

Universal

- 4** Airway
- 6** Breathing (Hypoxia)
- 8** Circulation (Shock)
- 10** Hypertension
- 12** Bradycardia
- 14** Tachycardia
- 16** Fever
- ④ **18** Hyperkalemia
- 20** Pain
- 22** Nausea/Vomiting

Medical

- ④ **24** Medical CODE
- ④ **26** Medical ROSC
- 28** Chest Pain
- 30** Dyspnea (SOB)
- ④ **32** Allergic Reaction
- 34** Abdominal Pain
- 36** Altered LOC / Syncope
- 38** Diabetic
- ④ **40** Overdose / Tox
- ④ **42** Seizure
- ④ **44** Stroke
- 46** Psychiatric
- 48** Pregnancy/Delivery
- ④ **50** Neonate (Newborn)

Trauma

- 52** Trauma CODE
- 54** Trauma ROSC
- ④ **56** Major Trauma
- 58** Bleeding
- 60** Immobilization (SMR)
- 62** Head Injury
- 64** Trunk Injury
- ④ **66** Extremity Injury
- ④ **68** Crush Injury
- 70** Cold / Heat
- ④ **72** Burns
- 74** Inhalation
- 76** Sting / Bite
- ④ **78** Epistaxis

Critical Care

- ④ **80** Intubation / RSI
- ④ **82** Sedation / Vent
- 84** Vasopressors
- ④ **86** STEMI
- 88** Malignant HTN
- 90** Sepsis

- ④ **92** Procedures & Policy
- 114** Drug Reference
- ④ **136** Peds Reference

WVEMS Protocols 2024

Protocols, Procedures, Policies & Medications
of the Western VA EMS Medical Direction Committee

Editors: Drs. Ekey, LePera, and Stanley



Published under the: Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy send a letter to PO Box 1866, Mtn View, CA 94042 or creativecommons.org/licenses/by-sa/4.0/

WVEMS Council

1944 Peters Creek Rd.
Roanoke, VA 24017

Phone: [540-562-3482](tel:540-562-3482)

Web: <https://wvems.org>

Email: western@vaems.org

Protocol Flow and Intervention Symbols

Indications

Use Judgement

Don't Forget

Important Note

Concept
• And Details

WARNING

Basic Life Support (BLS)

EMR

EMT

AEMT

Advanced Life Support (ALS)

I Intermediate

P Paramedic

P Critical Care Paramedic

Welcome to the WVEMS Protocols **2024**

- Think of this like a **tool box**, not a **cookbook**.
- You should **use several protocols** at the same time on every call.
- You may use any intervention marked for your level or lower.

Basic procedures are assumed for every call.

- Don't forget: scene safe, BSI, ABC's, call for **ALS**, notify the ED, etc.
- Every patient should have a full assessment including vital signs.
- Ask about **medical allergies** and **pregnancy** before giving meds.

Call for online **Medical Direction** at any time for advice on:

- Any questions, problems, or if uncertain for any reason.
- Getting permission to **deviate** from these protocols.
- If unable to contact, remember: **get the patient to the hospital**.

Protocols mean you **can**, but not always that you **should**.

- Use only enough to stabilize and/or improve. Don't follow blindly.
- Skip anything unnecessary. Not every box needs to be completed.
- The listed **order suggests importance**, but is not absolute.

Severity is a **subjective judgement** that requires thought.

- Not all decisions are black and white. Use this text as a guide.
- **Reassess and restart** protocols as needed during a call.
- Use good clinical sense to decide what takes precedence.

Presume routine things when appropriate, like:

- SpO₂, EKG, EtCO₂, glucometer, saline lock, phlebotomy, etc.
- Regular layperson **first aid** treatments like splinting & band-aids.
- Note: protocols may also include reminders (like "12-Lead").

Pediatric considerations are **included** in every protocol.

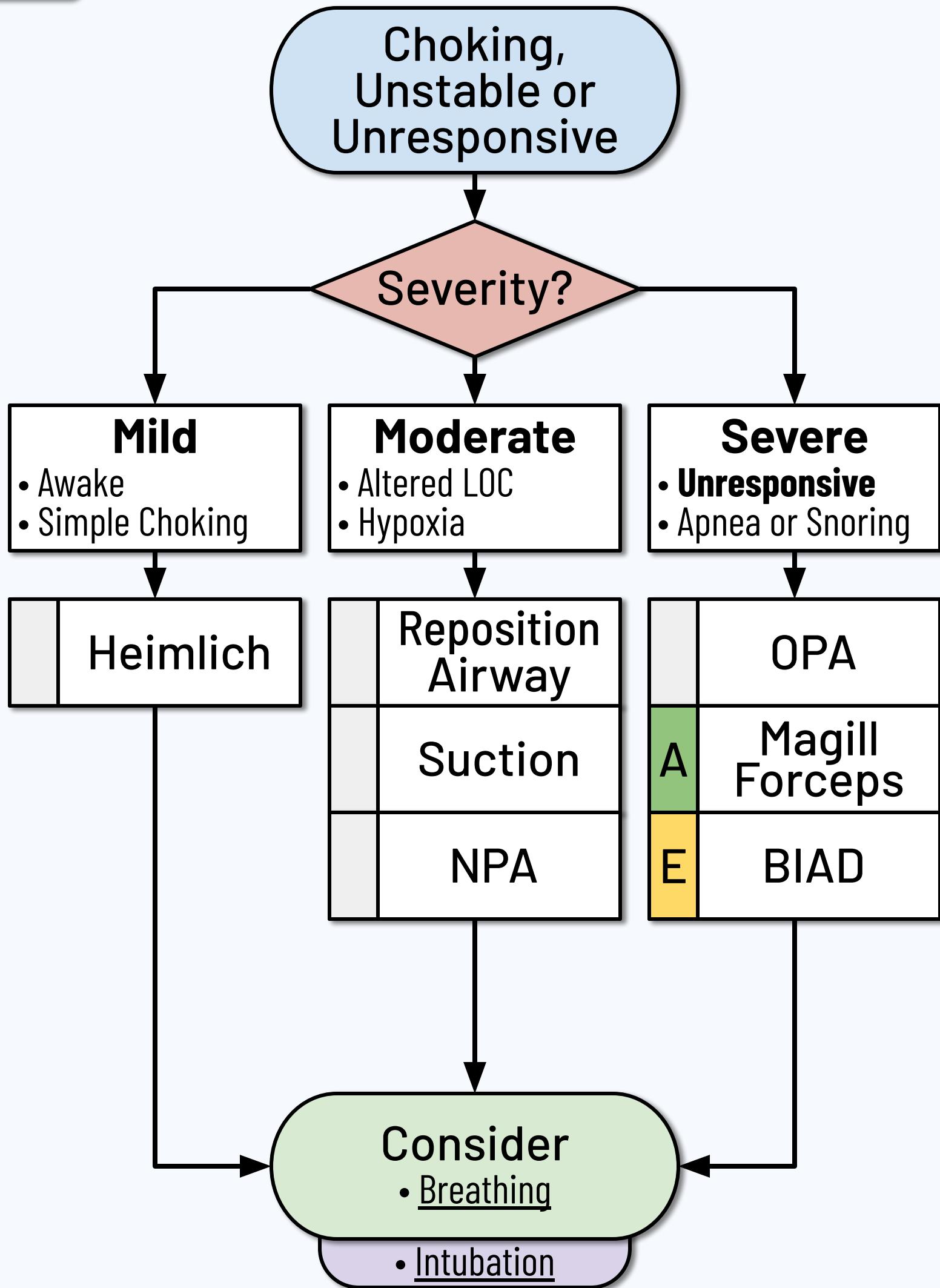
- Patients 14 y/o and over (14+) are generally given **adult** therapy.
- Children (1 - 13 y/o) and Infants (<1 y/o) are considered **peds**.
- Use Peds Reference for peds dosing & **adults under 110 lbs** (50 kg).

Critical Care (CC) is for credentialed **paramedics only**.

- Provider's responsibility to maintain **mandatory prerequisites**.
- Must be approved **for that specific protocol** by the agency OMD.
- All deadlines expire on the last day of the month (a grace period).

References are included. This text is not comprehensive.

- Medications may appear as **brand name®** or **generic**.



Airway Imperatives

- Maintain the simplest effective airway. **Escalate only if needed.**
- If **BIAD** fails, **try again with a different size.**
 - Most common failure of a BIAD is inappropriate size.
- Use several techniques to confirm airway:
 - Physical Exam: lung sounds, skin color, chest rise, etc.
 - Vitals: rising SpO₂, good EtCO₂ (capnography or capnometry)
- Be prepared to escalate airway if signs of **Poor Perfusion**.
- **E** May Suction Nose/BIAD/ETT/trach/stoma with flexible cath.

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Notes

- Secure BIAD well. Use tape or manufactured holding device.
 - May place c-collar (even without trauma) to help stabilize.
 - **A** Consider placing an OG-Tube if BIAD will accommodate it.
- Use caution with NPA if any signs of facial trauma.
- Reposition with: Head Tilt / Chin Lift (med) or Jaw Thrust (trauma).
- Endotracheal intubation is **not included** in this protocol.
 - Consider Intubation if appropriate and cleared for Critical Care.

Pediatrics

- Be suspicious for an airway obstruction, especially with **stridor**.
- Use back blows if indicated. Do not use blind finger sweeps.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 9

Dyspnea or
SpO₂ under 95%

Provide O₂

Severity?

