Continue treatment until the solution is depleted. Tapping the reservoir near the end of the treatment will help use all of the solution.
8. Document procedure, patient response, and any complications in the PCR (Patient care report). Record the medication given along with dose, amount and time.



Sometimes a patient is unable to hold the nebulizer themselves. A non-rebreather mask (NRB) can be used to hold the nebulizer for the patient. Connect to NRB-

1. Pull the hard white section out of the NRB
2. Insert the mixing chamber of the nebulizer onto hole at the bottom of the mask
3. Set the flow rate of oxygen to the nebulizer at 6 – 10 LPM
4. Place NRB on patient to begin treatment. Note: patient needs to be in at least a semi-fowlers position so the Albuterol does not run out of the container.



When a patient is in serious respiratory failure, it may be necessary to administer medication through a nebulizer using a bag valve mask (BVM) This procedure should be used when the patient meets all criteria for a nebulizer but is unable to adequately ventilate themselves.

1. Material needed:
 - a. BVM
 - b. Nebulizer Kit
 - c. Straight Airway Connector/Adapter



2. Separate the mask and elbow from the bag portion of BVM; leave the mask and elbow connector together.
3. Next attach the straight airway connector to the elbow connector on the mask.
4. Assemble the nebulizer in the normal manner and remove the mouth piece.
5. Connect the "T" adapter to the BVM.
6. Connect the mask to the end of the reservoir tube
7. **Note:** If only one oxygen supply is available, set nebulizer to 10 or 12 lpm and remove the reservoir bag from the BVM. Removing the reservoir bag allows faster filling of the BVM with room air. If patient is intubated the mask can be removed from the elbow connector and the elbow connector will fit onto the ET tube.



Medication Administration : Rectal

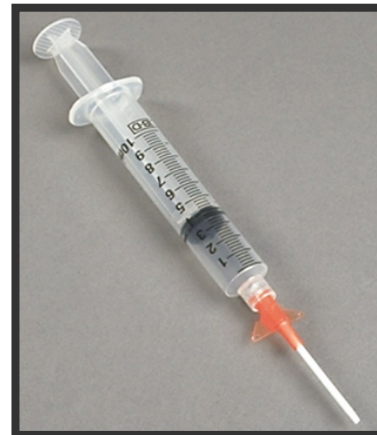
Certification Requirements: PARAMEDIC

Clinical Indications:

- Administration of benzodiazepines for seizures, glucose (route of last resort for adults)

Procedure:

1. Confirm indication, medication, dose, and expiration date.
2. Explain the procedure to the patient and reconfirm patient allergies
3. Draw appropriate amount of medication into syringe.
4. If present, remove needle from syringe.
5. Attach 14-gauge IV catheter with the needle removed or flexible straw.
6. Lubricate catheter/straw with a water based lubricant.
7. Advance the catheter 1 inch into the rectum.
8. Slowly administer the correct dose of medication.
9. Remove the catheter.
10. Hold the buttocks together for 1 minute to prevent leakage of the medication.
11. Record the medication, route, dosage, time of administration, and response on the PCR



filtered

patient

Positive End Expiratory Pressure (PEEP) Device

Certification Requirements: EMT 2 ES, 3 ESAEMT & PARAMEDIC

Clinical Indications:

- Asthma
- COPD
- Pulmonary Edema
- Cardiac Arrest
- Endotracheal Tube Maintenance

Contraindications:

- Hypotension
- Hypovolemic Shock
- Pneumothorax
- Evidence of Right sided heart failure.

Procedure:

1. Attach PEEP valve to exhalation valve of BVM.
2. Turn knob to decrease starting pressure, using lowest pressure that increases perfusion.
 - a. Pulmonary Edema: 7.5 cmH₂O
 - b. Asthma: 5 cmH₂O
 - c. Cardiac Arrest: 2.5 cmH₂O
 - d. Post Intubation: 2.5: 2.5 cmH₂O
3. Increase pressure in increments of 2.5 cmH₂O to improved signs of perfusion (use lowest effective pressure).
4. Continuously monitor capnography, lung sounds, and blood pressure to ensure continued benefit and prevent hypotension or pneumothorax.

Special Considerations:

1. Positive pressure ventilation and PEEP increase intrathoracic pressure which can decrease venous return, reduce cardiac output and potentially cause hypotension. In asthma, exhalation is the primary problem. Asthma patients respiratory rate should be kept slower (around 10) to allow for a longer expiratory rate and to prevent breath stacking. There are no absolute contraindications to PEEP but it should be used with caution in hypotension, hypovolemia, pneumothorax, R sided heart failure, pulmonary embolism and patients with potential increase intracranial pressure.

Pulse Oximetry

Certification Requirements: All Levels

Clinical Indications:

- Patients with suspected hypoxemia.
- Any patient with significant injury or illness.

Procedure:

1. Turn the machine on and allow for self-tests.
2. Apply probe to patient's finger, toe, or ear lobe.
3. Allow machine to register saturation level.
4. Verify that pulse rate on machine matches actual pulse rate of the patient.
5. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.
6. Document procedure, patient response, and any complications in the PCR (Patient care report).

Special Considerations

1. In general, normal saturation is 95-99%. Below 94%, suspect a respiratory compromise.
2. Despite good pulse oximetry readings, never withhold oxygen from a patient in respiratory distress.
3. Factors which may reduce the reliability of the pulse oximetry reading include:
 - a. Poor peripheral circulation (i.e. reduced blood volume, hypotension, hypothermia, irregular heart rhythms)
 - b. Excessive pulse oximeter sensor motion
 - c. Fingernail polish (remove polish with acetone pad or rotate sensor 90° on finger)
 - d. Carbon Monoxide bound to hemoglobin
 - e. Jaundice

Restraints- Manual

Certification Requirements: All Levels

Clinical Indications:

- Physical restraint of patients is permissible and encouraged if the patient poses a danger to him or 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 (e.g., verbal de-escalation should be used first if the situation allows).
- Consider pharmacological treatment (sedation) of agitation in patients that require transport and are behaving in a manner that poses a threat to the patient or others.
- Restraints may be indicated for patients who meet the following criteria:
 - a. 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.
 - b. A patient who exhibits violent, combative or uncooperative behavior who does not respond to verbal de-escalation.
 - c. A patient who is suicidal and considered to be a risk for behavior dangerous to his or herself or to healthcare providers.
 - d. A patient who is on a mental health hold.

Precautions

1. When appropriate, involve law enforcement
2. Restraints shall be used only when necessary to prevent a patient from seriously injuring him or herself or others (including the ambulance crew), 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.
3. 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.
4. Be sure to evaluate the patient adequately to determine his or her medical condition, mental status and decision-making capacity.
5. Do not use hobble restraints and do not restrain the patient in the prone position or any position that is impairing the airway or breathing.
6. Search the patient for weapons.
7. Handcuffs are not appropriate medical restraints and should only be placed by law enforcement personnel. If the patient is handcuffed, the officer MUST ride in the back of the ambulance with patient.

Complications:

1. Injury to rescuers
2. Aspiration: continually monitor patient's airway
3. Nerve injury: assess neurovascular status of patient's limbs during transport
4. Complications of medical conditions associated with need for restraints. Patients may have underlying trauma, hypoxia, hypoglycemia, hyperthermia, hypothermia, drug ingestion, intoxication or other medical conditions.
5. Excited Delirium Syndrome: This is a life-threatening medical emergency. These patients are truly out of control. They will have some or all of the following symptoms:
 - a. Paranoia
 - b. Disorientation
 - c. Hyper-aggression
 - d. Hallucinations
 - e. Tachycardia
 - f. Increased strength
 - g. Hyperthermia

Manual Restraints Procedure:

1. Evaluate the need for restraints. Restraints should be considered only as a last resort after verbal techniques have failed.
 - a. Request law enforcement assistance whenever possible.
 - b. Treat the patient with respect. To the extent possible, explain what is being done and why.
2. Have all equipment and personnel ready
 - a. Restraints
 - b. suction
 - c. Adequate number of personnel.
 - d. A means to quickly remove restraints
3. Use assistance such that, if possible, one rescuer handles each limb and one manages the head or supervises the application of restraints.
4. 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 risks.**
5. The restraints should not limit the patient's circulation or respirations.
 - a. Soft restraints such as cravats, roller bandages, or packaged restraints, can be used for extremity restraints.
 - b. Sheets may be used to limit upper body or lower extremity movement.
6. After application of restraints, check all limbs for circulation. The restraints should be frequently monitored during transport. Neurovascular status of restrained parts should be assessed regularly.
7. Document procedure, patient response, and any complications in the PCR (Patient care report). Documentation should include the reason for the use of restraints, the type of restraints used, and the time restraints were placed.

Special Considerations:

1. Aspirations can occur, particularly if the patient is supine. It is the responsibility of the attendant to continually monitor the patient's airway.
2. Nerve injury can result from hard restraints.
3. Do not overlook the medical causes for combativeness, such as hypoxia, hypoglycemia, stroke, hyperthermia, hypothermia, or drug ingestion.

Restraints- Chemical

Certification Requirements: 3ES/AEMT ES (Must contact med control first)PARAMEDIC

Clinical Indications:

- Violent patients who must be restrained for their own safety or the safety of others
- Patients who's medical condition may be worsened by their violent behavior
- Manual restraints are inadequate to control patient

Procedure:

1. Evaluate the need for chemical restraints. Chemical restraints should be considered only as a last resort after verbal techniques have failed and you are unable to manually restrain the patient.
 - a. Request law enforcement assistance whenever possible.
 - b. Treat the patient with respect. To the extent possible, explain what is being done and why.
 2. Establish IV if possible.
 3. Sedate- consider cause of agitation
 - **Ketamine (Ketalar)**
 - **Adults:** 4 mg/kg IM **Excited Delirium:** 4 mg/kg IM M, (repeat in 5-10 min as needed) Max dose 500 mg. (*First line Treatment for Excited Delirium is consider the cause*)
 - **Pediatric:** 4 mg/kg IM
 - **Lorazepam (Ativan):**
 - **Adult:** 0.5-1 mg IV/IO/IM every 15-30 minutes, max 4.0 mg, **contact Medical Control** for additional dosages.
 - **Pedi :** 0.05 mg/kg IV/IM, max 2 mg; **contact Medical Control** for additional dosages.
 - **Midazolam (Versed)**
 - **Adult:** 2 mg IV or 5 mg IN or IM (IN preferred if no IV in place). Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses, (unless **Excited Delirium Syndrome** present, in which case up to 3 doses may be given as standing order)
 - **Pediatric:** 0.1 mg/kg IV or 0.2 mg/kg IN or IM (IN preferred). Maximum single dose is 2 mg IV or 5 mg IN or IM. **Contact Medical Control** for more than 2 doses.
- OR**
- **Diphenhydramine (Benadryl):**
 - **Adult:** 50 mg IV/IO/IM
 - **Pediatric:** 1-2 mg/kg IV/IO/IM
4. If patient continues to be agitated, repeat dose. If still significantly agitated 5 minutes after 2nd dose, Contact Med Control for additional dosing.
 5. Document procedure, patient response, and any complications in the PCR (Patient Care report). Documentation should include the reason for the use of restraints, the type of restraints used, and the time chemical restraints were administered.

NOTE: Consider causes of agitation: Benzodiazepines, Ketamine and Haloperidol are acceptable options for agitated patients. In certain clinical scenarios individual medications may be preferred:

- **ETOH on board:** Haloperidol
- **Sympathomimetic** (i.e. cocaine or methamphetamine): Benzodiazepines
- **Psychiatric emergencies:** Haloperidol or Ketamine
- **Head Injury:** Haloperidol

Sedation

Certification Requirements: EMT 3ES, AEMTES, PARAMEDIC

Clinical Indications:

- Sedation for patients about to undergo a painful procedure to include but not limited to:
 1. Cardioversion
 2. Transcutaneous Cardiac Pacing

Contraindications:

- Known allergy to Benzodiazepines.
- Signs of shock (e.g. diminished BP, tachycardia, pallor, cool extremities, slow capillary refill, anxiety, confusion or drowsiness)

Procedure:

1. Secure airway, using appropriate adjuncts as needed.
2. Administer oxygen as appropriate.
3. Start IV.
4. Place pulse oximeter on patient and obtain baseline saturation.
5. Administer, Midazolam (Versed), Lorazepam (Ativan)

Adult Doses

- a. **Midazolam (Versed):** 2 mg IV or 5 mg IN or IM (IN preferred if no IV in place). Dose may be repeated x 1 after 5 minutes. **Contact Medical Control** for more than 2 doses
- b. **Lorazepam (Ativan):** 0.5-1 mg IV/IO/IM/IN, max 4 mg, **contact Medical Control** to exceed 4 mg Fentanyl : 50-100mcg, SLOW IV bolus (over 1-2 min) **Dose may be repeated after 10 minutes and titrated to clinical effect to maximum cumulative dose 200mcg. Additional dosing requires MED CONTROL CONTACT**

6. Observe respirations, oxygen saturation, blood pressure:
7. If patient's oxygen saturation falls, administer additional oxygen and assist ventilations as needed. If patient's blood pressure drops significantly, refer to shock protocol.
8. If sedation is inadequate after 2 minutes, **contact Medical Control** for additional dose.

Spinal Clearance for Spinal Motion Restriction (SMR)

Certification Requirements: EMT 1 and above

Definition: Spinal Motion Restriction (SMR)-

SMR Refers to placing a patient in a cervical collar and position of comfort with spinal protection with or without a backboard.

Explanation of New (2015) Protocol:

Traditional **spinal immobilization (SI)** (full immobilization with a c-collar and backboard) increases scene time, impacts airway management, may cause airway compromise, claustrophobia, pain or skin injuries. Recent evidence has confirmed that this time-honored method of immobilization of the axial spine does not necessarily achieve the desired goal of “immobilization” and, instead, may create new injuries and discomfort.

Therefore, patients who are fully alert are now being allowed to ambulate and voluntarily assume their best position of comfort - which likely represents the best position for their injury. Movement of non-ambulatory or altered patients may still require the use of a backboard, scoop stretcher or KED but these patients can then be moved to a soft cot to minimize the previously mentioned complications. **Spinal motion restriction should be considered only when the patient’s signs and symptom or the mechanism of injury suggest spinal injury.**

It is helpful to consider that the real dangers are the forces and energies that may be applied to the unstable spinal injury by the rescuer and the motion of the transporting vehicle, and we should therefore anticipate this and pad and brace as necessary. Also recognize that a combative or seizing patient who is fighting against restraints is applying force and energy against a fixed fulcrum point (the straps) and at risk for harm. Patient packaging should revolve around not allowing forces to act on the spinal column as the result of our actions.

Pediatric packaging is similar to adult packaging in concept and should emphasize padding and the use of the car seat as applicable. This change does not imply any less concern for the injury than in the instance of securing the patient to the backboard.

Penetrating Trauma- It is very rare for penetrating trauma to cause an unstable injury to the axial spine. If a patient demonstrates a focal neurological injury from a penetrating injury, or if a high kinetic injury wound was suffered to the spine and the patient cannot be assessed for neurological injury, then SMR is required.

Clinical Indications:

When the mechanism is significant, **EMTs trained and authorized to use the spinal clearance protocol** should attempt to rule out spinal injury, provide SMR **only** when **at least one** of the following criteria is met:

1. Age ≥ 65 Years
2. Dangerous (High Risk) Mechanism:
 - a. Bending forces to the neck/Torso
 - b. Axial load to head (e.g. diving)
 - c. Ejection from a vehicle in MVC.
 - d. Fall >20 feet- adults, >10 feet- children or 2-3 x height of a child.
 - e. Pedestrian struck by a moving vehicle with evidence of significant impact with vehicle or impact with ground.
 - f. Any seriously injured multiple trauma patient.
 - g. MVC high speed (≥55 mph), rollover, ejection
 - h. MVC involving motorized recreational vehicles (ATV, Snow-machine)
 - i. Bicycle collision with objects (e.g. post, car)
3. Pain or tenderness on palpation of the neck or midline back, following physical injury of sufficient magnitude that damage to ligaments or bone of the spinal column could have occurred **or**,
4. A cervical, thoracic or lumbar deformity or any form of neurological deficit following physical injury **or**;
5. Any neurological deficit after blunt trauma to the head, neck or trunk (T or L-spine) **or**;
6. A sensory or motor deficit is noted in any extremity.
7. Altered or decreased level of consciousness and a major mechanism of injury, regardless of presence or absence of pain.

8. Language barrier or inability to communicate
9. The patient's reliability during examination is suspect because of;
 - a. Depressed or altered level of consciousness (including impairment due to drugs or alcohol)
 - b. Other distracting injuries,
 - c. Acute stress reaction (ASR)/ uncooperative.
 - d. Too young to understand questions or cooperate with exam.

Situations Not Requiring Protection of the Spine in the Absence of Specific Physical or Neurological Findings

- Falls from standing height (unless the patient is >65 years old)
- Assaults.
- Penetrating trauma.

Remember this procedure is a guideline, if there is any doubt, provide SMR for the patient.

Check for the above criteria with the following procedure:

Procedure

1. Maintain neutral spinal alignment until spinal injury is ruled out.
2. Subjective assessment of mental status: Ensure the patient is alert, calm and cooperative. Assess for absence of the following to determine reliable mental status:
 - a. Altered level of consciousness.
 - b. Language barrier or inability to communicate
 - c. Recent drug or alcohol use.
 - d. Injuries/conditions that may distract the patient from neck/spine pain – e.g. long bone fractures, severe burns, significant head, chest, abdominal, or pelvic pain, chest pain due to MI.
 - e. The presence of Acute Stress Reaction (severe anxiety often accompanied by hyperventilation).

If abnormalities are found, classify the patient as unreliable and provide SMR for the patient. Over time, the mental status may change and a previously unreliable patient may become reliable.