Mild

- Awake & Oriented
- Subjective Dyspnea

Moderate

- Resps Inadequate
- Cyanosis

Severe

- Respiratory Failure
- Penetrating Injury

Position of Comfort

BVM
Assist

BVM
Ventilate

E NIPPV

Chest Seal

I Needle Decompress

Consider
• Airway, Dyspnea

• Ventilator

Breathing Imperatives

- Dyspnea with **penetrating trauma** is a **severe** problem.
 - Apply a chest seal to any penetrating injury to neck or trunk.
 - Do not wait for hypoxia to develop.
- Spontaneous or traumatic **PTX** can be a **severe** problem.
 - Needle Decompress for Hypotension or persistent hypoxia.
- BVM: Use two providers and two handed technique if able.
 - **Use EtCO₂** and **maintain 35-45 mmHg**. Avoid hyperventilation.
 - During CPR: alternate **30 : 2** until BIAD (or ETT) is placed.
- NIPPV: Requires a patient that is awake and compliant.
 - Contraindicated with vomiting, hypotension or altered LOC.

BVM Rate

- Adult: **Q 6 sec** (10 /min)
- Peds: **Q 2 sec** (20-30 /min)

Notes

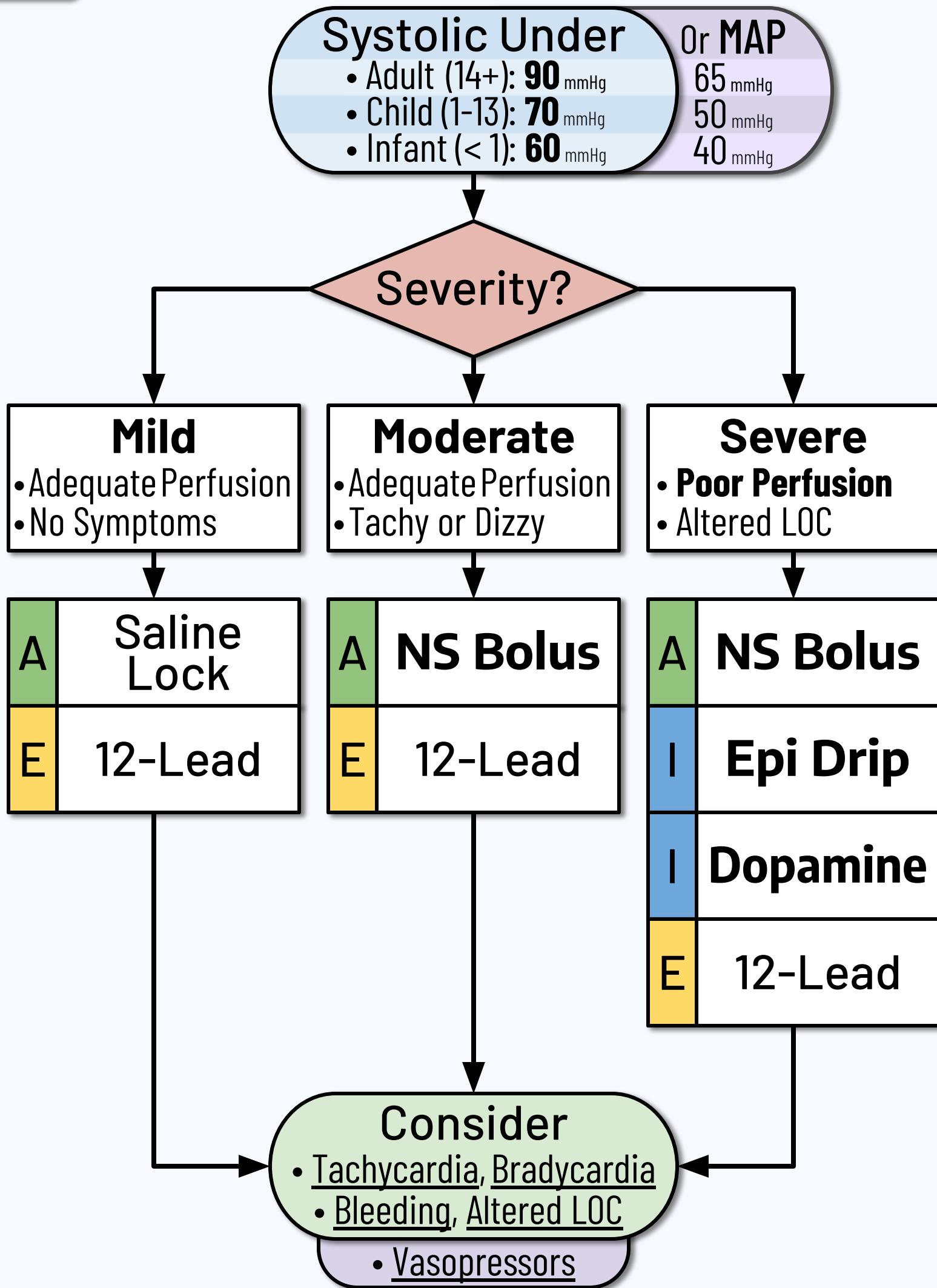
- Provide O₂ at appropriate doses. Titrate for effect.
 - Nasal Cannula (NC): **1 - 6 L/min**
 - Non-Rebreather (NRB): **10 - 15 L/min**
- Consider **reducing** supplemental O₂ if SpO₂ rises above 98%.
 - Hyperoxia can make some conditions worse, **especially COPD**.
 - Target SpO₂ of 88-92% for adults with isolated **COPD**.
- If SpO₂ unavailable or machine fails: use good clinical judgment.
- **SCUBA** injury may cause hypoxia: consider if any recent diving.
- Consider Ventilator if appropriate and cleared for Critical Care.

Pediatrics

- Refer to Neonate for any peds **under 1 month** (≤ 30 days) old.
- Use caution and appropriately sized BVM to prevent barotrauma.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 10



NS Bolus: 1,000 mL IV/IO x2

Epi Drip: 1 gtt/s IV/IO Titrated Drip

Dopamine: 5 mcg/kg/min IV/IO Titrated Drip

Adult
Doses

Shock Imperatives

- Consider underlying causes:
 - Bradycardia, Tachycardia
 - Cardiac, Anaphylaxis
 - Diabetic, Overdose / Tox
 - Major Trauma, Exposure

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Medication

- **NS Bolus** (0.9% Saline): indicated for **poor perfusion**.
 - Recheck lung sounds before and after fluid administration.
- **Epi Drip** (Epinephrine): Mix and use as follows:
 - Add 1 mg **Epi** into a 1,000 mL bag of NS (makes it 1 mcg/mL).
 - Adults (14+ y/o): Use a macro drip (10 or 15 gtt/mL) set.
 - Peds (0-13 y/o): Use a micro drip (60 gtt/mL) set.
 - Start at 1 drop per second and **titrate as needed**.
 - Avoid **Epi** if active chest pain and confirmed STEMI.
- **Dopamine** (Intropin[®]): for medical causes refractory to **Epi**.
 - **Use a micro drip** (60 gtt/mL) set. May titrate **up to 4x** if needed.
 - Average adults start around **1 drop every 5 sec** (with micro set).

Notes

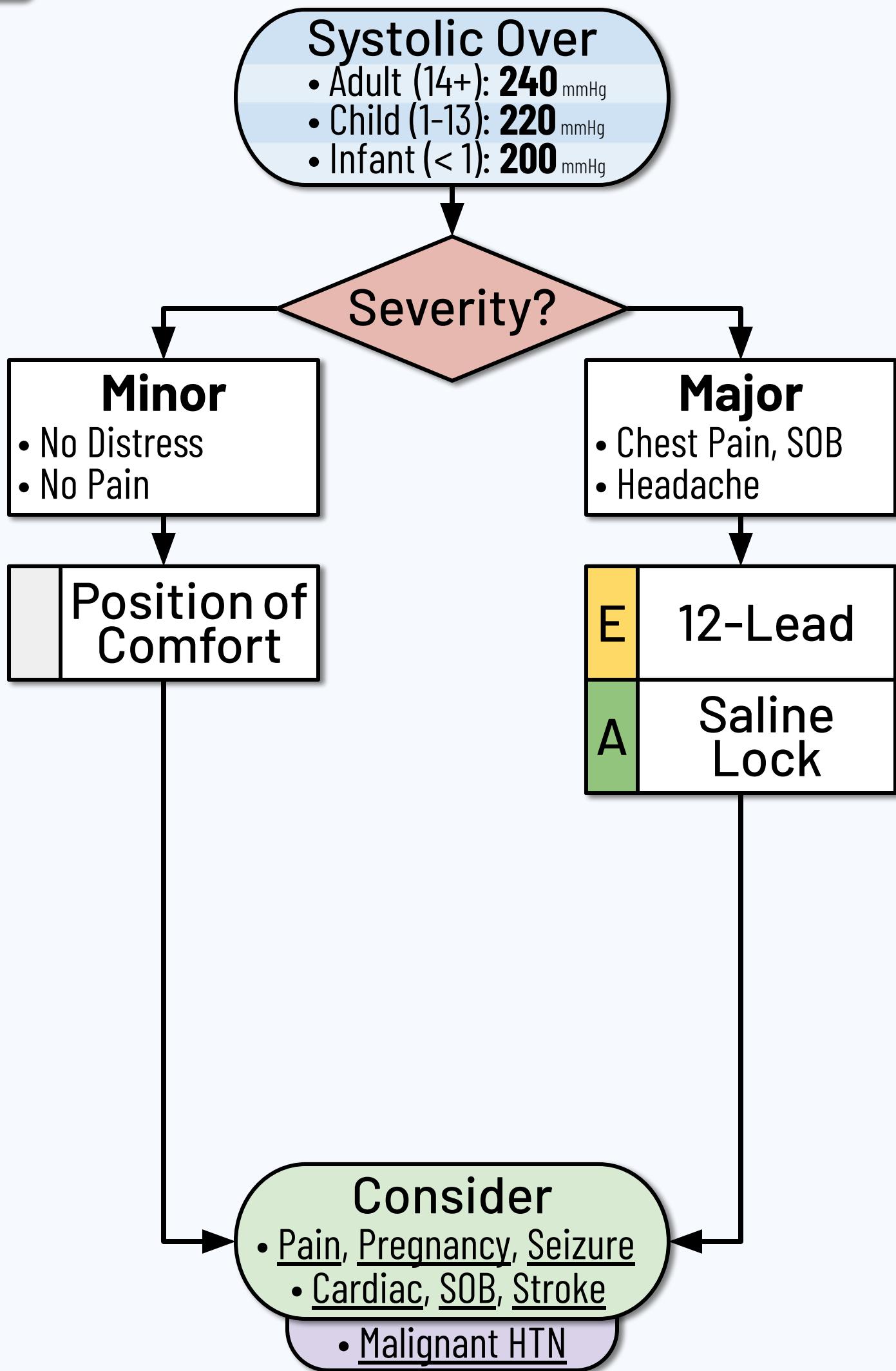
- Give fluids and reassess. Start pressors if poor response.
- Mean Arterial Pressure (**MAP**) is a better indicator when available.
 - Consider Vasopressors if appropriate & cleared for Critical Care.

Pediatrics

- The majority of peds decompensation is airway related.
- Fluids are important for hypotension. Pressors are a last resort.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vitals: <https://emedicine.medscape.com/article/2172054> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7, 29



Hypertension Imperatives

- Confirm elevated systolic BP with two reliable blood pressures.
- HTN is a frequent reaction to Pain and acute physiologic insult.
 - Investigate and **treat pain & underlying causes** first.
- Even mild HTN (SBP>160 mmhg) in late Pregnancy may be pathologic.
 - It may progress to eclampsia. Be ready to treat for Seizures.
 - Consider tx for Preeclampsia if indicated and cleared for CC.
- Inappropriate use of antihypertensives can **cause harm**.
 - Lowering BP during a stroke can **cause harm**.

Notes

- Many other **underlying causes** can result in significant HTN.
 - Consider Cardiac pathology if any chest pain.
 - Consider CHF and pulmonary edema if any dyspnea.
 - Consider Stroke if any acute focal neurologic deficits.
 - Consider OD/Tox if any recent stimulant or illicit drug use.
 - Consider Psych if overt anxiety from recent emotional triggers.
 - Consider Head Injury if any history of trauma or signs of injury.
- Ask about new or recent changes to cardiac or **BP medications**.
- Consider Malignant HTN if indicated & cleared for Critical Care.

Pediatrics

- Pathologic HTN is unlikely in peds. Treat underlying causes.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vitals: <https://emedicine.medscape.com/article/2172054> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7

Pulse Under

- Adult (14+): **60** /min
- Child (1-13): **70** /min
- Infant (< 1): **80** /min

Severity?**Mild**

- Adequate Perfusion
- No Symptoms

Moderate

- Adequate Perfusion
- Chest Pain, Weak

Severe

- Poor Perfusion
- Unresponsive

E 12-Lead**A** Saline Lock**E** 12-Lead**I** Atropine**I** Pacing**Epi****Peds****E** 12-Lead

- Consider**
- Pain, Breathing, Hyper K⁺
 - Shock, N/V, OD / Tox

Atropine: 1 mg

IV/IO Q 5 min x3

Adult**Epi:** Use Peds Reference

IV/IO Q 5 min

Peds

Bradycardia Imperatives

- Investigate & consider tx of underlying causes, like Hypothermia.
 - Consider Overdose if appropriate (many meds cause brady).
 - Slow, wide complex bradycardia may be due to Hyperkalemia.
- **I** May try **pacer magnet** to improve rate. Do **not** use on AICD.

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Hypotension
 - Dyspnea, Tachypnea

Medications

- **Atropine**: may not be effective (but is also not harmful) for:
 - Heart Transplant, 3° Heart Block
- **Epi** (Epinephrine): Preferred agent over **Atropine** in peds.

Notes

- **Pacing**: Can start at **80 bpm / 80 mA**. Escalate mA as needed.
 - Treat Pain and/or Anxiety from pacing as soon as appropriate.

Pediatrics

- Refer to Neonate for any peds **under 1 month** (≤ 30 days) old.
- Frequently a Breathing problem: don't forget O₂.
- Even a **single pill** of some meds can cause severe bradycardia.
 - Consider opiate, Ca²⁺ or β-blocker Overdose.
- Consider effects of maternal medication in breast milk.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vitals: <https://emedicine.medscape.com/article/2172054> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 13, 20

Pulse Over

- Adult (14+): **100** /min
- Child (1-13): **130** /min
- Infant (< 1): **160** /min

Severity?**Mild**

- Adequate Perfusion
- Simple Tachycardia

Moderate

- Adequate Perfusion
- **Critical Arrhythmia**

Severe

- Poor Perfusion
- **Critical Arrhythmia**

E 12-Lead**A** NS Bolus**E** 12-Lead**A** NS Bolus**I** Cardioversion**E** 12-Lead**I** Magnesium
If Torsades**A** NS Bolus**I** AdenosineIf QRS \leq 120 ms**I** AmiodaroneIf QRS $>$ 120 ms**Consider**

- Circulation, Pain
- Fever, Bleeding

Adult Doses**NS Bolus:** 1,000 mL IV/10 x1**Adenosine:** 12 mg IV/10 Q 5 min x2**Amiodarone:** 150 mg IV/10 over 10 min**Magnesium:** 2 grams IV/10 x1

Tachycardia Imperatives

- Must distinguish a simple tachycardia from a critical arrhythmia.
- **Simple Tachycardias** (e.g. Sinus Tach) occur for many reasons.
 - Reactive causes like: Shock, Pain, Fever or Bleeding, etc.
 - Hidden causes like: OD / Tox, Psychiatric or Anaphylaxis, etc.
 - Cardiac causes like: A-Flutter or A-Fib w/ RVR, etc.
 - Treat the cause. Avoid anti-arrhythmics or cardioversion.
- **Critical Arrhythmias** (e.g. SVT, V-Tach w/pulse) are usually **faster**.
 - But a fast pulse is not always critical. Judgement is necessary.
 - **I** May try vagal maneuvers (e.g. modified valsalva).

Critical Arrhythmia

- Suspect if pulse over:
 - Adult (14+): **150** /min
 - Child (1-13): **180** /min
 - Infant (<1): **220** /min

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Medications

- **Adenosine** (Adenocard[®]): Give **rapid IV push**.
 - Use caution in patients with a history of WPW, COPD or asthma.
- **Amiodarone** (Pacerone[®]): Give over 10 min IV drip.

Notes

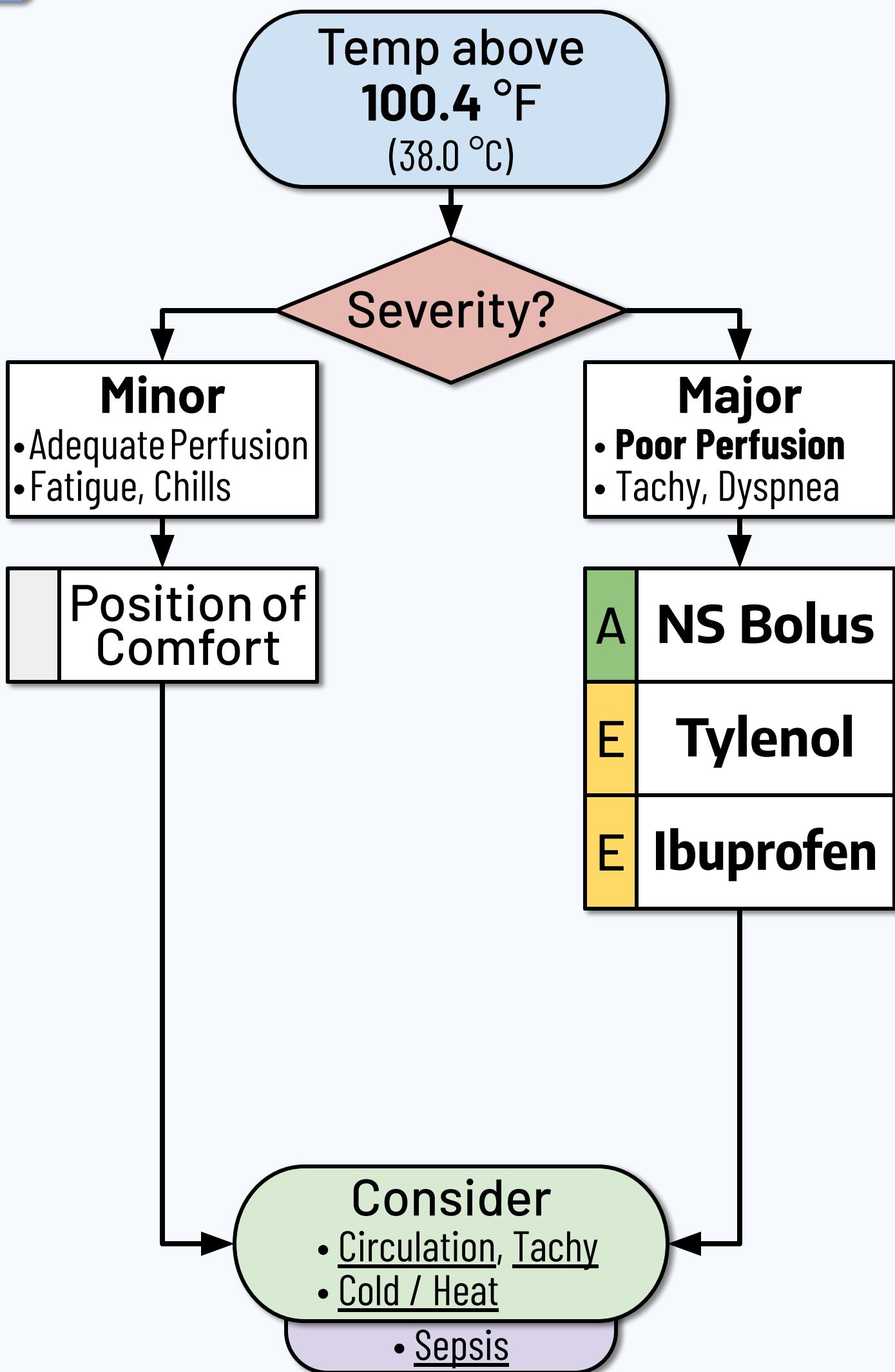
- Cardioversion: Enable **SYNC**. Start at **100 J**. Escalate as needed.
 - Alternative: follow manufacturer's or OMD's dosing guidance.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vitals: <https://emedicine.medscape.com/article/2172054> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 13, 20



NS Bolus: 1,000 mL	IV/IO x1	Adult Doses
Tylenol: 500 mg	PO Q 15 min x2	
Ibuprofen: 400 mg	PO Q 15 min x2	

Fever Imperatives

- Use a **mask** for any cough or respiratory disease (URI, Flu, etc).
 - Consider enhanced PPE for known pathogens (COVID, Ebola, etc).
- Fever is a response to an **infection**.
 - Hyperthermia caused by environment or drugs is different.
 - Fever medications are contraindicated in Hyperthermia.