3. Determine if the patient has spinal pain:
 - a. Palpate the entire spine for pain or deformity.
 - b. Ask about spinal pain - spontaneous or during prior motion.
 - c. If positive – provide SMR.
4. Determine if patient has neurologic deficit:
 - a. Assess the patient for:
 - (1) Loss of sensation in the limbs
 - (2) Loss of movement in the limbs
 - (3) Sensation of burning in the trunk or limbs
 - (4) Sensation of electric shock in the trunk or limbs
 - b. If the patient is a non-time critical patient, perform a more thorough assessment:

- c. Perform the following assessments bilaterally in the upper and lower extremities. Response should be symmetrical. Any abnormalities should prompt SMR.
 - (1) Motor:
 - a) Ask the patient to hold his/her hand out with the palm facing down. Ask the patient to resist flexion and extension of the hand while you apply counter pressure. Repeat with opposite hand.
 - b) Gas pedal test: Place your hands on the bottoms of the patient's feet at the great toe. Ask the patient to push down against resistance. Move your hand to the tops of the patient's feet and ask the patient to pull his/her toes towards his/her nose.
 - (2) Sensory:
 - a) Assess the ability to distinguish sharp and soft in each hand and foot. Use a sharp object and a soft object (e.g. sharp and soft ends of a broken wooden Q-tip, a piece of gauze and pencil point or the folded corner or the wrapper.) Do not puncture the skin.
 - b) Alternately apply the soft and then the sharp object to each extremity without allowing the patient to know which you are using. Ask whether the sensation is sharp or soft.
5. Check gentle range of motion.
 - a. Ask the patient to:
 - (1) Touch chin to chest and turn head side to side to 45 °.
 - (2) If pain is noted, stop immediately and provide SMR.
 - b. If the above steps detect no abnormalities, SMR is not required.
 - c. Some components of the sensory examination are subjective. When in doubt, provide SMR.
6. Procedure for placement on gurney, without SMR:
 - a. Apply cervical collar if indicated. If the patient is ambulatory, (s)he may walk to and place self on gurney (place cervical collar first)
 - b. If patient does not tolerate cervical collar or symptoms worsen upon trying to apply collar, cease efforts and brace/support the patient in position of comfort.
 - c. Place on gurney – scoop stretcher or vacuum mattress preferred over backboard; scoop can be moved after patient is placed on gurney, vacuum splint can remain under the patient.
7. Documentation: In any case where there is head injury, facial injury, or a mechanism of injury suggesting the possibility of a cervical spine injury, **documentation to support the decision not to provide SMR under this procedure is absolutely essential.** This documentation must include the following information:
 - a. Subjective:
 - (1) The examination was performed on a reliable patient.
 - (2) The patient denies having any spinal pain.
 - (3) The patient denies having any extremity weakness or loss of movement.
 - (4) The patient denies having any numbness, tingling or feeling of pins and needles in the extremities.
 - b. Objective:
 - (1) There is no pain on palpation of the spine.
 - (2) Motor function is intact in all of the extremities.
 - (3) Sensation is intact in all extremities.

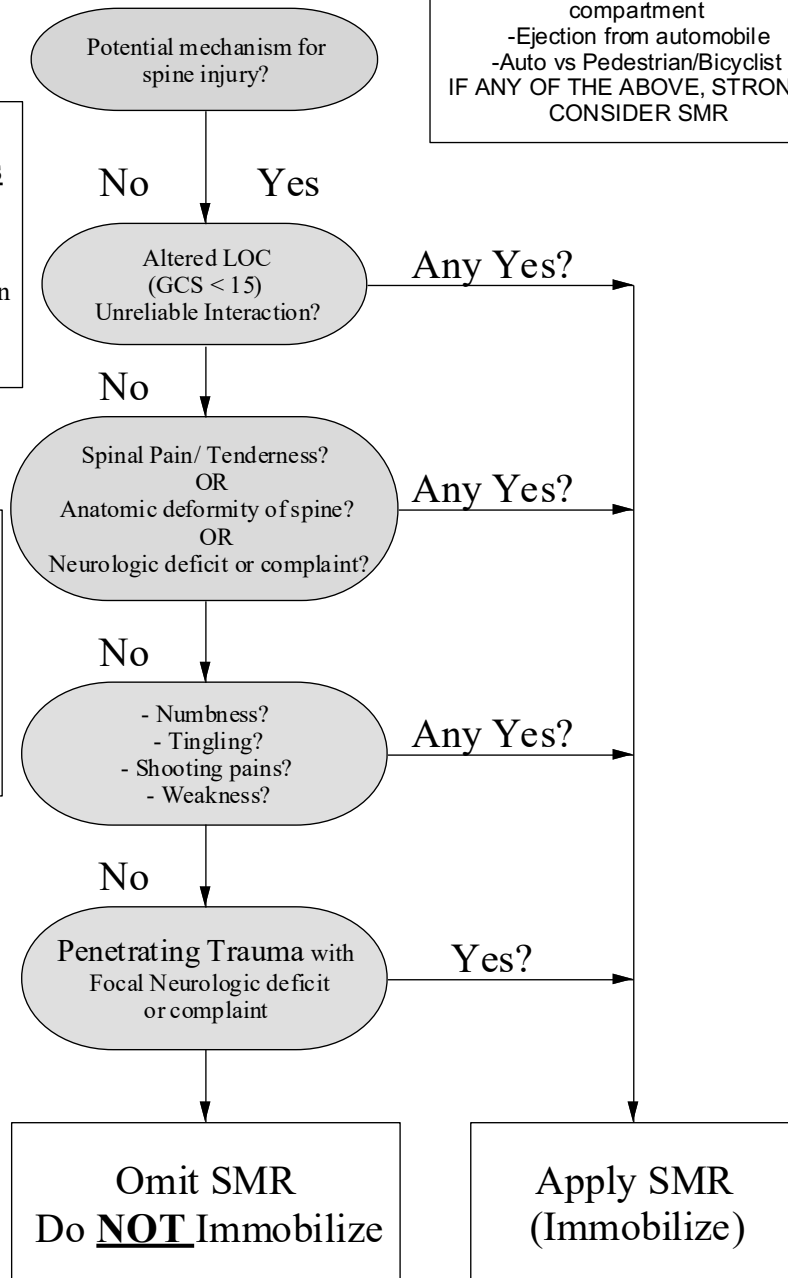
Spinal Clearance Flowchart

**Low-Risk
Characteristic/Mechanisms**
 - Simple rear-end collision
 - Ambulatory on scene at any time
 - No neck pain on scene
 - No midline cervical tenderness
**THESE LOW-RISK FACTORS ALLOW
 SAFE OMISSION OF SMR IN
 PATIENTS WITH GCS =15**

**High-Risk
Characteristic/Mechanisms**
 - Age >65
 - Dangerous Mechanism
 (axial loads, diving injuries, high speed
 MVC >55mph, MCC > 20 mph
 - Numbness, tingling, parasthesias
 - Death in the same passenger
 compartment
 - Ejection from automobile
 - Auto vs Pedestrian/Bicyclist
**IF ANY OF THE ABOVE, STRONGLY
 CONSIDER SMR**

Unreliable Patient Interactions
 - Language barriers; inability to
 communicate
 - Lack of cooperation during exam
 - Evidence of drug/alcohol intoxication
 - Painful distracting injury

Motor/Sensory Exam
 - Wrist/hand extension bilaterally
 - Foot plantar-flexion bilaterally
 - Foot dorsi-flexion bilaterally
 - Gross sensation in all extremities
 - Check for parasthesias



Splinting- Pelvis

Certification Requirements: All Levels

Clinical Indications:

- Pelvic fractures

Procedure:

1. Assess and document pulses, sensation, and motor function prior to stabilization of pelvis.
2. In cases of unstable pelvic fracture with shock or evidence of continuing bleeding, or multiple leg fractures in conjunction with an unstable pelvis consider using the PASG.
3. Pelvic Sheet Wrap
 - a. Place sheet under the patient in a way not to cause unnecessary movement of the pelvic girdle.
 - b. Cross the sheet ends and pull in opposite directions, applying pressure to pelvis (this requires a lot of force; it is difficult to over-tighten).
 - c. Secure sheet with plastic wire ties, or tighten and secure with a windlass (as in application of a tourniquet). A knot will not be tight enough.
4. Commercially available device: follow manufacturer's recommended procedure.



Temperature Measurement

Certification Requirements: All Levels

Clinical Indications:

- Patients with suspected abnormal temperature.

Procedure:

1. Assess the need for temperature measurement.
2. Select the appropriate method (oral/rectal) for measuring the patient's temperature. Method selection will depend on the patient's age and his/her capability.
3. The thermometer should be covered with a disposable probe cover.
4. Depending on method selection:
 - a. Oral - place distal tip under the tongue and have patient hold it firmly with the tongue and closed lips
 - b. Rectal - lubricate the tip, insert the probe into the anal canal, and hold patient and thermometer
 - c. Axillary – place distal tip under the arm and have patient hold it firmly by pressing arm to side.
 - d. Tympanic- Per manufacturer's specification
 - e. Temporal scanner- Per manufacturer's specification
5. In most adult patients, the temperature can usually be taken orally. In infants and smaller children, temperature should be taken rectally (preferred) or axially.
6. Leave the thermometer inserted for the time recommended by the manufacturer.
7. Remove and observe the reading.
8. Record the measurement inclusive of reading, whether F⁰ or C⁰, method, and time.
9. Dispose of the probe cover and clean the thermometer as recommended by the manufacturer.

Tourniquet Protocol

Certification Requirements: All Levels

Clinical Indications:

- A tourniquet may be used to control potentially fatal hemorrhage only after other means of hemorrhage control have failed.

Precautions:

1. A tourniquet applied incorrectly can increase blood loss.
2. Applying a tourniquet can cause nerve and tissue damage whether applied correctly or not. Proper patient selection is of utmost importance.
3. Injury due to tourniquet is unlikely if the tourniquet is removed within 2 hours. In cases of life-threatening bleeding benefit outweighs theoretical risk.
4. 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. Other improvised tourniquets are not allowed.

Procedure:

1. First attempt to control hemorrhage by using direct pressure over bleeding area.
2. If a discrete bleeding vessel can be identified, point pressure over bleeding vessel is more effective than a large bandage and diffuse pressure.
3. If unable to control hemorrhage using direct pressure, apply tourniquet according to manufacturer specifications and using the steps below:
 - a. Cut away any clothing so that the tourniquet will be clearly visible. NEVER obscure a tourniquet with clothing or bandages.
 - b. Apply tourniquet at least 2"-3" proximal to the wound and not across any joints.
 - c. Tighten tourniquet until bleeding stops. Applying tourniquet too loosely will only increase blood loss by inhibiting venous return.
 - d. Mark the time and date of application on the patient's skin next to the tourniquet.
 - e. Keep tourniquet on throughout hospital transport—a correctly applied tourniquet should only be removed by the receiving hospital.

Transcutaneous Cardiac Pacing

Certification Requirements: EMT 3 and above

Clinical Indications:

- Hemodynamically unstable bradycardia (includes A-V blocks) unresponsive to atropine or when IV access is unavailable,
 - Signs of unstable bradycardia include:
 - a. Acutely altered LOC w/ hypotension
 - b. Hypotension or other signs of shock

Precautions:

- Atropine administration should not delay transcutaneous pacing in patients with poor perfusion.
- Transcutaneous pacing is contraindicated in severe hypothermia and is not recommended for asystole.
- Conscious patient will experience discomfort; consider a benzodiazepine (Midazolam (Versed) is preferred) (3 ES and AEMT ES must contact med control)

Procedure:

1. Oxygen, ECG monitor, IV (if possible should be in place prior to pacing. ECG cables or asynchronous pacing must be utilized for pacer to function
2. Consider sedation/analgesia if patient is conscious.
3. Apply pacing pads to the patient's chest in either of the following positions:
 - a) (-) right anterior- (+) left anterior
 - b) (-) left anterior- (+) left posterior
4. Attach the pacing pads to the therapy cable from the machine.
5. Turn the pacer on.
6. Adjust the QRS amplitude so the machine can "sense" the intrinsic QRS activity. If a "sense" marker is not visible, adjust ECG size or select another lead.
7. Set the pacing rate to approximately 60-80 beats per minute (BPM).
8. Set initial current to 0 mAmps.
9. Increase the current 10 mAmps every 10-15 seconds while observing the ECG screen for evidence of electrical pacing capture. (Usually capture occurs around 100 mAmps, but sometimes not until as much as 200 mAmps)
10. Assess the patient's response to pacing.
11. If there is capture, check for pulses. Increase the energy by 2-10 mAmps to maintain capture.
12. Consider additional sedation during transport, as authorized by medical control.
13. If there is no electrical capture, check for femoral pulse.
14. If no capture occurs with maximum output, discontinue pacing and resume ACLS. Consider a fluid challenge or Epinephrine.
15. If there are no pulses with capture treat PEA
16. Document procedure, patient response, and any complications in the PCR (Patient care report). Include ECG strips.

Complications

1. Ventricular fibrillation and ventricular tachycardia are rare complications, but follow appropriate protocol if either occur.
2. Pacing is rarely indicated in patients under the age of 12 years.
3. Muscle tremors may complicate evaluation of pulses, femoral pulse may be more accurate.
4. Pacing may cause diaphragmatic stimulation and apparent hiccups.
5. CPR is safe during pacing. A mild shock may be felt if direct active electrode contact is made.

Vagal Maneuvers

Certification Requirements: PARAMEDIC

Clinical Indications:

- Hemodynamically stable supraventricular tachycardia
- Secondary to unsuccessful cardioversion
- May attempt while preparing for cardioversion in hemodynamically unstable patient if time allows

Procedure:

1. Before attempting vagal maneuvers, establish continuous ECG monitoring and IV access.
2. Document the dysrhythmia before treatment. If possible, record a 12-lead EKG.
3. Have ACLS drugs and airway equipment ready
4. **Valsalva maneuver:** Patient must be conscious and cooperative.
 - a. Place the patient in a sitting or semi-sitting position with the head tilted down.
 - b. Instruct the patient to take in a deep breath and hold it, then “bear down” as for a bowel movement for 20-30 seconds

OR.

 - c. Blow forcefully into the end of a syringe for at least 20 seconds, attempting to move the plunger.

OR

Modified vagal maneuvers- If Valsalva maneuver fails, consider the **Ice-pack maneuver:**

 - d. **DO NOT attempt** Ice-pack maneuver if ischemic heart disease is suspected.
 - e. **Adult:** Place an ice pack on the patient's anterior neck
 - f. **Pediatric:** Place a wash cloth soaked in ice water or an ice pack across the patient's face, about nostril level.
5. Record rhythm continuously during vagal maneuvers. Even if unsuccessful, vagal maneuvers may slow the heart rate enough to reveal rhythms such as atrial fibrillation or atrial flutter.
6. Stop vagal maneuvers immediately if:
 - a. Patient becomes confused
 - b. HR drops below 100 BPM
 - c. Transient asystole occurs
7. All the above procedures may be repeated in 2-3 minutes if ineffective.
8. If transient asystole occurs and persists for longer than 15 seconds
 - a. Begin CPR
 - b. See Asystole Protocol
9. Document time and effect of maneuvers in PCR.

Vascular Access: Existing Catheters Indwelling IV ports

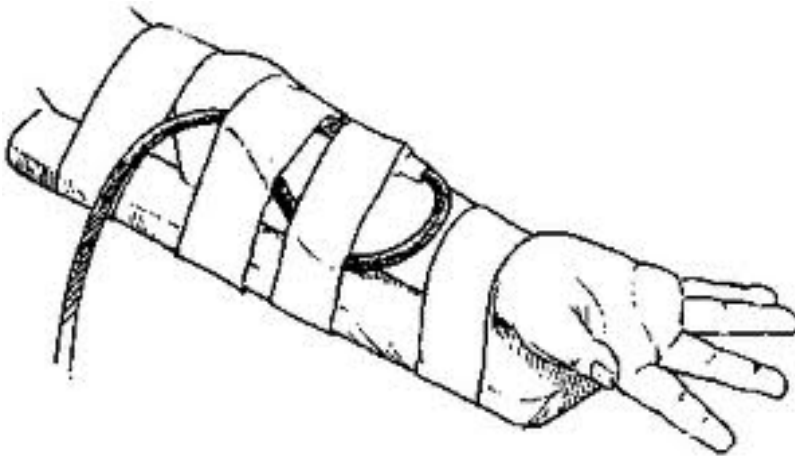
Certification Requirements: PARAMEDIC

Clinical Indications:

- Emergency administration of fluids for volume
- Emergency administration of medications

Procedure:

1. Confirm patient condition and need for rapid IV access.
2. Prepare necessary equipment, maintain sterile technique.
3. Clean connection port with Chloraprep or similar product, allow to air dry.
4. Release clamp, attempt to aspirate 5 ml of blood/fluid and then discard. Flush catheter with 5 ml normal saline.
5. Assure patency. Clamp shall be closed anytime the catheter is not connected to a syringe or IV fluids. (For implanted ports, prime set with saline, insert non-coring needle into septum with set attached.)
6. Never attempt to force fluid. If IV does not flow freely, do not use.
7. Connect IV tubing to port using normal saline at TKO rate unless fluid bolus is indicated.
8. Secure connection site using a loop to ensure it does not get pulled out
9. Use as any other IV.



Vascular Access: External Jugular Access

Certification Requirements: EMT 2 and above

Clinical Indications:

External jugular vein cannulation is indicated in a critically ill patient who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable. External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

Contraindications

- Inability to visualize the vein
- Suspected spinal trauma

Potential Adverse Effects/Complications

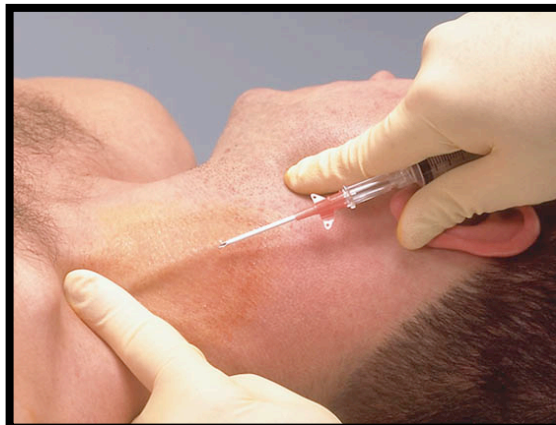
- Hematoma
- Pain
- Infiltration
- Infection
- Nerve or arterial injury
- Thrombosis
- Air embolism
- Airway occlusion
- Pneumothorax

Equipment:

1. Iodine or Chloraprep
2. Large gauge (#16 or #18) intravenous cannula
3. IV fluid and tubing.
4. Adhesive tape.

Procedure:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient's head away from the injection site if no risk of cervical injury exists.
3. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. Tamponade the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.