Medications

- **Tylenol**[®] (Acetaminophen): avoid if end stage liver disease
- **Ibuprofen** (Advil[®], Motrin[®]): avoid if **active** GI bleeding

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Notes

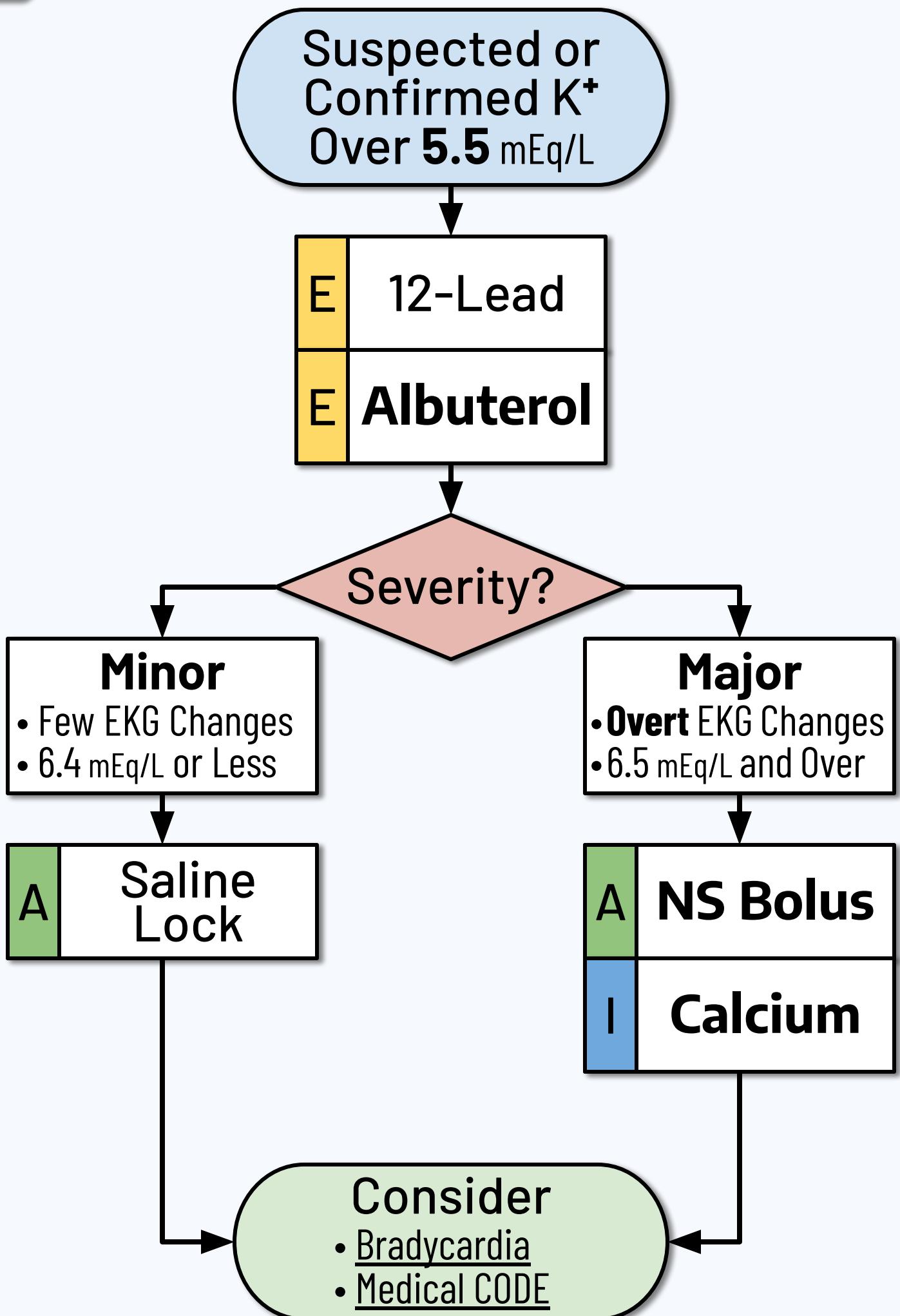
- Temporal thermometers are inaccurate on sweaty skin.
- Oral thermometers are inaccurate after PO fluids or while talking.
- Consider Sepsis if appropriate and cleared for Critical Care.

Pediatrics

- Peds under 5 y/o may have a Seizure caused by fever.
 - It is usually self limiting and does not require intervention.
 - Consider intervention if longer than 5 min or Seizure reoccurs.
- Breaking tablets in half is appropriate. Do not break capsules.
- Consider removing excessive clothing. Dress children normally.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vitals: <https://emedicine.medscape.com/article/2172054> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 13

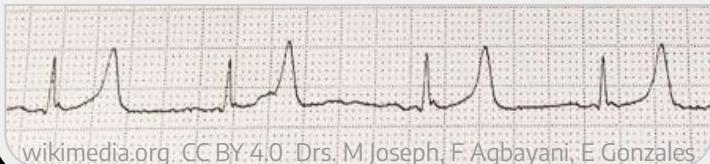


Albuterol: 10 mg NEB (4 nebs) x1	Adult Doses
NS Bolus: 1,000 mL IV/IO x2	
Calcium: 1 gram IV/IO over 10 min	

Hyperkalemia Imperatives

- Be aggressive with treatment if there are any EKG changes.
 - Elevated potassium can be critical. **Don't delay transport.**

Hyper K⁺ EKG



K⁺ EKG Changes

- From minor to life threat:
 - Peaked T-waves
 - Long PRI / Loss of P-wave
 - Wide QRS (over 120 ms)
 - Slow IVR (then **sine wave**)

Medications

- **Albuterol** (Ventolin[®]): May give without an EKG if hyperkalemic.
 - Give **four** (4x) standard nebulizer treatments back-to-back.
- **NS Bolus** (0.9% Saline): Aggressive fluids help dilute potassium.
 - Consider aggressive fluids even without Hypotension.
 - Avoid aggressive/prophylactic fluids for **dialysis** patients.
- **Calcium** (Chloride): **Avoid** with **Rocephin**[®] or Digoxin[®] (fatal).

Notes

- Consider hyperkalemia in any **dialysis** or renal failure patient.
 - If called to a dialysis center, inquire about the last K⁺ level.
 - Avoid NIBP and/or IVs in the same extremity as dialysis access.
- Consider hyperkalemia during any Crush or suspension injury.

Pediatrics

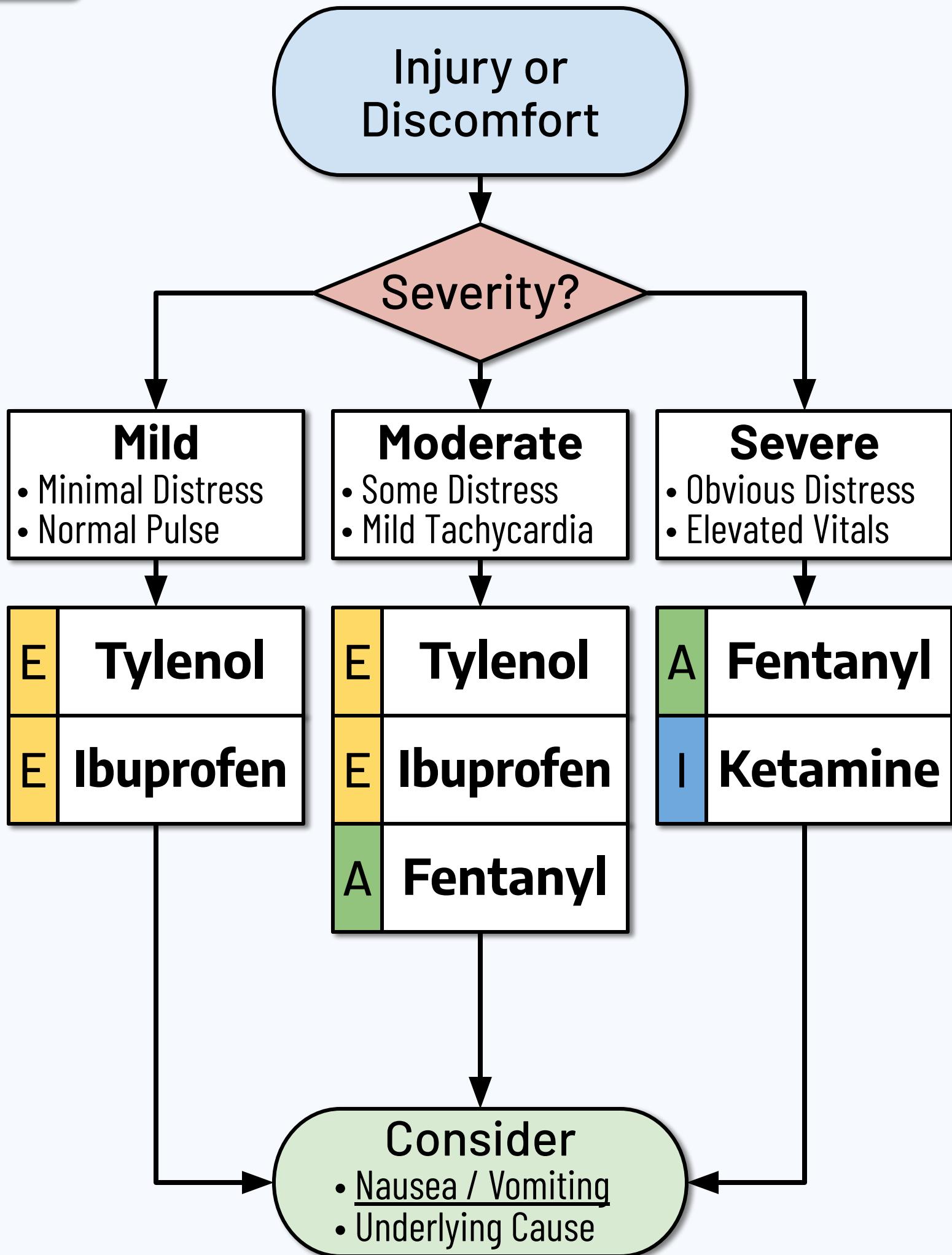
- Use Peds Reference or other approved source for peds dosing.

NEMESIS: 9914089

Reviewed: Dec 2023

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Hyperkalemia: <https://emedicine.medscape.com/article/240903> [Ver: 10/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 28



Tylenol: 500 mg	PO	Q 15 min x2	Adult Doses
Ibuprofen: 400 mg	PO	Q 15 min x2	
Fentanyl: 50 mcg	IV/IO, IM/IN	Q 5 min x4	
Ketamine: 20 mg	IV/IO, IM/IN	Q 15 min x2	

Pain Imperatives

- EMS pain control is indicated for recent injury or sudden pain:
 - Major Trauma, Obvious Fractures
 - Sudden Abdominal Pain or Chest Pain
- PO pain meds may be **beneficial** despite short transport times.
 - Consider **giving PO meds**, even for mild pain close to the ED.

Medications

- **Tylenol**[®] (Acetaminophen): avoid if end stage liver disease
- **Ibuprofen** (Advil[®], Motrin[®]): avoid if **active** GI bleeding
- **Fentanyl** (Sublimaze[®]): monitor airway and hemodynamics
- **Ketamine** (Ketalar[®]): For IM/IN use: give as undiluted bolus
 - For IV/IO use: dilute in NS and **give slowly over 10 min**
- Use weight based peds dosing for small adults under 110 lbs (50 kg).

Notes

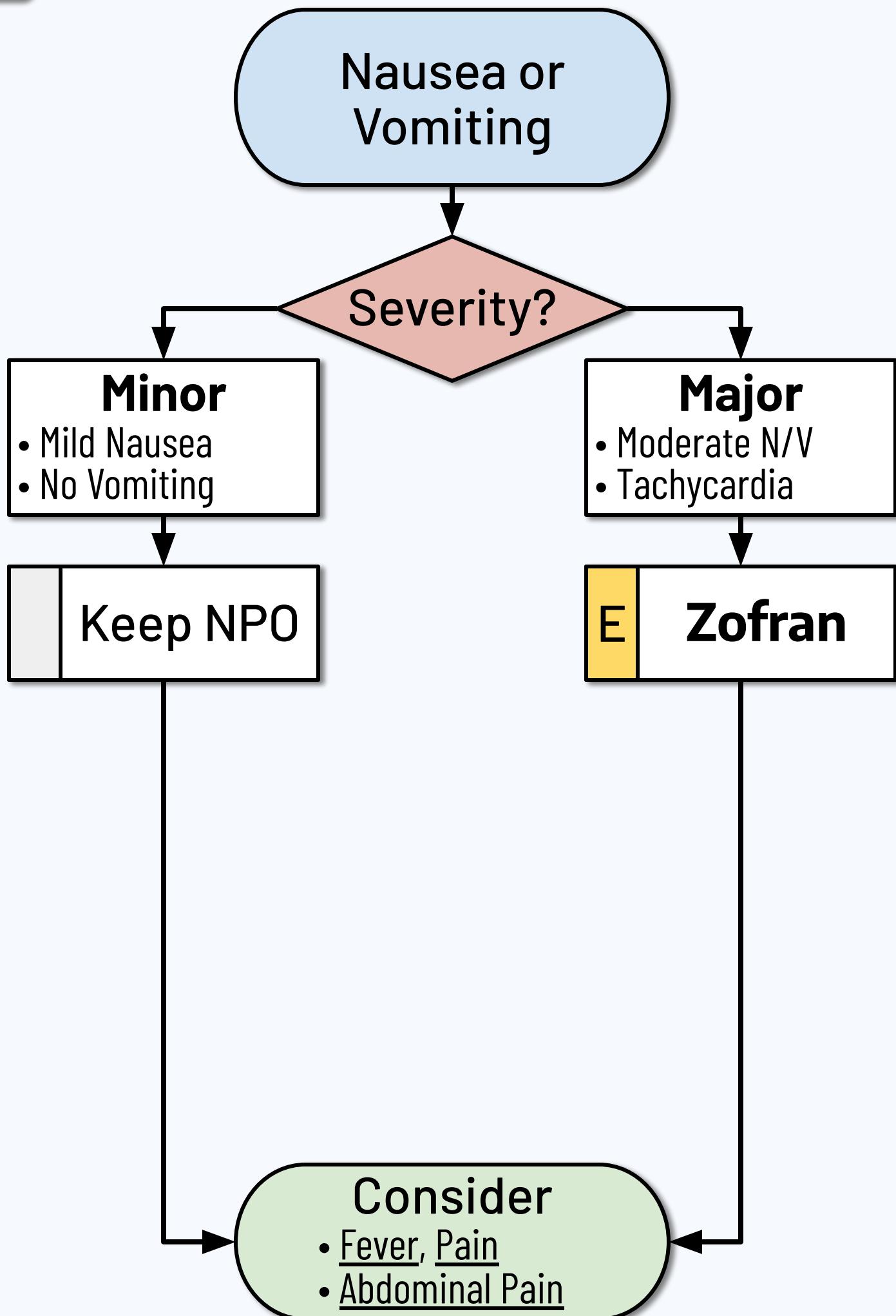
- **Tylenol** and **Ibuprofen** are good for **sub-acute** pain like:
 - Toothache, headache (migraine), sciatica, fibromyalgia, etc.
 - Avoid **Fentanyl** and **Ketamine** for sub-acute pain.
- Pain is subjective. Clinical judgment is required.
 - It is appropriate to try another med if the first is ineffective.
 - Changes in pain scale are more useful than absolute numbers.

Pediatrics

- Breaking tablets in half is appropriate. Do not break capsules.
- Withhold medications if unable to provide accurate dose.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Pain: <https://emedicine.medscape.com/article/310834> [Ver: 1/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 14, 26



Zofran: 4 mg

IV/IO, IM/IN, PO

Q 5 min x2

Adult

Nausea / Vomiting Imperatives

- It is appropriate to **pre-treat for nausea** before symptoms start.
 - Consider before any intervention that may cause nausea.
 - Especially if vomiting would cause serious complications.
- **Avoid oral** food and fluids. (Oral meds are OK.)
 - Keep patients **NPO** (*Nil Per Os*: Lat. "nothing through the mouth")

Medications

- **Zofran®** (Ondansetron): Use for all causes of nausea & vomiting.
 - Use caution with Bradycardia, and Overdose / Tox.
 - Consider 12-Lead if hx/risk of Long QT or electrolyte imbalance.
 - **E** May only give PO - use **Orally Disintegrating Tabs** (ODTs)
 - **A** Alternate 4-10y/o dose: break ODT in half and give 2 mg PO