Vascular Access: Extremity-Saline Lock Only

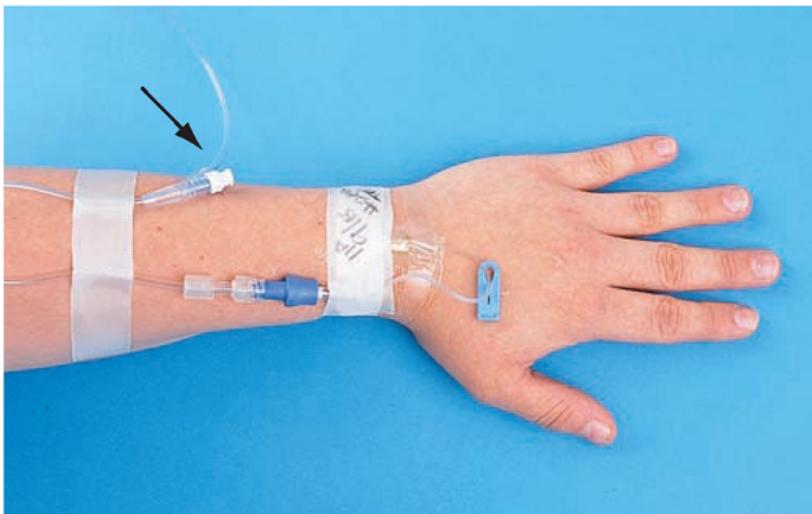
Certification Requirements: EMT 2 and above

Clinical Indications:

- Administer fluids for volume expansion.
- Administer drugs.

Procedure:

1. Gather necessary equipment to include:
 - a. Antiseptic solution prep pad
 - b. Tape/sterile dressing to secure catheter
 - c. Appropriate size catheter
 - d. Tourniquet
2. Use a 3-5 ml syringe to pre-fill the saline lock with sterile saline. Leave the syringe attached to the saline lock.
3. Place a tourniquet around the patient's extremity to restrict venous flow only.
4. Select a vein and prepare an appropriately sized catheter. **For cardiac patients, the left AC is the preferred site.**
5. Prep the skin with an antiseptic solution.
6. Insert the needle with the bevel up using a steady, deliberate motion until the blood return is seen in the catheter. Advance the needle slightly to ensure that the tip of the catheter penetrates the vein.
7. Advance the catheter. Never reinsert the needle through the catheter. Dispose of the needle into an approved sharps container without recapping.
8. Catheters must be used only once. If the insertion fails, use a new catheter.
9. Collect blood samples if indicated.
 - a. Remove the tourniquet.
 - b. Attach the saline lock to the catheter hub.
 - c. Inject the remaining saline through the lock to flush blood from the catheter. Easy flow without edema at the site indicates patency. If you encounter resistance or if edema forms, remove the cannula and try again with new equipment.
 - d. Cover the site with a sterile dressing and secure the tubing.
10. Label the IV/Saline lock with date, time started and catheter size.



Vascular Access: IO Access-EASY-IO®

Certification Requirements: EMT 2 and above

Clinical Indications:

1. Immediate vascular access in emergencies.
2. Intravenous fluids or medications are urgently needed and a peripheral IV cannot be established in 2 attempts or 90 seconds AND the patient exhibits one or more of the following:
 - a. An altered mental status (GCS of 8 or less)
 - b. Respiratory compromise (SaO₂ 90% after appropriate oxygen therapy, respiratory rate < 10 or > 40 min)
 - c. Hemodynamic instability (Systolic BP of < 90).
3. EZ-IO AD® & EZ-IO PD® may be considered in place of initial peripheral IV attempts in the following situations:
 - a. Cardiac arrest (medical or traumatic).
 - b. Profound hypovolemia with alteration of mental status.
 - c. Critical patients with immediate need for delivery of medications and or fluid.
 - d. In critical Pediatric patients, go directly to IO if no peripheral site is obvious.
4. May consider placing the EZ-IO PD® manually in < 3 kg neonates.

Contraindications:

- Conscious patient with stable VS
- Peripheral access is readily available
- Fracture of the bone selected for IO infusion (consider alternate site)
- Excessive tissue at insertion site with the absence of anatomical landmarks (consider alternate site)
- Previous significant orthopedic procedures (IO within 24 hours, prosthesis - consider alternate tibia)
- Infection at the site selected for insertion (consider alternate site)
- Previous attempt in same bone
- Patient with known bone disorder.
- Previous knee or shoulder joint replacement

Potential Adverse Effects/Complications:

- Extravasation of fluid
- Infection
- Fat emboli
- Compartment syndrome

Precautions:

The EZ-IO AD® and EZ-IO PD® are not intended for longer than 24 hours use.

Procedure:

1. Gather Equipment:
 - a. EZ-IO® Driver
 - b. EZ-IO AD® or EZ-IO PD® Needle Set
 - c. Chloraprep or similar product
 - d. EZ-Connect® or Standard Extension Set
 - e. 10 ml Syringe
 - f. Normal Saline (or suitable sterile fluid)
 - g. Pressure Bag, BP Cuff or Infusion Pump
 - h. 2% Lidocaine (preservative free)
2. If the patient is conscious, advise of EMERGENT NEED for this procedure and obtain informed consent
3. Determine EZ-IO AD® or EZ-IO PD® Indications
4. Rule out Contraindications
5. Locate appropriate insertion site:
 - a. Proximal tibia: With knee supported on a 1" – 2" pad and the foot externally rotated, position the proximal tibia so the flat, medial surface is level. Insertion site is approximately two fingerbreadths below the top of the palpable tibia (1 fingerbreadth in infants)
 - b. Proximal humerus (> 40 kg): adduct the humerus position the elbow posteriorly to the back of the stretcher or floor and place the pt's hand on his/her abdomen near the umbilicus. Go two fingerbreadths below the tip of the acromion to locate the tuberosity. Insert at 90 degree angle to lateral surface of the tuberosity.

- c. In bariatric patients, consider the distal tibial site: With the leg rotated so the foot is parallel to the floor, locate the medial surface of the distal tibia, approximately one to two fingerbreadths above the peak of the medial malleolus.
6. Prepare insertion site using aseptic technique:
 - a. Clean the area thoroughly with iodine
 - b. Insure the site remains aseptic prior to insertion
7. Prepare the EZ-IO® driver and appropriate needle set
 - a. EZ-IO AD® -- 45mm (40 kg and over) or Humerus insertion
 - b. EZ-IO AD®-- 25 mm 3kg - 39 KG
 - c. EZ-IO PD® Neonate and small Peds
8. Stabilize site and insert appropriate needle set
9. Remove EZ-IO® driver from needle set while stabilizing catheter hub
10. Remove stylet from catheter, place stylet in shuttle or approved sharps container
11. Confirm placement
12. Connect primed EZ-Connect®
13. Slowly administer appropriate dose of Lidocaine 2% (Preservative Free) IO to conscious patients
14. Syringe bolus (flush) the EZ-IO® catheter with the appropriate amount of normal saline.
15. Utilize pressure (syringe bolus, pressure bag or infusion pump) for continuous infusions where applicable
16. Begin infusion
17. Dress site, secure tubing and apply wristband as directed. Note the following information on the wristband:
 - a. Date & Time Inserted
 - b. Location of IO
18. Monitor EZ-IO® site and patient condition – Remove catheter within 24 hours.
19. To remove:
 - a. Stabilize patient's extremity
 - b. Connect sterile Luer lock syringe (10cc) to hub of catheter
 - c. Rotate catheter clockwise - while gently pulling
 - d. When catheter has been removed, immediately place in sharps container

Considerations:

Flow rate: Due to the anatomy of the IO space, flow rates may appear to be slower than those achieved with an IV catheter.

1. Ensure the administration of an appropriate rapid SYRINGE BOLUS (flush) prior to infusion NO FLUSH = NO FLOW
 - a. Rapid syringe bolus (flush) the EZ-IO AD® with 10 ml of normal saline
 - b. Rapid syringe bolus (flush) the EZ-IO PD® with 5 ml of normal saline
2. Repeat syringe bolus (flush) as needed
3. To improve continuous infusion flow rates always use a syringe, pressure bag or infusion pump.
4. Pain: Insertion of the EZ-IO AD® & EZ-IO PD® in conscious patients has been noted to cause mild to moderate discomfort (usually no more painful than a large bore IV). However, IO Infusion for conscious patients has been noted to cause severe discomfort. Prior to IO syringe bolus (flush) or continuous infusion in alert patients, SLOWLY administer Lidocaine 2% (Preservative Free) through the EZ-IO hub. Ensure that the patient has not allergies or sensitivity to Lidocaine.
 - a. EZ-IO AD® Slowly administer 20 – 40 mg Lidocaine 2% (Preservative Free)
 - b. EZ-IO PD® Slowly administer 0.5 mg /kg Lidocaine 2% (Preservative Free). Repeat as needed for pain relief from fluid infusion, max single dose 50mg.

Wound Packing: Uncontrollable Hemorrhage

Certification Requirements: EMT 1 and above

Clinical Indications:

- External hemorrhage not controlled by or amenable to direct pressure or tourniquet.

Procedure:

1. Identify: blot area to identify area of bleeding. Remove excess blood and clot with gauze or finger sweeps (carefully probing to avoid contact with bone shards or bullet fragments).
2. Locate bleeding source if possible and try to control with pressure from finger.
3. Take length of unfolded gauze and place it as deeply as possible (to the bone if possible).
4. Continue to layer gauze by a single layer at a time with packing pressure as tightly as possible to completely fill the cavity.
5. Cover with 4x4 gauze or kerlix and provide direct pressure for 3 minutes.
6. Apply elastic bandage.

Note:

This will typically be a painful procedure. Pain management as an adjunct should be considered depending on clinical situation. Successful packing requires aggressive firm placement of the packing material to provide sufficient pressure to overcome arterial bleeding. Lack of control of the bleeding may be related to insufficient packing pressure.

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Appendices

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Abbreviations and Symbols

AAA - Abdominal Aortic Aneurysm
ABCs – Airway, Breathing, Circulation
ABCDE - Airway; Breathing; Circulation; Disability; Expose
ABD - Abdomen
ABG – Arterial Blood Gas
a.c. – Before Meals
ACLS - Advanced Cardiac Life Support
AED - Automatic External Defibrillator
AF- Atrial Fibrillation
AICD - Automatic Internal Cardioverter-Defibrillator
AIDS - Acquired Immune Deficiency Syndrome
AK Reg – Alaska Regional Hospital
ALS – Advanced Life Support
AMA – Against Medical Advice
AMI – Acute Myocardial Infarction
ANMC – Alaska Native Medical Center
Ant – Anterior
AODM – Adult-Onset Diabetes Mellitus
A-P, AP – Anterior & Posterior
APGAR – Activity, Pulse, Grimace, Appearance, Respiration
APE– Acute Pulmonary Edema
APH – Alaska Psychiatric Hospital
ARDS – Adult Respiratory Distress Syndrome
ASA – Aspirin
ASHD – Arteriosclerotic Heart Disease
AST – Alaska State Troopers
AV – Atrioventricular
aVR, aVL, aVF- Augmented Voltage Leads
AVPU - A mnemonic to determine a patient's level of consciousness. (Alert, responds to Voice or Pain, or Unconscious)
BAH – Basset Army Hospital
BBB- Bundle Branch Block
b.i.d. – Twice Daily
Bilat. – Bilaterally
BLS – Basic Life Support
BM – Bowel Movement
B/P – Blood Pressure
bpm – Beats Per Minute
BS – Breath Sounds / Bowel Sounds
BSA – Body Surface Area
BSI – Body Substance Isolation
BVM - Bag-Valve-Mask device
C – Celsius / Carbon
C – With
c/o – Complaining of
ca – Cancer / Carcinoma
Ca⁺ – Calcium
CABG – Coronary Artery Bypass Graft
CAD – Coronary Artery Disease
CBG – Capillary Blood Glucose
CBC– Complete Blood Count
cc – Cubic Centimeter, same as Milliliter

Abbreviations and Symbols

CC – Chief Complaint
CCU – Critical or Coronary Care Unit
CHART – Chief complaint, History, Assessment, Rx (Treatment) Transport
CHEAT – Chief complaint, History, Exam, Assessment, Treatment
CHF - Congestive Heart Failure
Circa – Around Or About (usually a time)
CI – Cardiac Index
CL - Chloride
cm - Centimeter
CN - Cranial Nerve
CNS - Central Nervous System
CO - Carbon Monoxide
CO₂ - Carbon Dioxide
COPD - Chronic Obstructive Pulmonary Disease
CPR - Cardiopulmonary Resuscitation
CSF – Cerebrospinal Fluid
CT - Computerized Tomography
CVA - Cerebrovascular Accident
CVP – Central Venous Pressure
cx– Chest
CXR – Chest X-ray
D₅W - 5% Dextrose in Water
D50 - 50% Dextrose in Water
d/c - Discontinue
DCAP-BTLS – (Deformity, Contusion, Abrasion, Puncture/penetration, Bruising, Tenderness, Laceration, Swelling.)
DEA – Drug Enforcement Agency
DM – Diabetes Mellitus
DNR – Do Not Resuscitate
DOA – Dead on Arrival
DOB – Date of Birth
DOE – Dyspnea On Exertion
dT – Diphtheria Tetanus
DT – Delirium Tremens
DUI – Driving Under the Influence
DWI – Driving While Intoxicated
Dx – Diagnosis
ECG or **EKG** – Electrocardiogram
ED – Emergency Department
e.g. – For Example
EID: Esophageal Intubation Detector
EPI – Epinephrine
ER – Emergency Room
ETA - Estimated Time of Arrival
ET - Endotracheal Tube
ETOH – Alcohol (Ethanol)
F - Fahrenheit
FiO₂ - The concentration of oxygen in inspired air
FIA – Fairbanks International Airport
FIAPD – Fairbanks International Airport Police Department
FMH – Fairbanks Memorial Hospital
FPD – Fairbanks Police Department

Abbreviations and Symbols

Fx - Fracture
GCS - Glasgow Coma Scale
GI - Gastrointestinal
GM - Grand Mal (Seizure)
gm - Gram
GSW - Gunshot Wound
gtts/minute - Drops Per Minute
GU - Genitourinary
Gx - Grava (number of live births)
GYN - Gynecologic
h or **hr.** - Hour
H₂ - Histamine Receptor
H/A - Headache
HAZMAT - Hazardous Materials
Hb, Hgb - Hemoglobin
HCP - Healthcare Provider
HCO₃⁻ - Bicarbonate Ion
HCTZ - Hydrochlorothiazide
HEENT - Head, Eyes, Ears, Nose & Throat
HEPA respirator - High-Efficiency Particulate Air
Hg - Mercury
HIPAA - Health Insurance Portability and Accountability Act
HIV - Human Immunodeficiency Virus
h/o - History of
HPI - History Of Present Illness
HR - Heart Rate
hs - At bedtime
HTN - Hypertension (high blood pressure)
Hx - History
ICP - Intracranial Pressure
ICU - Intensive Care Unit
IDDM - Insulin-Dependent Diabetes Mellitus
IL - Intralingual
IM - Intramuscular
IN - Intranasal
IO - Intra-osseous
IPPB - Intermittent Positive Pressure Breathing
IV - Intravenous
IVP - Intravenous Push
Jump-START - Pediatric Simple Triage and Rapid Treatment
JVD - Jugular Venous Distension
K - Potassium
KCL - Potassium Chloride
kg - Kilograms
KVO - Keep Vein Open (see TKO)
L or **I** - Liter - as in lpm (liters per minute)
Ⓛ - Left
LAC - Laceration
LLQ - Left Lower Quadrant
LMP - Last Menstrual Period
LOC - Level of Consciousness / Loss of Consciousness

Abbreviations and Symbols

LOI – Last Oral Intake
LPM - Liters per Minute
LR – Lactated Ringers Solution
LSD - Lysergic acid Diethylamide
LUQ – Left Upper Quadrant
m – Meter
M – Male
MAOI – Monoamine Oxidase Inhibitor
MAP - Mean Arterial Pressure
MAST – Military Anti-shock Trousers
MATCOM – Law Enforcement & Animal Control Dispatch
Mcg (µg) – Micrograms
MCI – Mass Casualty Incident
MCL₁ - A Modified Chest Lead
mEq - Milliequivalent
mg – Milligrams
mg/dl - Milligrams Per Deciliter
MgSO₄ – Magnesium Sulfate
Min – Minutes
MI – Myocardial Infarction
ml - Milliliters
ml/hr - Milliliters per Hour
mm – Millimeters
mmHg – Millimeters of Mercury
MOI – Mechanism of Injury
MS – Multiple Sclerosis
MSO₄ – Morphine Sulfate
MSR – Mat-Su Regional Medical Center
MVC - Motor Vehicle Collision
Na - Sodium
NaCl –Sodium Chloride
N/A – Not Applicable
NAD – No Apparent Distress or No Acute Distress
NaHCO₃ – Sodium Bicarbonate
Neuro – Neurological
NC – Nasal Cannula
NG – Nasogastric
NH – Nursing Home
NICU – Neonatal Intensive Care Unit
NIDDM – Non-Insulin Dependent Diabetes Mellitus
NKA – No Known Allergies
NKDA – No Known Drug Allergies
NOI – Nature of Illness
NPA - Nasopharyngeal Airway Device
npo – Nothing by Mouth
NPPD – North Pole Police Department
NRB - Non-Rebreather Mask
NS – Normal Saline
NSAID - Non-Steroid Anti-Inflammatory Drug
NSR – Normal Sinus Rhythm
NTG – Nitroglycerin

Abbreviations and Symbols

N/V – Nausea & Vomiting

O₂ – Oxygen

OB – Obstetric

OD – Overdose

OG - Orogastric

OPQRST - (Onset; Provocation; Quality; Radiation; Severity.)

OR – Operating Room

P – Pulse

p̄ – After

P-wave - A rounded positive wave that precedes the QRS Complex in Lead II that reflects atrial depolarization

PaO₂ - Partial Arterial Oxygen Pressure

PAC- Premature Atrial Contraction

PAT- Pediatric Assessment Triangle

pc – After meals

PCN - Penicillin

PCR – Patient Care Report

PE – Pulmonary Embolism / Pulmonary Edema

PEEP – Positive End-Expiratory Pressure

PERL – Pupils Equal and Reactive to Light

pH - The Concentration of Hydrogen Ions

PICU – Pediatric Intensive Care Unit

PID – Pelvic Inflammatory Disease

PMHx – Past Medical History

PND – Paroxysmal Nocturnal Dyspnea

po – By mouth

PO₂ - Partial pressure of oxygen

PPE – Personal Protective Equipment

pr – By rectum

PRI - Interval from the beginning of the P wave to the RS complex

PRN – As Needed

PROV – Providence Alaska Medical Center

PSVT - Paroxysmal Supraventricular Tachycardia

Pt – Patient

PTA – Prior to Arrival

PVC - Premature Ventricular Contraction

Px – Para (number of pregnancies)

q or q̄ – Each or Every

q.d. – Each Day

q.i.d. – Four Times Daily

q.h. – Each Hour

QRS - Refers to the Complex on an EKG tracing representing the time interval for ventricular depolarization

® – Right

RLQ – Right Lower Quadrant

R/O – Rule Out

RUQ – Right Upper Quadrant

RR – Respiratory Rate

Rx – Prescription

⊖ – Without (also see w/o)

Abbreviations and Symbols

SAMPLE -ASPN-Signs and Symptoms, Allergies; Medications; Past pertinent medical problems; Last oral intake; Events leading to emergency; Associated Signs and Pertinent Negatives

SIDS - Sudden Infant Death Syndrome

SIVP – Slow IV Push

SL – Sublingual

SOA – Shortness of Air or Shortness of Breath

SPO₂ – Percentage of hemoglobin cells carrying oxygen

SQ – Subcutaneous

ss – Substernal

s/s – Signs & Symptoms

ST-segment - The distance from the S wave to the beginning of the T wave on an electrocardiograph.

START - Simple Triage and Rapid Treatment

STAT – Immediately

STD – Sexually Transmitted Disease

SVT - Supraventricular Tachycardia

sz – Seizure

T - Temperature

TB - Tuberculosis

TBSA - Total Body Surface Area.

TIA - Transient Ischemic Attack

t.i.d. – Three Times Daily

TKO - To Keep Open (see KVO)

T-wave - Reflects repolarization of the ventricles on an electrocardiograph

Tx – Treatment or Transport

UAFPD – University of Alaska Fairbanks Police Department

URI – Upper Respiratory Infection

UTI – Urinary Tract Infection

VF – Ventricular Fibrillation

VS - Vital Signs

VT – Ventricular Tachycardia

w/o – Without

WNL – Within Normal Limits

W/P/D – Warm, Pink & Dry (assessment of skin condition)

WPW – Wolff-Parkinson-White (syndrome)

x – Times

y/o or **y.o.** – Years Old

Symbols

1°	Primary, 1 st degree	"	Inch, minute
2°	Secondary, 2 nd degree	↑	Increase
3°	Tertiary, 3 rd degree	↓	Decrease
@	at	≠	Unequal, not equal
=	Equal to, the same	→	Leading to, resulting in
Ā or ā	Before	μ	Micro
Δ	Change	μg	Microgram
∅	No, none	≈ or ≅	Approximately
♂	Male	°F	Degrees Fahrenheit
♀	Female	°C	Degrees Celsius
<	Less than	#	Pound, number
≤	Less than or equal to	⊖	Negative
>	Greater than	⊕	Positive
≥	Greater than or equal to		
Rx	Prescription, to treat, medications		
Ψ	Psychiatric (the symbol is called psi, pronounced "sigh")		

Glossary

Abandonment - the termination of a health care provider patient relationship without assurance that an equal or greater level of care will continue.

Abrasion - scraping or abrading away of the superficial layers of the skin. An open soft-tissue injury.

Acidosis - a state where the pH is lower than normal due to an increased hydrogen ion concentration.

Action Potential - the stimulation of myocardial cells, as evidenced by a change in the membrane electrical charge, that subsequently spreads across the myocardium

Acute - having a rapid onset and a short course

Acute Myocardial Infarction - death and subsequent necrosis of the heart muscle caused by inadequate blood supply

Adrenergic - pertaining to synapses that use the neurotransmitter norepinephrine; activated by or capable of releasing epinephrine or an epinephrine like substance, especially in the sympathetic nervous system.

Adrenergic Receptors - receptors specific to norepinephrine and epinephrine-like substances

Affect – a patient's appearance as perceived by the rescuer

Afterload - the pressure or resistance against which the heart must pump

Agonist - a drug or other substance that causes a physiological response

Air Embolism - an air bubble in the circulatory system

Alkalosis - a state where the pH is higher than normal due to a decreased hydrogen ion concentration

Allergic reaction - hypersensitivity to a given antigen. A reaction more pronounced than would occur in the general population

Alveoli - the microscopic air sacs where the oxygen-carbon dioxide exchange takes place

Amniotic Fluid - clear, watery fluid that surrounds and protects the developing fetus

Amputation - severance, removal, or detachment, either partial or complete, of a body part

Anaphylaxis - an acute, generalized, and violent antigen-antibody reaction that can be rapidly fatal

Aneurysm - the ballooning of an arterial wall, resulting from a defect or weakness in the wall

Antagonist - a drug or other substance that blocks a physiological response or the action of another drug or substance

Antibiotics - medications effective in inhibiting the growth of or killing bacteria. They have no impact on viruses

Antidote - a substance that neutralizes a poison or the effects of a poison

Antigen - any substance capable of inducing an immune response

APGAR Scoring - stands for Activity, Pulse, Grimace, Appearance, Respiration; a numerical system of rating the condition of a newborn. It evaluates the neonate's heart rate, respiratory rate, muscle tone, reflex irritability, and color

Apnea - the absence of breathing

Arachnoid Membrane - middle layer of the meninges

Arachnoid - web like in appearance

Arrhythmia - the absence of cardiac electrical activity; often used inter-changeably with dysrhythmia

Arteriosclerosis - a thickening, loss of elasticity and hardening of the walls of the arteries from calcium deposits

Ascites - the presence of fluid within the abdominal cavity, often associated with congestive heart failure and alcoholism, among other causes

Asphyxia - a decrease in the amount of oxygen and an increase in the amount of carbon dioxide as a result of some interference with respiration

Aspiration - the act of taking foreign material into the lungs during inhalation

Atherosclerosis - a progressive, degenerative disease of the medium sized and large arteries

Auscultation - the process of listening to sounds made by the internal organs; usually associated with the use of the stethoscope

Automaticity - the capability of self- depolarization. Refers to the pace-maker cells of the heart.

Autonomic Nervous System - part of the nervous system controlling involuntary bodily functions. It is divided into the sympathetic and the parasympathetic systems

Avulsion - forceful tearing away or separation of body tissue. The avulsion may be partial or complete

Axial loading - extreme compressive forces applied to the axis of the vertebral spine

Bacteria - small unicellular organisms present throughout the environment. They are capable of life independent of other organisms

Battle's Sign - black and blue discoloration over the mastoid process (just behind the ear) that is characteristic of a basilar skull fracture

Benzodiazepines - general term to describe a group of tranquilizing drugs with similar chemical structures

Bradycardia - a heart rate less than 60

Brainstem - that part of the brain connecting the cerebral hemispheres with the spinal cord. It is comprised of the medulla oblongata, the pons, and mid-brain

Bronchiolitis - viral infection of the medium-sized airways, occurring most frequently during the first year of life

Buffer - substance that neutralizes or weakens a strong acid or base

Bundle Branch Block - a type of inter-ventricular heart block where conduction through either the right or left bundle branch is blocked or delayed

Capillary Refill - diagnostic sign for evaluating peripheral circulation. A capillary bed, such as a fingernail, is compressed. The time taken for color to return to the bed is the capillary refill time, usually 2 seconds or less.

Cardiogenic Shock - the inability of the heart to meet the metabolic needs of the body, resulting in inadequate tissue perfusion

Cardioversion - the passage of an electric current through the heart during a specific part of the cardiac cycle to terminate certain kinds of dysrhythmias

Carina - the point at which the trachea bifurcates into the right and left main-stem bronchi

Catecholamine - class of hormones that act upon the autonomic nervous system. They include epinephrine, norepinephrine and similar compounds

Cerebrospinal Fluid - watery, clear fluid that acts as a cushion, protecting the brain and spinal cord from physical impact. The cerebrospinal fluid also serves as an accessory circulatory system for the central nervous system.

CHART - a mnemonic for writing the patient care report narrative (Chief complaint, History, Assessment, RX (treatment), Transport)

CHEAT - a mnemonic for writing the patient care report narrative (Chief complaint, History, Exam, Assessment, Treatment.)

Cheyne-Stokes Respirations - breathing pattern characterized by progressive increase in the rate and volume of respirations that later gradually subsides. It is usually associated with a disturbance in the respiratory center of the brain.

Cholinergic - pertaining to synapses that use the neurotransmitter acetylcholine

Chronotrope - a drug or other substance that affects the heart rate

Circumferential - encircling or going around the complete exterior

Coma - a state of unconsciousness from which the patient cannot be aroused

Concussion - a transient period of unconsciousness. In most cases, the unconsciousness will be followed by a complete return of function

Consent - the granting of permission to treat, by a patient to a health care provider

Contrecoup - occurring on the opposite side; an injury to the brain opposite the site of impact

Contusion - closed wound in which the skin is unbroken, although damage has occurred to the immediate tissue beneath

Crackles - lung sound produced by air passing over retained airway secretions or the sudden opening of collapsed airways. It may be heard on inspiration or expiration. A crackle is a discontinuous adventitious lung sound as opposed to a wheeze, which is continuous. Crackles are described as fine or coarse

Crepitus - a grating or crackling sensation, felt or heard in such conditions as subcutaneous emphysema, or bone fracture

Croup - laryngo-tracheobronchitis, a common viral infection of young children resulting in edema of the subglottic tissues. Characterized by barking cough and inspiratory stridor

CVA (Cerebrovascular Accident) - caused by either ischemic or hemorrhagic lesions to a portion of the brain, resulting in damage or destruction of brain tissue-referred to as “stroke”

Cyanosis - bluish discoloration of the skin due to an increase in reduced hemoglobin in the blood

DCAP-BTLS - a mnemonic used to assess for traumatic injuries deformities, contusions, abrasions, punctures/penetrations- burns, tenderness, lacerations, swelling

Decerebrate Posture - sustained contraction of extensor muscles of the extremities resulting from a lesion in the brain stem. Patient presents with stiff and extended extremities and retracted head

Decorticate Posture - characteristic posture of a patient with a lesion at or above the upper brainstem. Presents with the arms flexed, fists clenched and legs extended

Defibrillation - the delivery of electrical current through the chest wall for the purpose of terminating ventricular fibrillation and certain other non-perfusing rhythms

Dehydration - if water lost exceeds the water gained in the body

Delirium Tremens (DTs) - most dramatic and serious form of alcohol withdrawals. Characterized by psychomotor, speech, and autonomic hyperactivity; profound confusion; disorientation; delusion; vivid hallucinations; tremor; agitation; and insomnia

Dementia - the result of a diffuse neurological process that produces chronic global impairment (either reversible or progressive) in which the patient has been symptomatic for a year or longer

Diabetes Mellitus - a complex disorder of carbohydrate, fat, and protein metabolism that is primarily a result of or partial or complete lack of insulin secretion by the beta cells of the pancreas or of defects of the insulin receptors

Dialysis - is a technique used to normalize blood chemistry in patients with acute or chronic renal failure and to remove blood toxins in some patients who have taken a drug overdose

Diaphysis - the shaft of a long bone, consisting of a tube of compact bone enclosing the medullary cavity

Diastole - the usual rhythmic dilation of the heart, esp. Of the ventricles, following each contraction (systole), during which the heart muscle relaxes and the chambers fill with blood

Diffusion - the process in which solid, particulate matter in a fluid moves from an area of higher concentration to an area of lower concentration, resulting in an even distribution of the particles in the fluid

Diuretic - Medication that increases urine production and relieves excess fluid buildup in tissues; used in treating high blood pressure, lung disease, premenstrual syndrome, and other conditions.

Drug - any substance injected into a muscle, blood vessel, or cavity of the body, taken by mouth or applied topically to treat or prevent a disease or condition

Dura mater - the outermost layer of the meninges

Dyspnea - difficulty breathing

Dysrhythmia - variation from a normal rhythm

Dystonia - a condition characterized by local or diffuse alterations in muscle tone, resulting in painful muscle spasms, unusually fixed postures, and strange movement patterns

Ecchymosis - leakage of blood in the deeper tissues of the skin resulting in a hematoma; or both

Ectopic Beats - occurs when the pacemaker function is assumed for one beat by cells other than those in the SA node. May be referred to as premature beats

Ectopic Pregnancy - an abnormal pregnancy in which the embryo implants outside of the uterine cavity

Electrocardiogram (ECG) - a graphic representation of the heart's electrical activity generated by depolarization and repolarization of the atria and ventricles

Electrolytes - a cation or anion in solution that conducts an electrical current

Emboli - a clot or other particle brought by the blood from another vessel and forced into a smaller one

Emergency medical dispatcher - any person who receives request for, and/or dispatches emergency medical care providers (this includes private EMS agencies such as life flight etc.)

Endometrium - the mucous membrane lining of the uterus; changes thickness and structure with the menstrual cycle

Epidural Hematoma - accumulation of blood between the dura mater and the cranium

Epigastrium - the upper middle portion of the abdomen, including the area over and in front of the stomach

Epiglottis - a lid like cartilage overhanging the entrance into the larynx

Epinephrine - adrenalin; the secretion of the adrenal medulla

Expressed consent - verbal or written consent to treatment being given

Flaccid - loose folds or wrinkles

Flail chest - when two (2) or more adjacent ribs are fractured in two (2) or more places

Fontanelles - a space covered by a tough membrane between the bones of an infant's cranium

Fracture - a break in the continuity of bone / cartilage

Gag Reflex - the act of retching or striving to vomit; a normal reflex triggered by touching the soft palate or the throat

Glasgow Coma Scale - a standardized system for assessing the degree of conscious impairment in the critically ill and for predicting the duration and ultimate outcome of coma

Glaucoma - a disease of the eye, characterized by increased pressure within, and hardening of the eyeball. May lead to a gradual impairment of sight that can result in blindness

Glottis - the space between the vocal cords

Golden Hour - the critical period during which surgical intervention for the trauma patient can enhance survival and reduce complications

Good Samaritan Laws - a law in which a person acting in good faith and in a manner that another person with similar training would act is protected under, unless, the person acted with gross negligence, reckless disregard, or willful or wanton conduct

Grand Mal Seizure - an epileptic seizure characterized by a generalized involuntary muscular contraction and cessation of respiration followed by tonic and clonic spasms of the muscles

Greenstick fracture - a partial bone fracture in which only one side of the bone is broken

Guarding - voluntary or involuntary contraction of the abdominal muscles in response to severe abdominal pain

Hallucination - vary from visual illusions to auditory illusions which can produce agitation, fear and panic in a person

Heat Cramps - brief intermittent and often severe muscular cramps that frequently occur in muscle fatigued by heavy work or exercise. They are believed to be caused primarily by a rapid change in extracellular fluid osmolarity resulting from sodium and water loss

Heat Exhaustion - a more severe form of heat illness characterized by minor aberrations in mental status (irritability, poor judgment), dizziness, nausea, headache, and mild to moderate core temperature elevation. In severe cases, orthostatic dizziness and syncope may occur

Heat Stroke - syndrome that occurs when the thermoregulatory mechanisms normally in place to meet the demands of heat stress break down entirely. This failure results in body temperature elevated to extreme levels producing multi-system tissue damage and physiological collapse.

Hematemesis - the vomiting of blood

Hematocrit - a small centrifuge used to determine the relative volumes of blood cells and fluid in blood; describes volume percentage of erythrocytes in whole blood.

Hematoma - caused by blunt trauma and are characterized by blood vessel disruption beneath the epidermis, resulting in ecchymosis; leakage of blood in the deeper tissues, resulting in a hematoma; or both

Hemoglobin - a complex protein-iron compound in the blood that carries oxygen to the cells from the lungs and carbon dioxide away from the cells to the lungs

Hemothorax - a collection of blood in the pleural space, which causes the lung to collapse

Histamine - an amine released by mast cells and basophils that promotes inflammation. It stimulates gastric secretion and causes dilation of capillaries, constriction of bronchial smooth muscle, and decreased blood pressure.

Homeostasis - a state of equilibrium in the body with respect to the functions and composition of fluids and tissues

Hypertension - a resting blood pressure consistently greater than 140/90 mm hg.

Hyperthermia - abnormal excess body temperature

Hypertonic - a solution that causes cells to shrink

Hypoglycemia - a lower than normal amount of glucose in the blood

Hypothermia - an abnormal body temperature lower than 95 f (35 c)

Hypoxemia - an abnormal condition resulting from a decrease in the oxygen supplied to or utilized by body tissue

Hypoxia - inadequate, reduced tension of cellular oxygen, characterized by cyanosis, tachycardia, hypotension, peripheral vasoconstriction, and mental confusion

Immune Response - response by the body to an antigen challenge through a collective defense system

Implied Consent - the presumption that an unconscious or incompetent person would consent to lifesaving care

Informed Consent - consent obtained from a patient after explaining all facts necessary for the patient to make a reasonable decision

Ingestion - to take into the body, as by swallowing or absorbing

Inhalation - a medicine or other substance to be inhaled as a vapor

Insulin - a hormone secreted by the pancreatic islets

Intercostal Muscles - the muscles located in between the ribs

Intracranial pressure - the pressure maintained inside the skull

Intubation - insertion of a tube into the patient's airway to protect the airway from collapsing.

Ketoacidosis - acidosis accompanied by the accumulation of ketones in the body, resulting from faulty carbohydrate metabolism

Kussmaul Respirations - an abnormally deep, very rapid sighing respiratory pattern characteristic of diabetic ketoacidosis or other metabolic acidosis

Labor - the process in which an infant is born

Laceration - the result from a tear, split, or an incision of the skin

Laryngospasm - a spasm of the vocal folds that may occlude the airway. It is a protective mechanism to prevent the aspiration of foreign bodies into the airway

Ligament - a band of white, fibrous tissue connecting bones

Living Will - document executed to inform health care practitioners of an individual's wishes for treatment or withholding of treatment in case that person becomes incapacitated and unable to communicate those wishes directly

Magill Forceps - a scissor-style clamp that has circular tips

Mania - a phase of bipolar disorder characterized by elation, agitation, hyperexcitability, hyperactivity, and increased speed of thought or speech

Meconium - the presence of fetal stool

Mediastinum - a portion of the thoracic cavity in the middle of the thorax, between the pleural sacs containing the two lungs. It extends from the sternum to the vertebral column and contains all the thoracic viscera except the lungs

Medical Director - a physician, who by experience or training handles the clinical and patient care aspects of the EMS system.