Notes

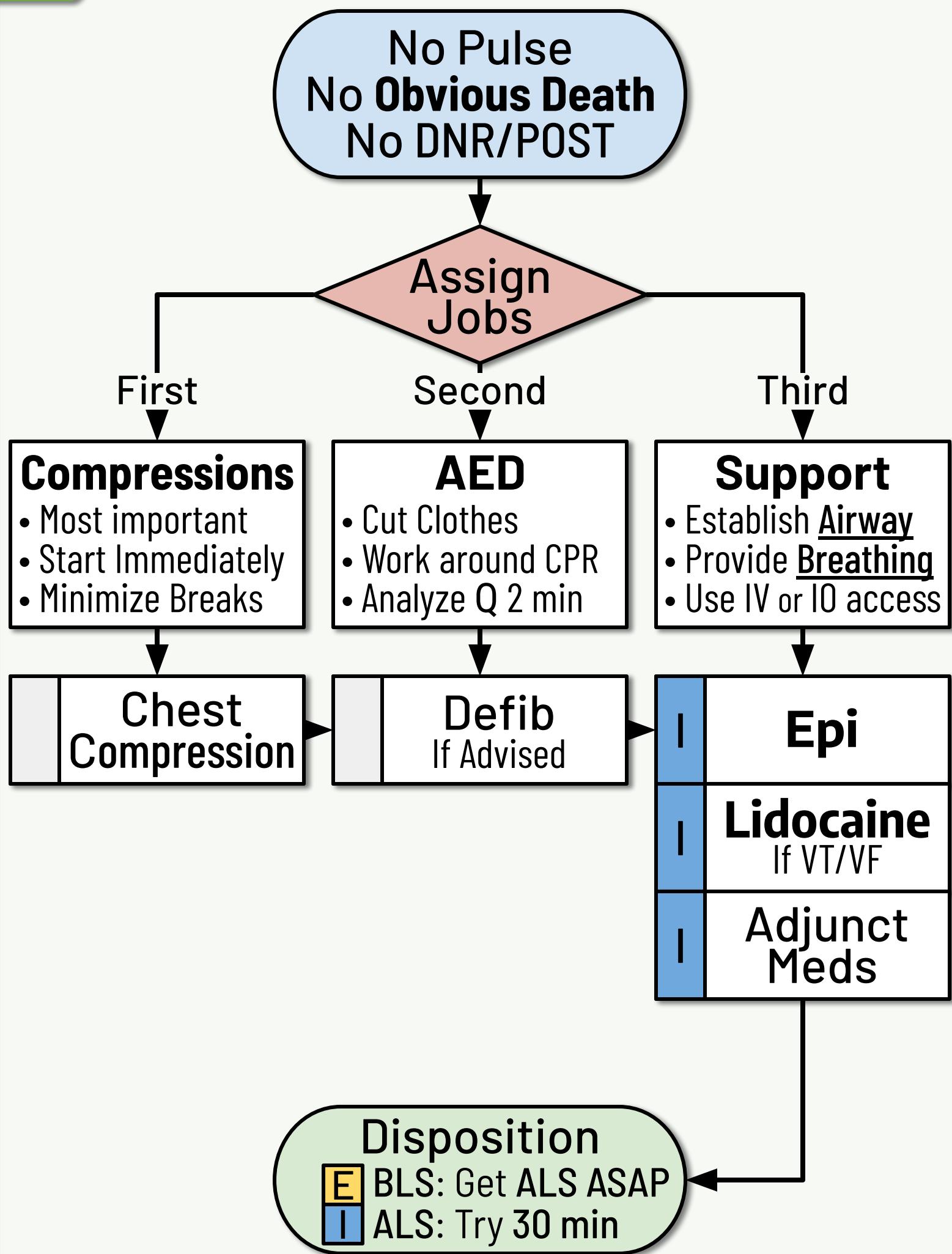
- Consider an atypical Cardiac cause in diabetics and the elderly.
- Sniffing an alcohol prep may also provide minor nausea relief.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Vomiting: <https://emedicine.medscape.com/article/933135> [Ver: 10/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7, 29



<u>Epi:</u> 1 mg	IV/IO Q 5 min	Adult
<u>Lidocaine:</u> 1 st 100 mg → 2 nd 50 mg	IV/IO Q 5 min x2	
<u>Epi:</u> 0.01 mg/kg	IV/IO Q 5 min	Peds
<u>Lidocaine:</u> 1 st 1 mg/kg → 2 nd 0.5 mg/kg	IV/IO Q 5 min x2	

CODE Imperatives

- Start compressions in place.
 - Transport ASAP if **ROSC**, or **peds**, or **pregnant**, or any Special Case.

Compressions

- Adult/Peds: **120** /min
- OPA/NPA: **30:2** w/ BVM
- BIAD/ETT: **Continuous**

E **BLS:** Get ALS ASAP. Transport if witnessed by EMS or any shock.

I **ALS:** Try for **30 min**. If no ROSC: Call for Termination.

Medications

- **Lidocaine:** Adult doses OK for any patient **110-220** lbs (50-100 kg).

Otherwise: 1^{st} 1 mg/kg $\rightarrow 2^{\text{nd}}$ 0.5 mg/kg

- If no response to initial therapy, consider **adjunct medications**:

I **Amiodarone:** **300 → 150** mg IV/IO x2 Persistent VT/VF

I **Magnesium:** **2** grams IV/IO x1 Torsades

- Use either **Lidocaine** or **Amiodarone**, but **not both**.

Obvious Death

- Pooling Lividity or
- Rigor Mortis or
- Body Decomposition

Notes

- Use caution with **compressions** and **defib** in a moving vehicle.
- **EtCO₂** can help identify ROSC and guide termination decision.
- A well run CODE should operate like a **pit crew**. Focus on your job.
- Consider underlying causes (OD/Tox, Hyper K⁺, Hypoglycemia, etc).

Pediatrics

- Use 15:2 compression ratio for dual rescuer BLS resuscitation.
- Refer to Neonate for any peds **under 1 month** (≤ 30 days) old.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape CPR: <https://emedicine.medscape.com/article/1344081> [Ver: 8/21]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 21

Return of Pulse



Stabilize

- Establish Airway
- Provide Breathing
- Treat Circulation

E	12-Lead
A	Saline Lock
I	Ketamine If Agitated



Consider

- Altered LOC
- Diabetic, Overdose
- Intubation, Vent

Consider
Destination Triage

Ketamine: 20 mg IV/IO Q 5 min x2

Adult

Medical ROSC Imperatives

- Ensure adequate resuscitation before attempting transport.
 - Move expeditiously but with caution. **Don't sacrifice stability.**
- Monitor closely for Hypotension. Be ready with fluids and pressors.
- Avoid hyperventilation. It can cause Hypotension and repeat arrest.

Medications

- **Ketamine** (Ketalar[®]): Dilute in NS and **give slowly over 10 min.**
 - Use weight based peds dosing for adults **under 110 lbs (50 kg)**.
- Consider maintenance drip if **prior VT/VF & transport > 30 min:**

I	Lidocaine: 1 mg/min	IV/IO	Adults
I	Amiodarone: 1 mg/min	IV/IO	ONLY

- Use **only one** (not both). Choose the same med as resuscitation.

Notes

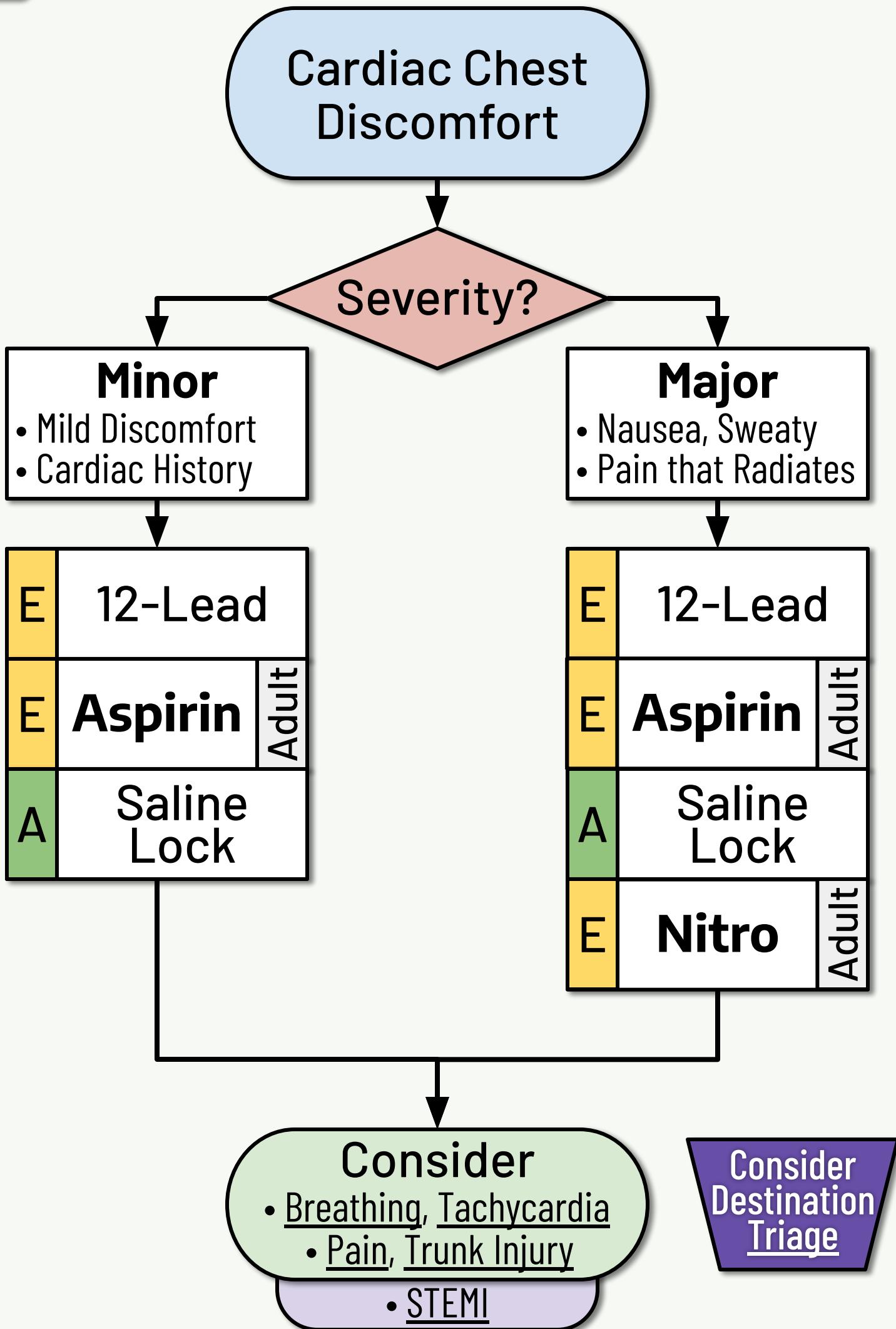
- EtCO₂ can help identify ROSC. Monitor during resuscitation.
- Consider Intubation and/or Vent if appropriate & cleared for CC.
- Therapeutic hypothermia is **not included** in this protocol.
 - Also known as "targeted temperature management".