Melena - abnormal black, tarry stool containing digested blood

Meninges - fluid-containing membranes surrounding the brain and spinal cord

Meningitis - an inflammation of the membranes that surround the spinal cord and brain

Nares - nostrils

Negligence - failure to use such care as a reasonably prudent EMS provider would use in similar circumstances. A deviation from a standard of care

Neonate - pediatric age classification of birth to 1 year

Nephron - the functional unit of the kidney

Norepinephrine - a sympathetic neurotransmitter, a member of the catecholamine family

NREMT-Paramedic - nationally registered and certified paramedic

OPQRST - a mnemonic to assess pain (Onset, Provocation, Quality, Radiation, Severity)

Orthostatic hypotension - abnormally low blood pressure that occurs when an individual assumes the standing posture; also called postural hypotension

Osteoporosis - a bone disease characterized by a reduction in bone density accompanied by increasing porosity and brittleness, associated with loss of calcium from the bones

Overdose - too large a dose; dose to excess

Packaging - the completion of emergency care procedures needed to transfer a patient from the scene to the ambulance

Palpation - a technique used in physical examination in which the examiner feels the texture, size, consistency, and location of certain parts of the body with the hands

Palpitation - an irregular (skipping beats) or a rapid (fluttering) heartbeat

Paradoxical Breathing - an asymmetrical chest wall movement caused by a defect (flail chest) that lessens respiratory efficiency

Paradoxical movement - moving in a fashion opposite to that expected. It is often seen in flail chest injuries, where the flail segment moves in an opposite direction compared to the rest of the chest.

Paramedic - Alaska-licensed mobile intensive care paramedic

Parasympathetic Nervous System - the subdivision of the autonomic nervous system usually involved in activating vegetative functions such as digestion, defecation and urination

Parasympathomimetic - an agent whose effects mimic those resulting from stimulation of parasympathetic nerves, especially the effects produced by acetylcholine

Parenteral drugs - a drug which is administered in or through the digestive system

Paroxysmal Nocturnal Dyspnea (PND) - a sudden episode of dyspnea that occurs after lying down

PAT- pediatric assessment triangle. Includes appearance, work of breathing and skins appearance

Patent - open with free passage

Patient assessment - the act of establishing the priorities of care based on a potentially life-threatening condition of a patient

Percussion - the striking or tapping of the chest, back, etc. With the fingertips so as to determine from the sound produced the condition of the internal organs

Perfusion - fluid passing through an organ or a part of the body

Pericardial tamponade - blunt or penetrating trauma may cause tears in the heart chamber walls, allowing blood to leak from the heart

Pericardium the membrane that surrounds the heart

Peripheral Vascular Resistance - the total resistance against which blood must be pumped. Also known as “afterload”

Peristalsis - the coordinated, rhythmic and series contraction of smooth muscle that forces food through the digestive tract, bile through the bile duct, and urine through the ureters

Peritoneum - the transparent serous membrane lining the abdominal cavity and reflected inward at various places to cover the visceral organs

Petit mal seizure - an epileptic seizure characterized by a sudden, momentary loss of consciousness occasionally accompanied by minor muscle spasms of the neck or upper extremities

pH - an inverse logarithm of the hydrogen ion concentration

Pharmacology - the study of the preparation, qualities, and uses of drugs

Physiology - the branch of biology dealing with the functions and vital processes of living organisms or their parts and organs

Pia mater - the inner most layer of the meninges that directly covers the brain

Placenta - a highly vascular fetal organ through which the fetus absorbs oxygen, nutrients, and other substances and excretes carbon dioxide and other wastes

Plasma - the fluid portion of blood

Pleura - the thin serous membrane that covers a lung and lines that half of the chest cavity

Poisoning - taking a substance into the body that interferes with normal physiological functions

Protocols - a detailed written set of instructions to guide the care of a patient or to assist the practitioner in the performance of a procedure.

Psychomotor seizure - an epileptic seizure manifested by impaired consciousness of variable degree, the patient carries out a series of coordinated acts that are inappropriate, bizarre, and serve no useful purpose, about which the patient is amnesic

Pulmonary embolism - the blockage of a pulmonary artery by foreign matter such as fat, air, tumor tissue, or a thrombus that usually arises from a peripheral vein

Pulse oximetry - equipment used as an adjunct in determining effective patient oxygenation by measuring the transmission of red and near infrared light through arterial beds

Puncture - Wound caused by penetration by a sharp, pointed object such as a wooden splinter, needle, staple, glass, or nail

Rales - fine, bubbling sounds heard on auscultation of the lung; produced by air entering the distal airways and alveoli that contain serous secretions

Rapid Sequence Induction (RSI) - an airway management technique that involves the virtually simultaneous administration of a potent sedative agent and a neuromuscular blocking agent for the

purpose of intubation; it provides optimal intubation conditions while minimizing the risk of aspiration of gastric contents

Rebound tenderness - tenderness on the release of the examiner's hands, allowing the patient's abdominal wall to return to its normal position. Rebound tenderness is associated with peritoneal irritation.

Repolarization - the phase of the action potential in which the membrane potential moves from its maximum degree of depolarization toward the value of the resting membrane potential

Respiration - the process of the molecular exchange of oxygen and carbon dioxide within the body's tissues

Retraction - movement in the posterior direction; hollowing of tissue in the neck and intercostal spaces due to negative intra-thoracic pressure, a classic sign of severe asthma

Reye's Syndrome - a disorder of unknown etiology that produces a disease process in multiple organ systems

Rhonchi - continuous, low-pitched, rumbling sounds usually heard on expiration

SAMPLE-ASPEN - a mnemonic used to for a person's medical assessment (Signs & Symptoms, Allergies, Medications, Pertinent previous medical history; Last oral intake/meal, Events leading up to injury/illness, Associated Symptoms, Pertinent Negatives)

Scapula - one of the pair of large, flat triangular bones that form the dorsal part of the shoulder girdle

Schizophrenia - any one of a large group of psychotic disorders characterized by gross distortions of reality, disturbances of language and communication, withdrawal from social interaction, and the disorganization and fragmentation of thought, perception, and emotional reaction

Seizure - a temporary alteration in behavior or consciousness caused by abnormal electrical activity of one or more groups of neurons in the brain

Sepsis - a poisoned state caused by the absorption of pathogenic microorganisms and their products into the bloodstream

Septic Shock - shock that often results from serious systemic bacterial infection

Serious signs and symptoms - in cardiac patients include chest pain, dyspnea, decreased LOC, hypotension, cyanosis, shock, pulmonary congestion, CHF, AMI.

Shock - inadequate capillary perfusion

Sick Sinus Syndrome - a group of signs or symptoms that indicate the sinus node is not working well. Typically, the first sign is consistent bradycardia. Some sick sinus syndrome patients have rapid heartbeats, or the rate alternates between too fast and too slow. Often there is a long pause (asystole) between heartbeats, especially after an episode of tachycardia. Abnormal rhythms caused by sick sinus syndrome are often worsened by anti-arrhythmics, digitalis, beta-blockers and calcium channel blockers.

Silent Myocardial Infarction - the sudden and total cessation of blood flowing through an affected coronary artery to an area of heart muscle with the absence of pain

Snoring - breathing with harsh sounds caused by the vibration of the soft palate, usually with the mouth open

Starling's Law of the Heart - a rule that the force of the heartbeat is determined by the length of the fibers comprising the myocardial walls

START - simple triage and rapid transportation

Status epilepticus - a medical emergency characterized by continual convulsive seizures occurring without intervals of consciousness

Stokes-Adams Syndrome - a condition characterized by sudden episodes of loss of consciousness caused by incomplete heart block; seizures may accompany the episodes

STEMI - ST Elevation Myocardial Infarct

Stress - a nonspecific mental or physical strain caused by any emotional, physical, social, economic, or other factor that initiates a physiologic response

Stridor - inspiratory, crowing-type sound that can be heard without the aid of a stethoscope

Stroke - the sudden interruption of blood flow to the brain that results in neurological deficit

Subcutaneous Emphysema - the presence of air within the subcutaneous tissues, often associated with pneumothorax

Subdural Hematoma - collection of blood directly beneath the dura mater

Subluxation - a partial dislocation

Sudden Infant Death Syndrome (SIDS) - the unexpected and sudden death of an apparently normal and healthy infant that occurs during sleep and with no physical or autopsy evidence of disease

Sympathetic Nervous System - a subdivision of the autonomic nervous system, usually involved in preparing the body for physical activity

Sympathomimetic - a pharmacologic agent that mimics the effects of sympathetic-nervous-system stimulation of organs and structures by acting as an agonist or by increasing the release of neurotransmitter norepinephrine

Synapse - functional membrane-to membrane contact of a nerve cell with another nerve cell, muscle cell, gland cell, or sensory receptor; functions in transmitting action potentials from one cell to another

Syncope - caused by a sudden decrease in cerebral perfusion

Synovial fluid - the clear, lubricating fluid secreted by the membranes of joint cavities, tendon sheaths etc.

Systole - the unusual rhythmic contraction of the heart, esp. Of the ventricles, following each dilation (diastole), during in which the blood is driven onward from the chambers

Tachyarrhythmia/Tachydysrhythmia - any cardiac rhythm disturbance in which the heart rate exceeds 100 beats per minute

Tachycardia - a heart rate greater than 100 beats per minute

Tachypnea - a persistent respiratory rate that exceeds 20 breaths per minute

Tendon - a band or cord of dense connective tissue that connects muscle to bone or other structures; characterized by strength and inelasticity

Tension pneumothorax - accumulation of pressurized air or gas within the pleural cavity, which if not relieved can lead to lung collapse

Tissue - the substance of an organic body or organ, consisting of cells and intercellular material

Titrate - To analyze the best end point (for dose) for a medication.

Tonicity - the slight continuous contraction characteristic of a normal muscle in a state of rest

Tonic/Clonic - alternating contraction and relaxation of muscles

Torsades de Pointes - an unusual bi-directional ventricular tachycardia causing periodic waxing and waning of amplitude of the QRS

Toxins - any of various unstable poisonous compounds produced by some microorganisms and causing certain diseases

Transient Ischemic Attack (TIA) - episodes of focal cerebral dysfunction that last from minutes to several hours from which the patient returns to normal within 24 hours without permanent neurological deficit

Trauma - an injury caused by a transfer of energy from some external source to the human body

Triage - a method used to categorize patients for priorities of treatment

Tricyclic antidepressants - a class of antidepressant drugs first used in the 1950s. They are named after the drugs' molecular structure, which contains three rings of atoms

Urticaria - name given to the raised areas that occur on the skin associated with vasodilation due to histamine release. Commonly referred to as "hives"

Vagal maneuver - a procedure that stimulates the vagus nerve causing the heart rate to slow down

Vertigo - a sensation of rotation or movement of one's self (subjective vertigo) or of one's surroundings (objective vertigo) in any plane.

Virus - any of a group of ultramicroscopic or submicroscopic infective agents that cause various diseases such as measles, mumps, etc.

Visceral pleura - fine lining covering the lungs.

Vitreous humor - the transparent, colorless, jellylike substance that fills the eyeball between the retina and lens

Wolf-Parkinson-White Syndrome - a disorder of the heart characterized by the presence of an extra "accessory," conduction pathway between the atria and the ventricles that may cause a very rapid heart rate (supraventricular tachycardia)

Wheezing - a form of rhonchus characterized by a high-pitched, musical quality; caused by high-velocity airflow through narrowed airways

TRICYCLIC ANTIDEPRESSANTS LIST:

Antidepressant drugs in the tricyclic drug group include:

Name	Brand
amitriptyline (& butriptyline)	Elavil, Endep, Tryptanol, Trepiline
amoxapine	Asendin, Asendis, Defanyl, Demolox, Moxadil
clomipramine	Anafranil
desipramine	Norpramin, Pertofrane
dosulepin hydrochloride (dothiepin hydrochloride)	Prothiaden, Thaden
doxepin	Adapin, Sinequan
imipramine (& dibenzepin)	Tofranil, Janimine
iprindole	-
lofepramine	Gamanil
nortriptyline	Aventyl, Pamelor
opipramol	Opipramol-neuraxpharm, Insidon
protriptyline	Vivactil, Rhotrimine
trimipramine	Surmontil

MONOAMINE OXIDASE INHIBITORS (MAOIS):

A class of antidepressant drugs. Due to potentially lethal drug and diet interactions, they are usually used as a last resort after other antidepressants fail. MAOIs are also used to treat Parkinson's disease and migraine prophylaxis.

Name	Brand
Isocarboxazid	Marplan
Moclobemide	Aurorix, Manerix, Moclodura®
Phenelzine	Nardil
Tranylcypromine	Parnate, Jatrosom
Selegiline	Selegiline, Eldepryl
Emsam, Nialamide, Iproniazid	Marsilid, Iprozid, Ipronid, Rivivol, Propilniazida
Iproclozide	
Toloxatone	

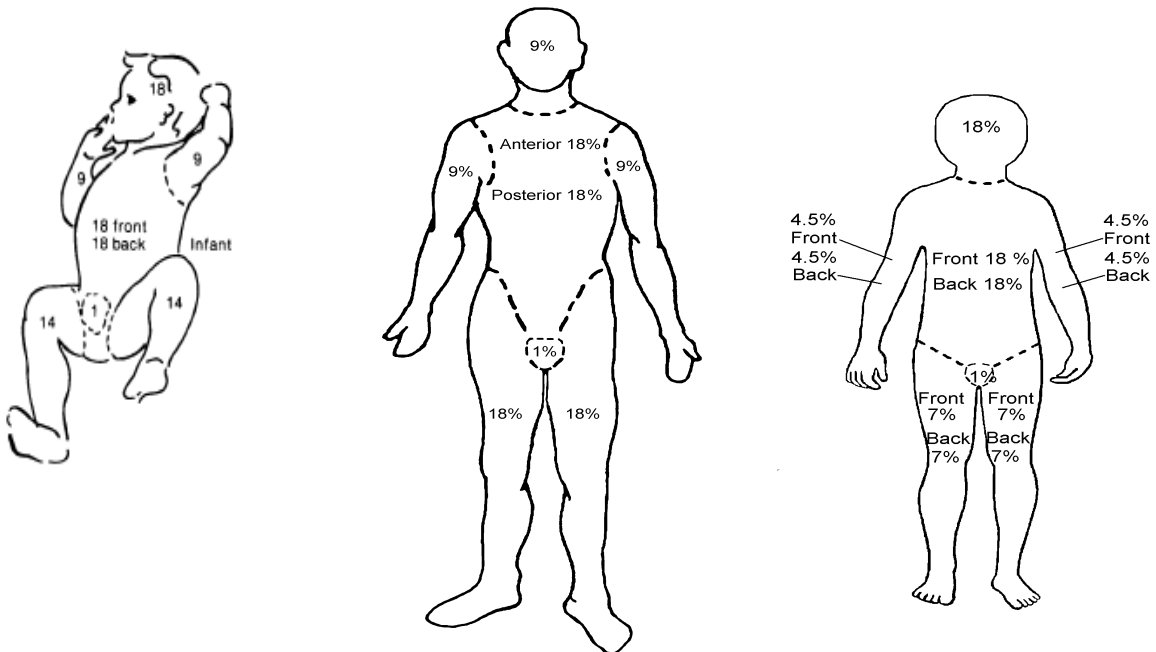
APGAR Scale

Certification Requirements:
All Levels

	0 points	1 point	2 points
Pulse	Absent	<100	≥100
Respirations	Absent	Slow, Irregular	Good
Tone	Limp	Some flexion	Active motion
Reflex	None	Grimace	Cough; Sneeze
Color	Blue	Pink Body, Blue Limbs	All Pink

Burn % Map

Certification Requirements:
All Levels



Cranial Nerve Assessment

Certification Requirements:
All Levels

Cranial Nerve Assessment			
Nerve	Name	Function	Test
I	*Olfactory	Smell	Have patient smell a familiar odor
II	Optic	Visual Acuity Visual Field	Have patient identify fingers Check peripheral vision
III	Oculomotor	Pupillary Reaction	Shine Light in the eye
IV	Trochlear	Eye Movement	Follow finger in the "H" pattern without moving the head
V	Trigeminal	Facial Sensation Motor Function	Touch the face Have patient hold mouth open
VI	Abducens	Motor Function	Lateral Eye movements
VII	Facial	Motor Function Sensory	Smile, wrinkle face, puff cheeks Tastes
VIII	Acoustic	Hearing Balance	Snap fingers by the ear Have patient close eyes and lift one foot, passes if able to do it without losing balance
IX	Glossopharyngeal	Swallowing and Voice	Swallow and say "AH"
X	Vagus	Gag Reflex	Use tongue depressor
XI	Spinal Accessory	Neck Motion	Shoulder shrugging
XII	Hypoglossal	Tongue Movement and Strength	Stick out tongue apply resistance with a tongue depressor

*Not usually assessed in field

Focused Assessment

Certification Requirements:

All Levels

Examples of questions to ask a conscious medical patient and assessment elements according to the patient's chief complaint		
<p>Altered Mental Status</p> <ul style="list-style-type: none"> • Description of episode • Duration • Onset • Associated symptoms • Evidence of trauma • Interventions • Seizures • Fever 	<p>Allergic Reaction</p> <ul style="list-style-type: none"> • History of allergies • Exposed to what? • How exposed • Effects • Progression • Interventions 	<p>Cardiac/Respiratory</p> <ul style="list-style-type: none"> • Onset • Provocation • Quality • Radiation • Severity • Time • Interventions
<p>Poisoning & OD</p> <ul style="list-style-type: none"> • Substance • When exposed/ingested • Amount • Time period • Interventions • Estimated weight 	<p>Environmental</p> <ul style="list-style-type: none"> • Source • Environment • Duration • Loss of consciousness • Effects-general or local 	<p>Behavioral</p> <ul style="list-style-type: none"> • How do you feel? • Determine if suicidal "Were you trying to hurt yourself?" "Have you been feeling that life is not worth living?" "Have you been feeling like killing yourself?" • Threat to self or others • Medical problem • Interventions
<p>Obstetrics</p> <ul style="list-style-type: none"> • Are you pregnant? • How long have you been pregnant? • Pain or contraction • Bleeding or discharge • Has your water broken? • Do you want to push? • Last menstrual period? 	<p>Acute Abdomen</p> <ul style="list-style-type: none"> • Location of pain • Any vomiting If so, color/substance • Taking birth control • Vaginal bleeding or discharge • Abnormal vital signs 	<p>Loss of Consciousness</p> <ul style="list-style-type: none"> • Length of time unconscious • Position • History • Blood in vomit or stool • Trauma • Incontinence • Abnormal vital signs

Glasgow Coma Scale

Certification Requirements:

All Levels

BEST EYE OPENING

Adult & Child	Infant (12 months)	Points
Spontaneous	Spontaneous	4
To Command	To Voice	3
To Pain	To Pain	2
None	None	1
TOTAL		

BEST VERBAL RESPONSE

Adult & Child	Infant (12 months)	Points
Oriented	Coos and Babbles (or crying after nonpainful stimulation)	5
Confused	Irritable Cry	4
Inappropriate	Only cries to Pain	3
Incomprehensible	Moans to Pain	2
None	None	1
TOTAL		

BEST MOTOR RESPONSE

Adult & Child	Infant (12 months)	Points
Obeys Command	Spontaneous Movements	6
Localizes Pain	Withdraws(Touch)	5
Withdraws	Withdraws (Pain)	4
Flexion to Pain	Flexion to Pain	3
Extension to Pain	Extension to Pain	2
None	None	1
TOTAL		

TOTAL

Total: Best Eye Opening	
Total: Best Verbal Response	
Total: Best Pain Response	
Glasgow Coma Score	

Pediatric Assessment Triangle



PEDIATRIC ASSESSMENT



General Impression
(First view of patient)

Airway & Appearance
(Open/Clear – Muscle Tone /Body Position)

Abnormal: Abnormal or absent cry or speech. Decreased response to parents or environmental stimuli. Floppy or rigid muscle tone or not moving.