Pediatrics

- Arrhythmias are common after ROSC, but are usually self-limited.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape ROSC: <https://www.medscape.com/viewarticle/762373> [Ver: 2012]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 21

**Aspirin:** 4x 81 mg

PO x1 (chewed)

Adult Doses

Nitro: 0.4 mg

SL Q 5 min x3

Chest Pain Imperatives

- This protocol is for suspected **cardiac** (ACS) emergencies only.
 - For pain resulting from chest trauma, refer to Trunk Injury.
 - For palpitations refer to Tachycardia or Bradycardia.
- For all patients with an identified **STEMI**: place **defib pads** on.
 - Also expose and shave groin during transport if time allows.

Medications

- **Aspirin** (Baby ASA): Contraindicated with **active GI bleeding**
 - Have patient **chew four** (4) 81mg tabs (not enteric coated).
- **Nitro** (Nitroglycerin): May cause Hypotension.
 - Use caution if Hypotensive or suspected inferior/right STEMI.
 - Contraindicated if SBP under 110 mmHg **without IV/IO** access.
 - Contraindicated if recent (36 h) use of any **PDE5 inhibitors**:

- If you see a STEMI
- Or EKG says ****AMI****
- Call a **HEART Alert**



PDE5 Inhibitors

- Sildenafil (Viagra®)
- Tadalafil (Cialis®)
- Vardenafil (Levitra®)
- Avanafil (Stendra®)

Notes

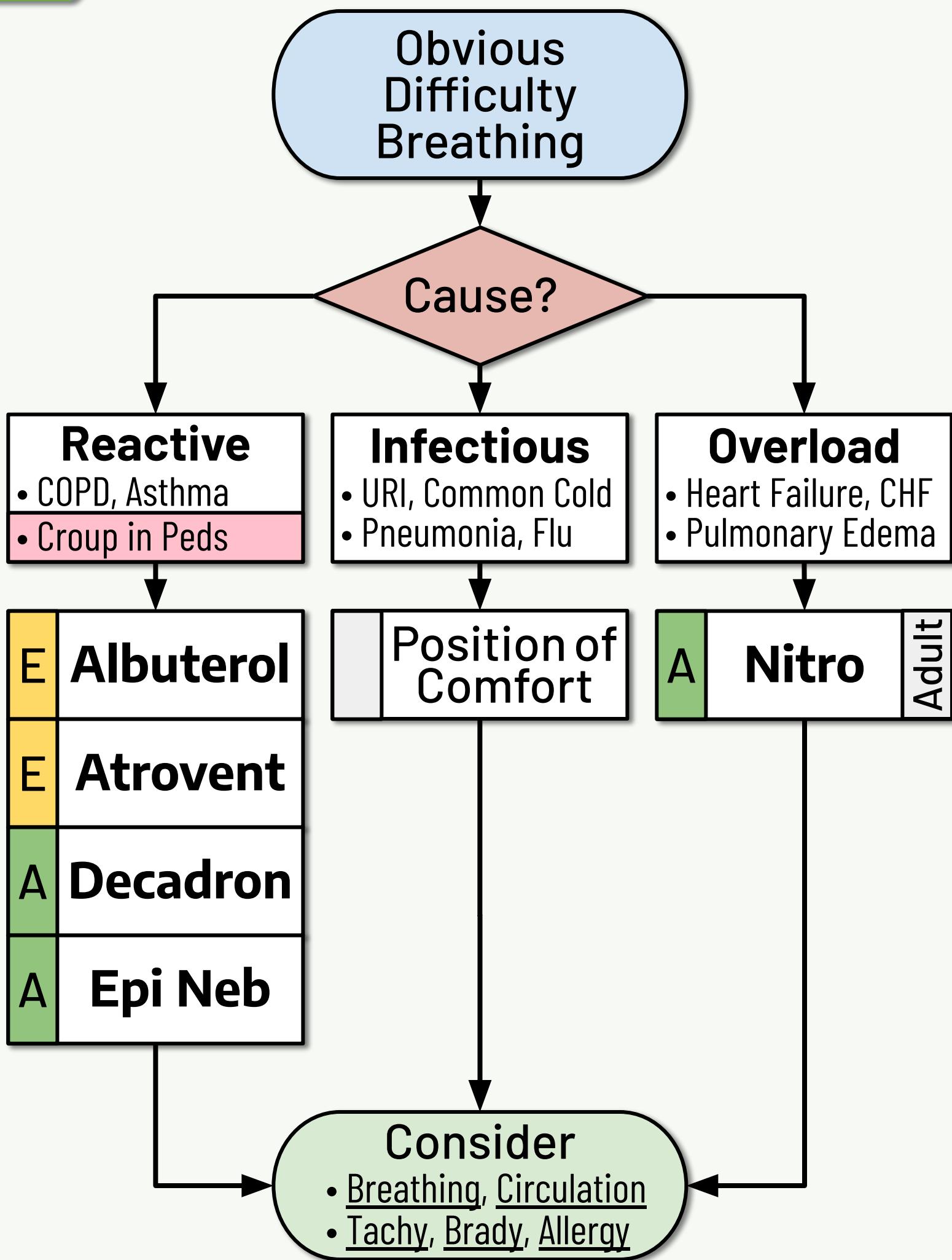
- Consider an atypical cardiac presentation in **diabetics & elderly**.
 - Actual chest pain is not always present. Ask about cardiac hx.
 - May have SOB or "discomfort" or nausea or be weak & sweaty.
- Consider advanced STEMI care if appropriate & cleared for CC.

Pediatrics

- Cardiac chest pain is unlikely in peds. Consider other causes.
- **Aspirin** and **Nitro** are contraindicated in peds chest pain.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape ACS: <https://emedicine.medscape.com/article/1910735> [Ver: 9/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 20



Albuterol: 2.5 mg	NEB	Q 5 min x4	Adult Doses
Atrovent: 0.5 mg	NEB	x1	
Decadron: 8 mg	IV/IO, IM, PO	x1	
Epi Neb: 5 mg	NEB	x1	
Nitro: 0.4 mg	SL	Q 5 min x3	

Dyspnea Imperatives

- Breathing (O_2 and NIPPV) should take precedence over meds.
- SpO_2 and $EtCO_2$ should be used **extensively** for dyspnea.

Medications

- **Albuterol** (Ventolin[®]) & **Atrovent** (Ipratropium bromide):
 - May combine in same nebulizer. May cause palpitations.
- **Decadron**[®] (Dexamethasone): May give IV formulation PO.
 - May mix the IV solution with juice or drink it straight.
 - PO is not appropriate for patients in extremis. Use IM or IV/IO.
- **Epi Neb** (Epinephrine): Use **1 mg/mL vials** (not 0.1 mg/mL prefill).
 - Good choice for severe croup, bronchiolitis or asthma in peds.
- **Nitro** (Nitroglycerin): May cause Hypotension.
 - May use **double dose** (0.8 mg) if hypertensive & requiring NIPPV.
 - Use caution if Hypotensive or suspected inferior/right STEMI.
 - Contraindicated if recent (36 h) use of any **PDE5 inhibitor**.

Notes

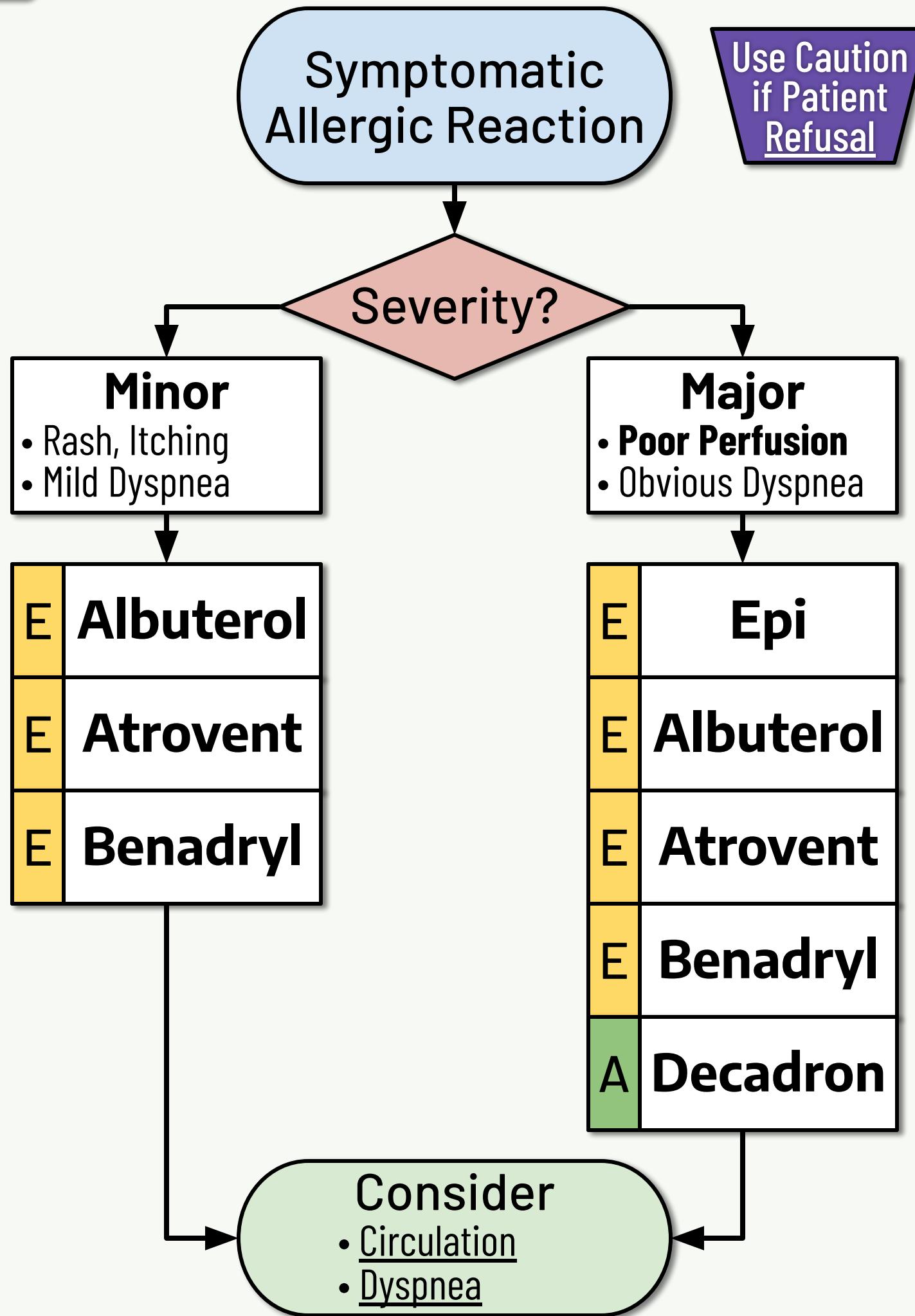
- Consider an atypical Cardiac cause in diabetics and the elderly.
- Anxiety can also cause dyspnea and hyperventilation.
 - Consider simple reassurance for obvious benign anxiety.