Normal: Normal cry or speech. Responds to parents or to environmental stimuli such as lights, keys, or toys. Good muscle tone. Moves extremities well.

Work of Breathing
(Visible movement / Respiratory Effort)

Abnormal: Increased/excessive (nasal flaring, retractions or abdominal muscle use) or decreased/absent respiratory effort or noisy breathing.

Normal: Breathing appears regular without excessive respiratory muscle effort or audible respiratory sounds.

Circulation to Skin
(Color / Obvious Bleeding)

Abnormal: Cyanosis, mottling, paleness/pallor or obvious significant bleeding.
Normal: Color appears normal for racial group of child. No significant bleeding.

- Decision/Action Points:**
- Any abnormal findings or life-threatening chief complaint such as major trauma/burns, seizures, diabetes, asthma attack, airway obstruction, etc (urgent) – proceed to Initial Assessment. Contact ALS if ALS not already on scene/enroute.
 - All findings normal (non-urgent) – proceed to Initial Assessment.

Initial Assessment
(Primary Survey)

Airway & Appearance
(Open/Clear – Mental Status)

Abnormal: Obstruction to airflow. Gurgling, stridor or noisy breathing. Verbal, Pain, or Unresponsive on AVPU scale.

Normal: Clear and maintainable. Alert on AVPU scale.

Breathing
(Effort / Sounds / Rate / Central Color)

Abnormal: Presence of retractions, nasal flaring, stridor, wheezes, grunting, gasping or gurgling. Respiratory rate outside normal range. Central cyanosis.

Normal: Easy, quiet respirations. Respiratory rate within normal range. No central cyanosis.

Circulation
(Pulse Rate & Strength / Extremity Color & Temperature / Capillary Refill / Blood Pressure)

Abnormal: Cyanosis, mottling, or pallor. Absent or weak peripheral or central pulses; Pulse or systolic BP outside normal range; Capillary refill > 2 sec with other abnormal findings.
Normal: Color normal. Capillary refill at palms, soles, forehead or central body ≤ 2 sec. Strong peripheral and central pulses with regular rhythm.

- Decision/ Action Points:**
- Any abnormal finding (C, U, or P)– Immediate transport with ALS. If ALS is not immediately available, meet ALS intercept enroute to hospital or proceed to hospital if closer. Open airway & provide O₂. Assist ventilations, start CPR, suction, or control bleeding as appropriate. Check for causes such as diabetes, poisoning, trauma, seizure, etc. Assist patient with prescribed bronchodilators or epinephrine auto-injector, if appropriate.
 - All findings on assessment of child normal (S)– Continue assessment, detailed history & treatment at scene or enroute.

Normal Respiratory Rate:	Normal Pulse Rate:	Lower Limit of Normal Systolic BP:
Infant (<1yr): 30- 60	Infant: 100-160	Infant: >60 (or strong pulses)
Toddler (1-3yr): 24 -40	Toddler: 90-150	Toddler: >70 (or strong pulses)
Preschooler(4-5yr): 22- 34	Preschooler: 80-140	Preschooler: >75
School-age(6-12yr): 18 -30	School-age: 70-120	School-age: >80
Adolescent(13-18yr): 12 -20	Adolescent: 60-100	Adolescent: >90
	Pulses slower in sleeping child / athlete	Estimated min SBP >70 + (2 x age in yr)

This reference card should not be considered to replace or supercede regional prehospital medical treatment protocols.

Supported in part by project grant #6 H33 MC 00036 from the Emergency Services for Children program, HRSA, USDHHS in cooperation with NHTSA. Rev. 1/04

Poisons - Signs and Symptoms

- **Acetaminophen** (Tylenol) – Initially normal or nausea & vomiting. Untreated overdose may cause irreversible liver failure. Read labels. Acetaminophen is an ingredient of numerous cold, cough and pain medications, e.g. Vicks Dayquil, Sudafed Cold & Cough, Vicodin, Darvocet A500.
- **Amphetamines** (e.g. Benzedrine, Ritalin) – Increased BP. Dilated pupils, hyperactivity, exhilaration, psychosis, tremors, seizures.
- **Anticholinergics** – Many drugs have anticholinergic properties, e.g. scopolamine (for motion sickness), Benadryl (antihistamine), Thorazine (antipsychotic), Elavil (tricyclic antidepressant) and Tegretol (anti-seizure). Remember signs and symptoms with the mnemonic, "red as a beet, dry as a bone, blind as a bat, mad as a hatter, and hot as a hare" - flushing, dry skin and mucous membranes, dilated pupils, altered mental status and fever. Also tachycardia, hypertension, muscle twitching, hallucinations, delirium, psychosis, respiratory failure, cardiovascular collapse. Phenothiazines such as Promethazine, Compazine and Thorazine may cause extrapyramidal reactions.
- **Aspirin**: Overdose may cause tinnitus, hyperventilation, vomiting, dehydration, fever, double vision, confusion, lethargy or excitability, and, in severe cases, coma, convulsions.
- **Benzodiazepines** (e.g. Valium, Xanax, Ativan) – Altered mental status, slurred speech, dysrhythmias, coma.
- **Carbon Monoxide**: Poisoning causes headache, nausea, vomiting, drowsiness, fatigue, dizziness, shortness of breath, visual changes, chest pain, seizures, coma. Cherry-red skin is rare; pallor is more common. Be suspicious if several members of a household complain of flu-like symptoms.
- **Cardiac medications – Beta blockers and calcium channel blockers** may cause bradycardia, heart blocks, hypotension, seizures and coma. **Digitalis** overdose may cause confusion, sleepiness, delirium, nausea, diarrhea, visual disturbances, heart blocks, sinus bradycardia, PVCs, V-tach, cardiac arrest.
- **Cocaine** – Increased heart rate and blood pressure. Dilated pupils, euphoria, hyperactivity, psychosis, anxiety, dysrhythmias, seizures, chest pain.
- **Insecticides** – Organophosphate and carbamate insecticides block metabolism of acetylcholine, causing parasympathetic over-stimulation. Classic signs include SLUDGE (excessive Salivation, Lacrimation, Urination, Diarrhea, Gastrointestinal distress, and Emesis), pinpoint pupils, bronchospasm, respiratory depression, bradycardia (and sometimes tachycardia), seizures, coma. Treatment is with atropine, a parasympathetic blocker.
- **Solvents** – Nausea, vomiting, dysrhythmias, mental status changes. Swollen nasal & oral membranes.
- **Sedatives** (e.g. Seconal, Valium, Xanax, Halcion, Phenobarbital) – Decreased HR, BP, Respirations. Altered mental status, slurred speech, seizures.
- **Narcotics** (e.g., codeine, Darvocet, morphine, methadone, OxyContin, Oxycodone) – Decreased HR, BP, Respirations. Constricted pupils. CNS depression, pulmonary edema, coma, death.
- **Tricyclic antidepressants** (e.g. Elavil, Pamelor, Doxepin, Asendin, Aventyl, Sinequan) – Seizures, dysrhythmias, hypotension, decreased mental status, coma. Rapid progression from alert patient to death. Rapid transport is necessary.

Pregnancy Categories

Category	Definitions*	Clinical Application
Category A	"Controlled studies in women fail to demonstrate a risk to the fetus in the first trimester (and there is no evidence of a risk in later trimester), and the possibility of fetal harm appears remote."	For all practical purposes, there are no Category A drugs.
Category B	"Either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters)."	Category B drugs include prenatal vitamins, acetaminophen and several other medications used routinely and safely during pregnancy. If there is a clinical need for a Category B drug, it is considered safe to use it.
Category C	"Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus."	Category C drugs have <u>not</u> been shown to be harmful to fetuses (if they had been, they wouldn't be Category C drugs). However, there are some reasons to be more concerned about these drugs than Category B drugs. If the pregnant patient will benefit from a Category C drug, it is generally used, although most obstetricians would prefer a Category B drug if it will give equivalently good results.
Category D	"There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective.)"	Category D drugs have some significant risks. They should be used during pregnancy only when the alternatives are worse.
Category X	"Studies in animals or human beings have demonstrated fetal abnormalities or there is evidence of fetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant."	Category X drugs should not be used during pregnancy.

*Food and Drug Administration. Federal Register 1980;44:37434-67

Stroke Screening: Cincinnati Stroke Scale

Certification Requirements:

All Levels

Clinical Indications:

Suspected stroke patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. Screen the patient per the Cincinnati stroke scale.
3. Alert the receiving hospital of a possible stroke patient as early as possible.

Cincinnati Stroke Scale:

Facial Droop: have patient show teeth or smile

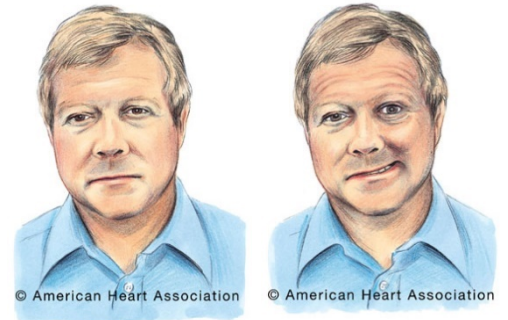
Normal: Both sides of face move equally Abnormal: One side of face does not move at all

Arm Drift: have patient close eyes and hold arms straight out

Normal: Both arms move equally or not at all
Abnormal: One arm drifts compared to the other

Speech: have patient say “you can’t teach an old dog new tricks”.

Normal: Patient uses correct words with no slurring
Abnormal: Slurred or inappropriate words or mute.



Thrombolytic Screen

Certification Requirements:

All Levels

Clinical Indications:

Rapid evaluation of a patient with suspected acute stroke, acute myocardial infarction, or acute pulmonary embolus that may benefit from thrombolysis

Procedure:

FMH Fibrinolytic Screening Criteria

Inclusion Criteria:

- Age 18 years or older?
- Clinical diagnosis of ischemic stroke causing an acute measureable neurologic deficit?
- Time of onset well-established as less than 90 minutes before FMH triage? Document time of onset of symptoms: _____ am/pm.

Exclusion Criteria:

- Known or suspected pregnancy?
- Stroke symptoms are minor or rapidly improving?
- Presence of open wounds?
- Active internal bleeding (e.g. gastrointestinal or urinary bleeding) within 21 days?
- History of subacute bacterial endocarditis?
- Intracranial surgery, serious head trauma or previous stroke within 3 months?
- Major surgery or serious trauma within 14 days?
- Arterial puncture at noncompressible site within 7 days?
- History of intracranial hemorrhage, arteriovenous malformation, or neoplasm aneurysm?
- Witnessed seizure at stroke onset?
- Recent acute myocardial infarction? Post-MI pericarditis?
- On repeated measurements, BP remains greater than 185 systolic or 110 diastolic?

Section 08.64.369 Required Reporting

SECTION 08.64.369 HEALTH CARE PROFESSIONALS TO REPORT CERTAIN INJURIES. (a) A health care professional who initially treats or attends to a person with an injury described in (b) of this section shall make certain that an oral report of the injury is made promptly to the Department of Public Safety, a local law enforcement agency, or a village public safety officer. The health care professional shall make certain that a written report of an injury described in (b)(1) or (2) of this section is submitted to the Department of Public Safety within three working days after the person is treated. The report shall be on a form provided by the Department of Public Safety.

(b) **The following injuries shall be reported under (a) of this section:**

- (1) second or third degree burns to five percent or more of a patient's body;
- (2) a burn to a patient's upper respiratory tract or laryngeal edema due to the inhalation of super-heated air;
- (3) a bullet wound, powder burn, or other injury apparently caused by the discharge of a firearm;
- (4) an injury apparently caused by a knife, axe, or other sharp or pointed instrument, unless the injury was clearly accidental; and
- (5) an injury that is likely to cause the death of the patient, unless the injury was clearly accidental.

(c) A person who, in good faith, makes a report under this section, or who participates in judicial proceedings related to a report under this section, is immune from any civil or criminal liability that might otherwise be incurred as a result of making such report or participating in the judicial proceedings.

(d) In this section, "health care professional" includes an emergency medical technician certified under AS 18.08, health aide, physician, nurse, mobile intensive care paramedic, and physician's assistant, but does not include a practitioner of religious healing.

HISTORY

(Sec. 1 ch 88 SLA 1988; am Sec. 5 ch 36 SLA 1993)

REVISORS NOTES.

Enacted as AS 08.64.337. Renumbered in 1988.

EFFECT OF AMENDMENTS.

The 1993 amendment, effective August 25, 1993, inserted "certified under AS 18.08" and "mobile intensive care" in subsection (d).

TITLE 18.66 DOMESTIC VIOLENCE AND SEXUAL ASSAULT

ARTICLE 04 EDUCATION AND PREVENTION

SECTION 18.66.310 Continuing education for public employees, court system employees, AND FOR PROSECUTING AUTHORITIES. (a) Employers of state or local public employees, including employees of public schools, shall, in consultation with the Council on Domestic Violence and Sexual Assault, provide continuing education in domestic violence for the public employees who are required by law to report abuse or neglect of children under AS 47.17.020.

(b) The administrative director of the Alaska Court System shall, in consultation with the Council on Domestic Violence and Sexual Assault, provide continuing education in domestic violence for judicial officers and court clerks who have contact with parties involved in domestic violence.

(c) The Department of Law and other prosecuting authorities in the state shall, in consultation with the Council on Domestic Violence and Sexual Assault, provide continuing education in domestic violence for prosecuting attorneys and other employees who have contact with persons involved in domestic violence.

(d) The continuing education required under (a) - (c) of this section must include information on the following subjects:

- (1) the nature, extent, and causes of domestic violence;
- (2) procedures designed to promote the safety of the victim and other household members;
- (3) resources available to victims and perpetrators of domestic violence; and
- (4) the lethality of domestic violence.

HISTORY

(Sec. 33 ch 64 SLA 1996)

SECTION 18.66.900 Definitions. [Repealed, Sec. 72 ch 64 SLA 1996].

CHAPTER 66 DOMESTIC VIOLENCE AND SEXUAL ASSAULT

ARTICLE 05 GENERAL PROVISIONS

This Article consists of the following Sections:
18.66.990 Definitions.

SECTION 18.66.990 **DEFINITIONS.** In this chapter,

- (1) "council" means the Council on Domestic Violence and Sexual Assault;
- (2) "crisis intervention and prevention program" means a community program that provides information, education, counseling, and referral services to individuals experiencing personal crisis related to domestic violence or sexual assault and to individuals in personal or professional transition, excluding correctional half-way houses, outpatient mental health programs, and drug or alcohol rehabilitation programs;
- (3) "domestic violence" and "crime involving domestic violence" mean one or more of the following offenses or a law or ordinance of another jurisdiction having elements similar to these offenses, or an attempt to commit the offense, by a household member against another household member:
 - (A) a crime against the person under AS 11.41;
 - (B) burglary under AS 11.46.300 - 11.46.310;
 - (C) criminal trespass under AS 11.46.320 - 11.46.330;
 - (D) arson or criminally negligent burning under AS 11.46.400 - 11.46.430;
 - (E) criminal mischief under AS 11.46.480 - 11.46.486;
 - (F) terroristic threatening under AS 11.56.810;
 - (G) violating a domestic violence order under AS 11.56.740; or
 - (H) harassment under AS 11.61.120(a)(2) - (4);
- (4) "domestic violence program" means a program that provides services to the victims of domestic violence, their families, or perpetrators of domestic violence;
- (5) "household member" includes
 - (A) adults or minors who are current or former spouses;
 - (B) adults or minors who live together or who have lived together;
 - (C) adults or minors who are dating or who have dated;

(D) adults or minors who are engaged in or who have engaged in a sexual relationship;

(E) adults or minors who are related to each other up to the fourth degree of consanguinity, whether of the whole or half blood or by adoption, computed under the rules of civil law;

(F) adults or minors who are related or formerly related by marriage;

(G) persons who have a child of the relationship; and

(H) minor children of a person in a relationship that is described in (A) - (G) of this paragraph;

(6) "judicial day" means any Monday through Friday that is not a state holiday and on which the court clerk's offices are officially opened to receive legal documents for filing;

(7) "local community entity" means a city or borough or other political subdivision of the state, a nonprofit organization, or a combination of these;

(8) "petitioner" includes a person on whose behalf an emergency protective order has been requested under AS 18.66.110(b);

(9) "sexual assault" means a crime specified in AS 11.41.410 - 11.41.450;

(10) "sexual assault program" means a program that provides services to the victims of sexual assault, their families, or perpetrators of sexual assault.

HISTORY

(Sec. 33 ch 64 SLA 1996)

NOTES TO ARTICLE

Effective Dates. Section 83, ch. 64, SLA 1996, makes this article effective July 1, 1996.

Alaska Statutes. Title 47. Welfare, Social Services and Institutions

Chapter 17. Child Protection

AS 47.17.010. Purpose.

In order to protect children whose health and well-being may be adversely affected through the infliction, by other than accidental means, of harm through physical injury or neglect, mental injury, sexual abuse, sexual exploitation, or maltreatment, the legislature requires the reporting of these cases practitioners of the healing arts and others to the department. It is not the intent of the legislature that persons required to report suspected child abuse or neglect under this chapter investigate the suspected child abuse or neglect before they make the required report to the department. Reports must be made when there is a reasonable cause to suspect child abuse or neglect in order to make state investigative and social services available in a wider range of cases at an earlier point in time, to make sure that investigations regarding child abuse and neglect are conducted by trained investigators, and to avoid subjecting a child to multiple interviews about the abuse or neglect. It is the intent of the legislature that, as a result of these reports, protective services will be made available in an effort to

- (1) prevent further harm to the child;
- (2) safeguard and enhance the general well-being of children in this state; and
- (3) preserve family life unless that effort is likely to result in physical or emotional damage to the child.

AS 47.17.020. Persons Required to Report.

- (a) The following persons who, in the performance of their occupational duties, or with respect to (8) of this subsection, in the performance of their appointed duties, have reasonable cause to suspect that a child has suffered harm as a result of child abuse or neglect shall immediately report the harm to the nearest office of the department:
 - (1) practitioners of the healing arts;
 - (2) school teachers and school administrative staff members of public and private schools;
 - (3) peace officers and officers of the Department of Corrections;
 - (4) administrative officers of institutions;
 - (5) child care providers;
 - (6) paid employees of domestic violence and sexual assault programs, and crisis intervention and prevention programs as defined in AS 18.66.990;
 - (7) paid employees of an organization that provides counseling or treatment to individuals seeking to control their use of drugs or alcohol;
 - (8) members of a child fatality review team established under AS 12.65.015(e) or 12.65.120 or the multidisciplinary child protection team created under AS 47.14.300 .
- (b) This section does not prohibit the named persons from reporting cases that have come to their attention in their nonoccupational capacities, nor does it prohibit any other person from reporting a child's harm that the person has reasonable cause to suspect is a result of child abuse or neglect. These reports shall be made to the nearest office of the department.
- (c) If the person making a report of harm under this section cannot reasonably contact the nearest office of the department and immediate action is necessary for the well-being of the child, the person shall make the report to a peace officer. The peace officer shall immediately take action to protect the child and shall, at the earliest opportunity, notify the nearest office of the department.
- (d) This section does not require a religious healing practitioner to report as neglect of a child the failure to provide medical attention to the child if the child is provided treatment solely by spiritual means through prayer in accordance with the tenets and practices of a recognized church or religious denomination by an accredited practitioner of the church or denomination.
- (e) The department shall immediately notify the nearest law enforcement agency if the department
 - (1) concludes that the harm was caused by a person who is not responsible for the child's welfare;
 - (2) is unable to determine
 - (A) who caused the harm to the child; or
 - (B) whether the person who is believed to have caused the harm has responsibility for the child's welfare; or
 - (3) concludes that the report involves
 - (A) possible criminal conduct under AS 11.41.410 - 11.41.458; or
 - (B) abuse or neglect that results in the need for medical treatment of the child.

- (f) If a law enforcement agency determines that a child has been abused or neglected and that (1) the harm was caused by a teacher or other person employed by the school or school district in which the child is enrolled as a student, (2) the harm occurred during an activity sponsored by the school or school district in which the child is enrolled as a student, or (3) the harm occurred on the premises of the school in which the child is enrolled as a student or on the premises of a school within the district in which the child is enrolled as a student, the law enforcement agency shall notify the chief administrative officer of the school or district in which the child is enrolled immediately after the agency determines that a child has been abused or neglected under the circumstances set out in this section, except that if the person about whom the report has been made is the chief administrative officer or a member of the chief administrative officer's immediate family, the law enforcement agency shall notify the commissioner of education and early development that the child has been abused or neglected under the circumstances set out in this section. The notification must set out the factual basis for the law enforcement agency's determination. If the notification involves a person in the teaching profession, as defined in AS 14.20.370 , the law enforcement agency shall send a copy of the notification to the Professional Teaching Practices Commission.
- (g) A person required to report child abuse or neglect under (a) of this section who makes the report to the person's job supervisor or to another individual working for the entity that employs the person is not relieved of the obligation to make the report to the department as required under (a) of this section.
- (h) This section does not require a person required to report child abuse or neglect under (a)(6) of this section to report mental injury to a child as a result of exposure to domestic violence so long as the person has reasonable cause to believe that the child is in safe and appropriate care and not presently in danger of mental injury as a result of exposure to domestic violence.
- (i) This section does not require a person required to report child abuse or neglect under (a)(7) of this section to report the resumption of use of an intoxicant as described in AS 47.10.011 (10) so long as the person does not have reasonable cause to suspect that a child has suffered harm as a result of the resumption.

TITLE 47 WELFARE, SOCIAL SERVICES AND INSTITUTIONS
CHAPTER 24 PROTECTION OF VULNERABLE ADULTS
SECTION 47.24.010 Reports of harm.

- (a) Except as provided in (e) and (f) of this section, the following persons who, in the performance of their professional duties, have reasonable cause to believe that a vulnerable adult suffers from abandonment, exploitation, abuse, neglect, or self-neglect shall, not later than 24 hours after first having cause for the belief, report the belief to the department's central information and referral service for vulnerable adults:
- (1) a physician or other licensed health care provider;
 - (2) a mental health professional as defined in AS 47.30.915(11) and including a marital and family therapist licensed under AS 08.63;
 - (3) a pharmacist;
 - (4) an administrator of a nursing home, residential care or health care facility;
 - (5) a guardian or conservator;
 - (6) a police officer;
 - (7) a village public safety officer;
 - (8) a village health aide;
 - (9) a social worker;
 - (10) a member of the clergy;
 - (11) a staff employee of a project funded by the Department of Administration for the provision of services to older Alaskans, the Department of Health and Social Services, or the Council on Domestic Violence and Sexual Assault;
 - (12) an employee of a personal care or home health aide program;
 - (13) an emergency medical technician or a mobile intensive care paramedic;
 - (14) a caregiver of the vulnerable adult.
- (b) A report made under this section may include the name and address of the reporting person and must include
- (1) the name and address of the vulnerable adult;
 - (2) information relating to the nature and extent of the abandonment, exploitation, abuse, neglect, or self-neglect;
 - (3) other information that the reporting person believes might be helpful in an investigation of the case or in providing protection for the vulnerable adult.
- (c) The department or its designees shall report to the Department of Law any person required by (a) of this section to report who fails to comply with this section. A person listed in (a) of this section who, because of the circumstances, should have had reasonable cause to believe that a vulnerable adult suffers from abandonment, exploitation, abuse, neglect, or self-neglect but who knowingly fails to comply with this section is guilty of a class B misdemeanor. If a person convicted under this section is a member of a profession or occupation that is licensed, certified, or regulated by the state, the court shall notify the appropriate licensing, certifying, or regulating entity of the conviction.
- (d) This section does not prohibit a person listed in (a) of this section, or any other person, from reporting cases of abandonment, exploitation, abuse, neglect, or self-neglect of a vulnerable adult that have come to the person's attention.
- (e) If a person making a report under this section believes that immediate action is necessary to protect the vulnerable adult from imminent risk of serious physical harm due to abandonment, exploitation, abuse, neglect, or self-neglect and the reporting person cannot immediately contact the department's central information and referral service for vulnerable adults, the reporting person may make the report to a police officer or a village public safety officer. The police officer or village public safety officer shall take immediate action to protect the vulnerable adult and shall, at the earliest opportunity, notify the department. A person may not bring an action for damages against a police officer, village public safety officer, the state, or a political subdivision of the state based on a decision under this subsection to take or not to take immediate action to protect a vulnerable adult. If a decision is made under this subsection to take immediate action to protect a vulnerable adult, a person may not bring an action for damages based on the protective actions taken unless the protective actions were performed with gross negligence or intentional misconduct; damages awarded in the action may include only direct economic compensatory damages for personal injury.

- (f) A person listed in (a) of this section who reports to the long term care ombudsman under AS 44.21.232, or to the Department of Health and Social Services, that a vulnerable adult has been exploited, abused, or neglected in an out-of-home care facility is considered to have met the duty to report under (a) of this section.
- (g) [Repealed, Sec. 14 ch 129 SLA 1994].
- (h) [Repealed, Sec. 14 ch 129 SLA 1994].

HISTORY

(Sec. 2 ch 36 SLA 1983; am Sec. 4 ch 108 SLA 1988; am Sec. 10 ch 129 SLA 1992; am Sec. 24 ch 36 SLA 1993; am Sec. 2 ch 103 SLA 1994; am Sec. 2 - 7, 14 ch 129 SLA 1994; am Sec. 11 ch 131 SLA 1994)

REVISORS NOTES.

The amendment made to (a) of this section by Sec. 11, ch. 131, SLA 1994 is not set out above because it was made obsolete by the amendment made by Sec. 2, ch. 129, SLA 1994.

AS 09.68.120. Definition of Death.

An individual is considered dead if, in the opinion of a physician licensed or exempt from licensing under AS [08.64](#) or a registered nurse authorized to pronounce death under AS [08.68.395](#), based on acceptable medical standards, or in the opinion of a mobile intensive care paramedic, physician assistant, or emergency medical technician authorized to pronounce death based on the medical standards in AS [18.08.089](#), the individual has sustained irreversible cessation of circulatory and respiratory functions, or irreversible cessation of all functions of the entire brain, including the brain stem. Death may be pronounced in this circumstance before artificial means of maintaining respiratory and cardiac function are terminated.

AS 18.08.089. Authority to Pronounce Death.

(a) A mobile intensive care paramedic or physician assistant registered or licensed under AS [08.64.107](#) or an emergency medical technician certified under this chapter may make a determination and pronouncement of death of a person under the following circumstances:

- (1) the paramedic or emergency medical technician is an active member of an emergency medical service certified under this chapter;
- (2) neither a physician licensed under AS [08.64](#) nor a physician exempt from licensure under AS [08.64](#) is immediately available for consultation by radio or telephone communications;
- (3) the paramedic, physician assistant, or emergency medical technician has determined, based on acceptable medical standards, that the person has sustained irreversible cessation of circulatory and respiratory functions.

(b) A mobile intensive care paramedic, physician assistant, or emergency medical technician who has determined and pronounced death under this section shall document the clinical criteria for the determination and pronouncement on the person's emergency medical service report form and notify the appropriate medical director or collaborative physician as soon as communication can be established. The paramedic, physician assistant, or emergency medical technician shall provide to the person who signs the death certificate the

- (1) name of the deceased;
- (2) presence of a contagious disease, if known; and
- (3) date and time of death.

(c) Except as otherwise provided under AS [18.50.230](#), a physician licensed under AS [08.64](#) shall certify a death determined under (b) of this section within 24 hours after the pronouncement by the mobile intensive care paramedic, physician assistant, or emergency medical technician.

(d) In this section,

- (1) "acceptable medical standards" means cardiac arrest accompanied by
 - (A) the presence of injuries incompatible with life, including incineration, decapitation, open head injury with loss of brain matter, or detruncation;
 - (B) the presence of rigor mortis;
 - (C) the presence of post mortem lividity; or
 - (D) failure of the patient to respond to properly administered resuscitation efforts;
- (2) "failure of the patient to respond" means without restoration of spontaneous pulse or respiratory effort by the patient;
- (3) "properly administered resuscitation efforts" means
 - (A) when a person authorized to perform advanced cardiac life support techniques is not available and the patient is not hypothermic, at least 30 minutes of properly performed cardiopulmonary resuscitation;

- (B) when a person authorized to perform advanced cardiac life support techniques is not available and the patient is hypothermic, at least 60 minutes of cardiopulmonary resuscitation properly performed in conjunction with rewarming techniques as described in the current State of Alaska Hypothermia and Cold Water Near-Drowning Guidelines published by the division of public health, Department of Health and Social Services; or

- (C) at least 30 minutes of cardiopulmonary resuscitation and advanced cardiac life support techniques properly performed by a person authorized to perform advanced life support services.

Report Of Harm Protection Of Vulnerable Adults

In Compliance with Alaska Statute 47.24.010

Central Intake – Reporting

Toll Free: 1-800-478-9996 • Anchorage: (907) 269-3666 • Fax: (907) 269-3648

Complete as Much Information as Possible

Date of Report:

Vulnerable Adult Information

Last Name: First Name: Middle Initial:
Date of Birth: Age: Gender (check one): Male: Female:
Street Address: Apartment:
City: Zip Code:
Phone Number:
Vulnerable Adult Resides with:

DESCRIBE LOCATION, IF NECESSARY, OF VULNERABLE ADULT:

A. Reporter Information

B. Your Name: Your Phone Number:
C. Your Agency Name: Your Occupation:
Your Address:
Has a Report Been Made to the Police? YES: NO:
If yes, to what Agency?
Your Relationship to the Vulnerable Adult:

OTHER PERSONS HAVING INFORMATION:

Name and Phone Number of Person:
Name and Phone Number of Person:

Name and Phone Number of Person:
Name and Phone Number of Person:

DESCRIBE VULNERABLE ADULT'S PHYSICAL AND MENTAL CONDITION / IMPAIRMENTS, IF ANY:

DESCRIBE PROBLEM SITUATION (USE ADDITIONAL PAPER IF NECESSARY):

Adult Protective Services is authorized by law to designate other agencies and providers to deliver supportive and protective services to vulnerable adults. A.S. 47/24.011

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Fairbanks North Star Borough Rescue Force Standing Orders Supplement

1ST Edition Fairbanks North Star Borough Rescue Task
Force Standing Orders Supplement

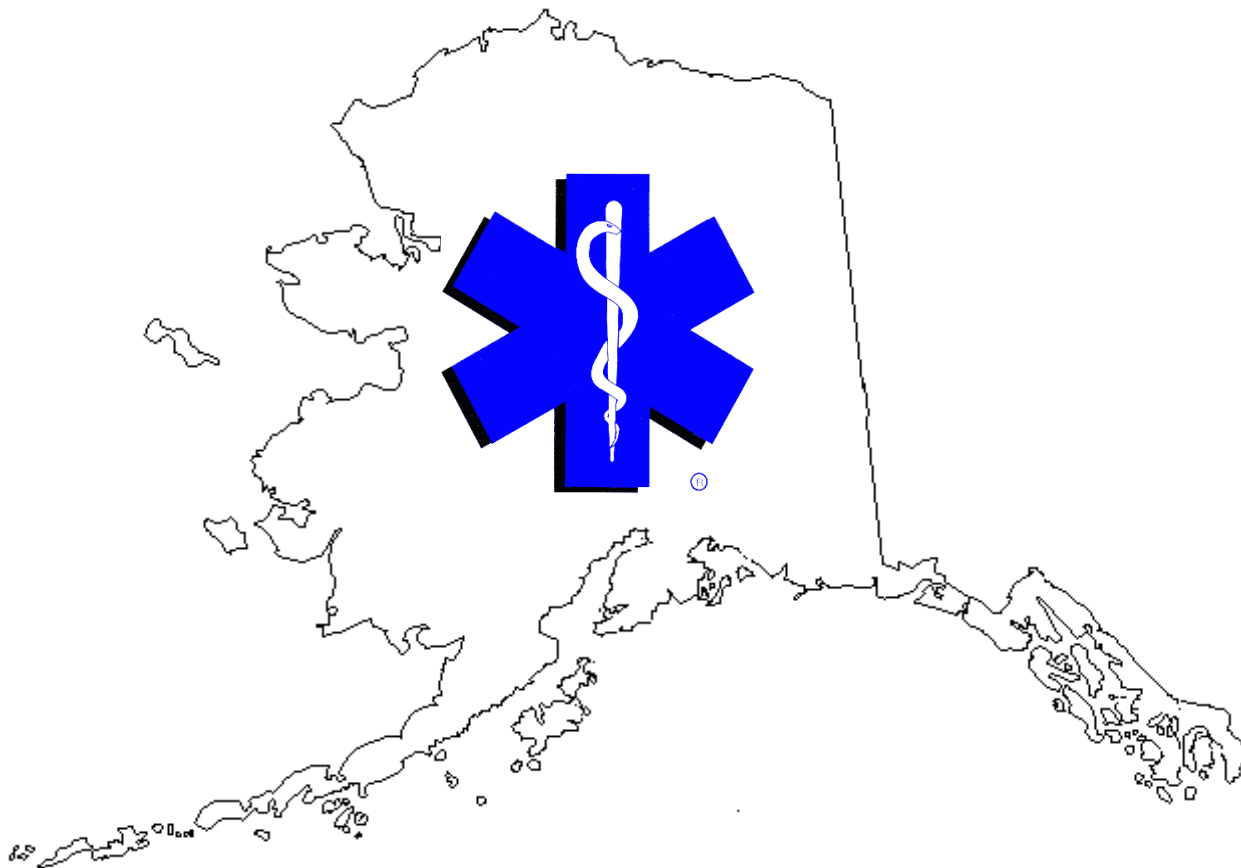


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Introduction:

This document is intended to act as a supplement to the FNSB standing orders for events in which a rescue task force (RTF) is deployed. During such an event in the direct and indirect threat phases this supplement will take precedence over the FNSB standing orders. During the evacuation phase of such an event the FNSB standing orders will be used if an alternative method is not specifically mentioned in this document. During such events providers should maintain the highest level of situational awareness possible with the realization that these situations can rapidly change. In this document any care in blue lettering will only be performed in a cold zone, or in a warm zone casualty collection point (CCP) if the tactical situation is acceptable to perform the care. Medication administration listed in this document will follow the protocols outlined in the FNSB standing orders 2020 edition. This document is an adaption of the 2020 TECC guidelines.

Providers will follow the principle of providing care to life threatening injuries first. Further they will instruct any patient capable of self-extricating to do so, even if EMS would not normally allow the patient to do so (A patient having chest pain for example).

The basis for decision making on appropriate level of treatment in such an event while operating as an RTF should function as follows: EMS element of an RTF tells the security element how much time they need to provide full care to the patient or patients in question, the security element then makes the decision if that is possible given the tactical situation.

It is imperative that Unified Command be established at the immediate outset of the event to allow coordinated response of EMS and law enforcement elements. Equally important is the combined training of EMS and LE agencies together prior to an incident and any subsequent deployment so as to facilitate a coordinated response during a critical event.

Treatment Protocols

DIRECT THREAT (DT) / HOT ZONE CARE

(Initial law enforcement entry team or an RTF engaged by shooter)

GOALS:

- 1) Accomplish the mission with minimal casualties.
- 2) Prevent any casualty from sustaining additional injuries.
- 3) Keep initial contact team maximally engaged in neutralizing the existing threat.
- 4) Minimize public harm.

Principles:

- 1) Establish tactical supremacy and defer in depth medical interventions if engaged in ongoing direct threat.
- 2) Threat mitigation techniques will minimize risk to casualties and the providers. These should include techniques and tools for rapid casualty access and egress.
- 3) Triage should be deferred to a later phase of care. Prioritization for extraction is based on resources available and the tactical situation.
- 4) Minimal or no trauma interventions are warranted. Moving the casualty to a warm or cold zone is the priority.
- 5) Only treatment for life-threatening, exsanguinating hemorrhage from an extremity should be considered:
 - a) Tourniquet application is the primary intervention to be considered in Direct Threat.
 - b) Consider instructing casualty to apply direct pressure to the wound if a tourniquet is not available or application is not tactically feasible.
- 6) Consider quickly placing or directing casualty to be placed in position to protect airway.

Direct Threat / Hot Zone Care Guidelines:

- 1) Mitigate any threat and/or move to a safer position
- 2) Priority remains on extracting, including self-extraction, casualty to a warm or cold zone.
- 3) Direct the casualty to stay engaged in any tactical operation if appropriate.
- 4) Direct the casualty to move to a safer position and apply self-aid if able.
- 5) Casualty Extraction
 - a) If a casualty can move to safety, they should be instructed to do so.
 - b) If a casualty is unresponsive, the scene commander or team leader should weigh the risks and benefits of a rescue attempt in terms of manpower, risk to rescuers, and likelihood of success. Remote medical assessment techniques should be considered.
 - c) If the casualty is responsive but cannot move, a tactically feasible rescue plan should be devised.
 - d) Recognize that threats are dynamic and may be ongoing, requiring continuous threat assessments.
- 6) Stop life threatening external hemorrhage only if tactically feasible:
 - a) Direct casualty to apply effective tourniquet if able.
 - b) Apply the tourniquet over the clothing as proximal-- high on the limb-- as possible.
 - c) Tighten until cessation of bleeding and move to safety. Consider moving to safety prior to application of the tourniquet if the situation warrants.

- d) For response personnel, tourniquets should be readily available and accessible with either hand.
- e) Consider instructing casualty to apply direct pressure to the wound if no tourniquet available or application is not tactically feasible.
- f) Consider quickly placing casualty, or directing the casualty to be placed, in position to protect airway if tactically feasible.

Skill Sets:

- 1) Tourniquet application
 - a) Commercially available tourniquets
 - i) CAT (Gen 7), MET, SOF – T, etc.
- 2) Tactical casualty movement and extraction.
- 3) Rapid placement in recovery position.

INDIRECT THREAT (IDT) / WARM ZONE CARE

(Normal RTF Operations)

Goals:

- 1) Maintain any and all care begun in the Direct Threat phase.
- 2) Stabilize the casualty as required to permit safe extraction to dedicated treatment sector or medical evacuation assets.

Principles:

- 1) Maintain tactical supremacy and complete the overall mission.
- 2) As applicable, ensure safety of both first responders and casualties by rendering weapons safe and/or rendering any adjunct tactical gear safe for handling.
- 3) Conduct dedicated patient assessment and initiate appropriate life-saving interventions as outlined in the DTC guidelines. DO NOT DELAY casualty extraction/evacuation for non-life-saving interventions.
- 4) Consider establishing a casualty collection point if multiple casualties are encountered.
- 5) Unless in a fixed casualty collection point, triage in this phase of care should be limited to the following categories:
 - a) Uninjured and/or capable of self-extraction
 - b) Deceased / expectant
 - c) All others
- 6) Establish communication with the tactical and/or command element and request or verify initiation of casualty extraction/evacuation.
- 7) Prepare casualties for extraction and document care rendered for continuity of care purposes.

Indirect Threat / Warm Zone Care Guidelines:

Law Enforcement Casualties should have weapons made safe once the threat is neutralized or if mental status is altered. (Preferably by Law Enforcement personnel)

Circulation:

- 1) Assess for unrecognized hemorrhage and control all sources of major bleeding. If not already done, use a tourniquet or an appropriate pressure dressing with deep wound packing to control life-threatening external hemorrhage that is anatomically amenable to such treatment.
 - a) Apply the tourniquet over the clothing as proximal-- high on the limb-- as possible, or if able to fully expose and evaluate the wound, apply directly to the skin 2-3 inches above wound (DO NOT APPLY OVER THE JOINT).
 - b) For any traumatic total or partial amputation, a tourniquet should be applied regardless of bleeding.
- 2) Junctional hemorrhage control:
 - a) If the bleeding site is too proximal for tourniquet application, consider:
 - i) Direct pressure
 - ii) Application of a junctional tourniquet if available
 - iii) Wound packing
 - iv) Use of X-Stat if available
- 3) Reassess all tourniquets that were applied during previous phases of care. Consider exposing the

injury and determining if a tourniquet is needed.

- a) Tourniquets applied hastily during DTC phase that are determined to be both necessary and effective in controlling hemorrhage should remain in place if the casualty can be rapidly evacuated to definitive medical care.
 - b) If ineffective in controlling hemorrhage or if there is any potential delay in evacuation to care, expose the extremity fully, identify an appropriate location 2-3 inches above the injury, and apply a new tourniquet directly to the skin. Once hemorrhage has stopped, the prior tourniquet can be loosened.
 - c) Before releasing any tourniquet on a casualty who has received IV fluid resuscitation for hemorrhagic shock, ensure a positive response to resuscitation efforts (e.g. improving mentation and peripheral pulses normal in character).
 - d) If a tourniquet is not needed, use other techniques to control bleeding and remove the tourniquet.
- 4) When time and the tactical situation permit, a distal pulse check should be accomplished on any limb where a tourniquet is applied. If a distal pulse is still present, consider additional tightening of the tourniquet or the use of a second tourniquet, side-by-side and proximal to the first, to eliminate the distal pulse.
 - 5) Expose and clearly mark all tourniquet sites with the time of tourniquet application. Also consider writing tourniquet application time on the patient's forehead or similar obvious location with indelible marker.

Airway:

- 1) Unconscious casualty without airway obstruction:
 - a) Chin lift or jaw thrust maneuver
 - b) Nasopharyngeal airway
 - c) Place casualty in the recovery position
- 2) Casualty with airway obstruction or impending airway obstruction:
 - a) Chin lift or jaw thrust maneuver
 - b) Nasopharyngeal airway
 - c) Allow casualty to assume position that best protects the airway, including sitting up
 - d) Place unconscious casualty in the recovery position.
- 3) If previous measures unsuccessful and time, equipment, and trained personnel are available, consider:
 - a) Supraglottic Devices.
 - b) Needle cricothyroidotomy (in children only)
 - c) Surgical cricothyroidotomy (with lidocaine if conscious)
 - d) Oro/nasotracheal intubation
- 4) Consider applying oxygen if available:
 - a) Restrict use to a CCP (casualty collection point).
 - b) Do not apply oxygen if by doing so it would hinder evacuation of the casualty.

Breathing:

- 1) All open and/or sucking chest wounds should be treated by immediately applying a vented occlusive seal to cover the defect.
- 2) Monitor the casualty for the potential development of a subsequent tension pneumothorax.
- 3) If tension pneumothorax is present or developing, decompress the chest on the side of the injury. Needle decompression should be performed with a 14-gauge, 3.25 inch (8 cm) needle/catheter.

- a) Insertion in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is lateral to the nipple line and is not directed towards the heart.
- b) Consider a lateral decompression at the 4th or 5th intercostal space, anterior to the mid-axillary line on the injured side. The needle should be inserted perpendicular to the chest wall

Intravenous (IV) access (CCP):

- 1) Start an 18-gauge, or larger, IV with/saline lock if indicated.
- 2) If fluid resuscitation is required and IV access is not obtainable, use the intraosseous (IO) route.

Tranexamic Acid (CCP):

- 1) If casualty is anticipated to need significant blood transfusion (e.g. presents with hemorrhagic shock, one or more amputations, penetrating torso trauma, or evidence of severe bleeding) consider administration of 1 gram of TXA in 100cc NS or LR IV as soon as possible. If casualty is otherwise young and healthy, consider giving 2 grams of TXA in 250 cc NS or LR over one hour, particularly if extrication and transport looks to be delayed. Do not administer later than 3 hours after injury.

Fluid Resuscitation (CCP):

- 1) Assess for hemorrhagic shock.
 - a) Altered mental status (in the absence of head injury) and weak/absent peripheral pulses are the best field indicators of shock.
 - b) Abnormal vital signs (e.g. Systolic Blood Pressure (SBP) < 90mm Hg and Heart Rate > 100.
- 2) If not in shock:
 - a) No IV should be given
 - b) PO fluids permissible if:
 - i) Conscious, can swallow, and has no injury requiring potential surgical intervention
 - ii) If confirmed long delay in evacuation to care
- 3) If in shock:
 - a) Administer appropriate IV fluid bolus (500cc NS/LR) and re-assess after initial fluid bolus complete and give second fluid bolus if signs of shock are still present.
 - b) If a casualty with an altered mental status due to suspected TBI has a weak or absent peripheral pulse, resuscitate as necessary to maintain a desired systolic blood pressure of 90mmHg or a strong palpable radial pulse.

Prevention of hypothermia:

- 1) Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.
- 2) CCP and triage areas should be placed within areas protected from the elements whenever possible.
- 3) Replace wet clothing with dry if possible. Place the casualty onto a insulated surface as soon as possible.
- 4) Cover the casualty with commercial warming device (HPMK), dry blankets, poncho liners, sleeping bags, or anything that will retain heat and keep the casualty dry.
- 5) Warm fluids are preferred if IV fluids are required.

Penetrating Eye Trauma:

- 1) If a penetrating eye injury is noted or suspected, protect the eye from external pressure and

stabilize any impaled object to prevent movement during extraction:

- a) Do not apply any dressing directly to the eye/closed eyelid.
- b) Apply a rigid eye shield over the affected eye(s).
- c) If no rigid eye shield is available, use casualties own or any other protective eyewear available (goggles, etc.).

Reassess casualty:

- 1) Complete secondary survey checking for additional injuries. Inspect and dress known wounds that were previously deferred.
- 2) Consider splinting known/suspected fracture to include applying pelvic binding techniques for suspected pelvic fractures.

Analgesia:

- 1) Provide adequate analgesia as necessary for the injured.
 - a) Monitor for adverse effects such as respiratory depression or hypotension.

Burns:

- 1) Facial burns, especially those that occur in closed spaces, may be associated with inhalation injury. Aggressively monitor airway status and oxygen saturation in such patients and consider early definitive airway management for respiratory distress or oxygen desaturation.
- 2) Smoke inhalation, particularly in a confined space, may be associated with significant carbon monoxide and cyanide toxicity. Patients with signs of significant smoke inhalation plus:
 - a) Significant symptoms of carbon monoxide toxicity should be treated with high flow oxygen if available.
 - b) Significant symptoms of cyanide toxicity should be considered candidates for cyanide antidote administration.
- 3) Estimate total body surface area (TBSA) burned to the nearest 10% using the appropriate locally approved burn calculation formula.
- 4) Cover the burn area with dry, sterile dressings and initiate measures to prevent heat loss and hypothermia.
- 5) If burns are greater than 20% of Total Body Surface Area, fluid resuscitation should be initiated as soon as IV/IO access is established. If hemorrhagic shock is also present, resuscitation for hemorrhagic shock takes precedence over resuscitation for burn shock as per the guidelines.
- 6) All previously described casualty care interventions can be performed on or through burned skin in a burn casualty.
- 7) Analgesia in accordance with FNSB Standing Orders should be administered.
- 8) Aggressively act to prevent hypothermia for burns greater than 20% TBSA.

Monitoring:

- 1) Apply appropriate monitoring devices and/or diagnostic equipment if available. Obtain and record vital signs.

Prepare casualty for movement:

- 1) Consider environmental factors for safe and expeditious evacuation.
- 2) Secure casualty to a movement assist device when available.
- 3) If vertical extraction required, ensure casualty secured within appropriate harness, equipment assembled, and anchor points identified.

Communicate with the casualty if possible.

- 1) Encourage, reassure and explain care.

Cardiopulmonary resuscitation:

- 1) CPR within a tactical environment for victims of blast or penetrating trauma who have no pulse, no ventilations, and no other signs of life will not be successful and should not be attempted.
 - a) However, consider bilateral needle decompression for victims of torso or multi-trauma with no respirations or pulse to ensure tension pneumothorax is not the cause of cardiac arrest prior to discontinuation of care.
- 2) In certain circumstance, such as electrocution, drowning, a-traumatic arrest, or hypothermia, performing CPR may be of benefit and should be considered in the context of the tactical situation.

Documentation of Care:

- 1) Document clinical assessments, treatments rendered, and changes in the casualty's status. Forward this information with the casualty to the next level of care.
- 2) Consider implementing a casualty care card that can be quickly and easily completed by non-medical first responders

Skill set:

- 1) **Hemorrhage Control:**
 - a) Apply Tourniquet
 - b) Apply Direct Pressure
 - c) Apply Pressure Dressing
 - d) Apply Wound Packing
 - e) Apply Hemostatic Agent
- 2) **Airway:**
 - a) Apply Manual Maneuvers
 - b) Insert Nasal pharyngeal airway
 - c) Insert Supraglottic Device.
 - d) Perform Tracheal Intubation
 - e) Perform needle cricothyrotomy (children only)
 - f) Perform surgical cricothyrotomy
- 3) **Breathing:**
 - a) Application of effective occlusive chest seal with vent.
 - b) Assist Ventilations with Bag Valve Mask
 - c) Apply Oxygen
 - d) Apply Occlusive Dressing
 - e) Perform Needle Chest Decompression
- 4) **Circulation:**
 - a) Gain Intravascular Access
 - b) Gain Intraosseous Access
 - c) Apply saline lock
 - d) Fluids and medications.
- 5) **Wound management:**
 - a) Apply Eye Shield
 - b) Apply Dressing for evisceration

- c) Apply Extremity Splint
 - d) Apply Pelvic Binder
 - e) Initiate Basic Burn Treatment
 - f) Initiate Treatment for Traumatic Brain Injury
- 6) **Prepare Casualty for Evacuation:**
- a) Move Casualty (drags, carries, lifts)
 - b) Apply Spinal Immobilization Devices
 - c) Secure casualty to litter
 - d) d. Initiate Hypothermia Prevention
- 7) **Other Skills:**
- a) Perform Hasty Decontamination
 - b) Initiate Casualty Monitoring
 - c) Establish Casualty Collection Point

EVACUATION (EVAC) / COLD ZONE CARE

(Once patients are removed from the area of the threat)

Goals:

- 1) Maintain any lifesaving interventions conducted during DTC and ITC phases.
- 2) Provide rapid and secure extraction to an appropriate level of care.
- 3) Avoid additional preventable causes of death.

Principles:

- 1) Reassess the casualty or casualties.
- 2) Utilize a triage system/criteria per FNSB standing orders, that considers priority AND destination.
- 3) Utilize additional resources to maximize advanced care.
- 4) Avoid hypothermia.
- 5) Communication is critical:
 - a) Between law enforcement command and EMS command (Unified command).
 - b) Between law enforcement elements and EMS elements, especially within the rescue task force teams.
 - c) Between EMS command and the receiving medical facility(s).
- 6) Maintain situational awareness- In dynamic events, there are NO threat free area (e.g. green or cold zone).

Evacuation / Cold Zone Care Guidelines:

- 1) Reassess all treatment performed in earlier phases.
- 2) Care during this phase should be guided by FNSB standing orders.
- 3) For incidents with numerous casualties be prepared to treat patients on scene for an extended period of time.

Extended Care

(Delayed on scene)

Goals:

- 1) Maintain all previous interventions unless:
 - a) The intervention is no longer required
 - b) The intervention is beginning to cause harm
- 2) Avoid all preventable causes of death

Principles:

- 1) Continually assess all patients
- 2) Readdress triage as needed
- 3) Avoid Hypothermia and consider active warming if needed

Extended Care Guidelines:

Care guidelines in this section are to be utilized only if transport to definitive care is delayed longer than 2 hours.

- 1) Consider removing tourniquets applied in earlier phases **IF** bleeding can be controlled in another manner.
 - a) Only considered in patients not in shock who are otherwise well perfused.
 - b) Only considered in patients in whom complete hemostatic is possible with conventional dressing (large pressure dressing possibly utilizing hemostatic dressing material).
 - c) If re-bleed does not occur with tourniquet take down, leave loosened tourniquet in place should bleeding recur later.
 - d) Consider contacting medical control before taking down any tourniquet.
- 2) Consider gaining IV/IO access on patients where access was not gained before.
- 3) Consider if the triage area is outside moving to inside a structure to assist in preventing hypothermia.
- 4) Consider requesting a physician from FMH or BACH for on scene medical control.
- 5) Only consider beginning CPR if there are resources (equipment and personnel) to actually carry out resuscitation beyond 10-15 minutes.
- 6) Consider joint reduction if distal extremity appears to have compromised blood flow.
- 7) Consider beginning second dose of TXA (1 gram over 8 hours).
- 8) Consider delivery of antibiotics if so equipped and after medical control contact.

Appendices

Casualty Collection Point:

1. May be interior or exterior depending on the situation.
2. Ideally an exterior location will be identified by the command group prior to/simultaneously to RTF's entering the building.
3. Interior locations will be identified and developed, as needed depending on the tactical situation and number of casualties, and environmental conditions.
4. IC should consider moving additional RTF's and/or equipment to a CCP as necessary given number of casualties and the tactical situation.

Resupply of RTF's:

1. The first-in Rescue Task Force team(s) are to move from casualty to casualty until:
 - a. They run out of casualties to treat, or
 - b. They run out of supplies
2. If the RTF runs out of supplies they may either:
 - a. Return to the command post for resupply, usually extricating casualties in the process, or
 - b. Have a follow-on team bring them more supplies.
3. The dynamics of resupply will be determined by:
 - a. The number of personnel available, both law enforcement and EMS
 - b. The number of casualties and nature of wounds
 - c. The tactical situation