Pediatrics

- Defer aggressive evaluation if any concern for **epiglottitis**.
 - Agitation can make it much worse.
 - Epiglottitis is unlikely in fully vaccinated patients.
- **Croup** is an infection that is best treated like a reactive cause.
 - **Stridor** may be present (but choking may also cause stridor).
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape COPD: <https://emedicine.medscape.com/article/297664> [Ver: 6/22]
- Medscape Asthma: <https://emedicine.medscape.com/article/296301> [Ver: 7/23]
- Medscape CHF: <https://emedicine.medscape.com/article/163062> [Ver: 6/23]
- Medscape Croup: <https://emedicine.medscape.com/article/962972> [Ver: 1/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 10, 19



Albuterol: 2.5 mg	NEB	Q 5 min x4	Adult Doses
Atrovent: 0.5 mg	NEB	x1	
Benadryl: 25 mg	IV/IO, IM, PO	x1	
Epi: 0.3 mg	auto, IM	Q 5 min x3	
Decadron: 8 mg	IV/IO, IM, PO	x1	

Allergic Reaction Imperatives

- Airway symptoms and facial swelling indicate a **major reaction**.
 - Lip and tongue swelling can be an immediate life threat.
- **A** Use IM meds (or IV/IO if available) for any patient in extremis.

Medications

- **Epi** (Epinephrine): **Use IM**. Treat major reactions **aggressively**.
 - Use for any major Airway, Breathing or Circulation problems.
 - Common side effects: chest discomfort, palpitations, shaking
 - **Be cautious** in patients over 50 y/o or with CAD or chest pain.
 - **E** May only use auto-injector or color coded admin system.
 - **EpiPen Jr.**[®]: Use for 3-8 y/o. **EpiPen**[®]: Use for 9+ y/o.
- **Albuterol** (Ventolin[®]): Use for any dyspnea or wheezing.
 - Unlikely to help with rash or itching. May cause palpitations.
- **Decadron**[®] (Dexamethasone): May give IV formulation PO.
 - May mix the IV solution with juice or drink it straight.
- **Benadryl**[®] (Diphenhydramine): May give **50 mg PO** for adults.
 - **E** May only give PO (may use OTC formulation and dosing).

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Notes

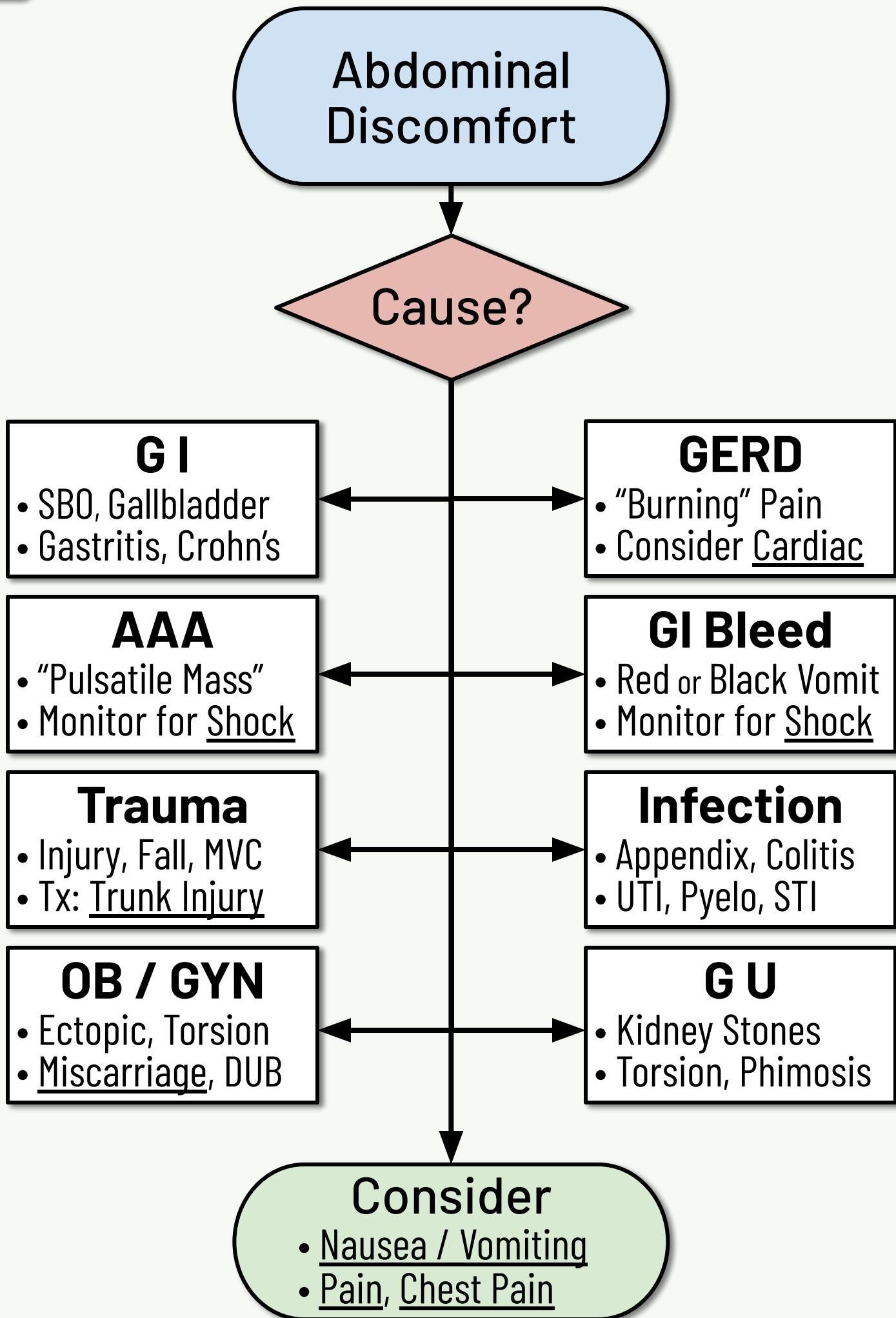
- Rapid onset of symptoms indicates a more severe reaction.
- Severe food allergies may also induce N/V and abdominal pain.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Hives: <https://emedicine.medscape.com/article/137362> [Ver: 9/23]
- Medscape Anaphylaxis: <https://emedicine.medscape.com/article/135065> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 23



Abdominal Pain Imperatives

- This protocol is for **medical** causes of abdominal pain.
 - For traumatic abdominal pain, refer to Trunk Injury.
- Many common causes do not require specific EMS intervention.
 - E.g. gastroenteritis, gallbladder, appendix, colitis, SBO, etc.
 - Do consider treatment of the symptoms: Fever, Pain, Nausea
- Prepare for Hypotension if any reported blood loss, or suspected:
 - **AAA:** Midline "pulsatile mass" in the elderly
 - **GI Bleeding:** Black stool (melena) or "coffee ground" emesis
- Inquire about Pregnancy and consider complications.
 - Consider an **ectopic** in any pregnant female, watch for shock.
- **Avoid oral** food and fluids. (Oral meds are OK.)
 - Keep patients **NPO** (*Nil Per Os*: Lat. "nothing through the mouth")

Notes

- Consider an atypical Cardiac cause in diabetics and the elderly.

Pediatrics

- Simple constipation is a common cause in peds.
 - It does not require aggressive EMS intervention.

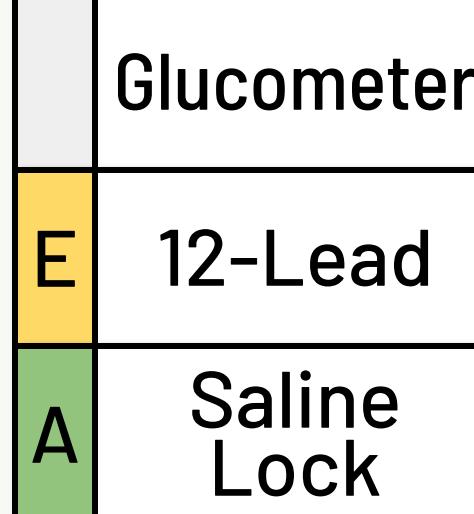
References

- Medscape Abd Pain: <https://emedicine.medscape.com/article/776663>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 26

[Ver: 7/18]

Use Caution
if Patient
Refusal

Confused or
Unresponsive
(but breathing)



Cause?

Diabetic

- Hx: Diabetes
- Abnormal Glucose

Psychiatric

- Suicidal, Homicidal
- Delusions, Psychosis

Overdose/Tox

- Hx: Ingestion/Exposure
- Obvious Drugs/Alcohol

Injury

- Head Injury, Bleeding
- Cold / Heat Exposure

Seizure

- Hx: Epilepsy
- Shaking, Confused

Stroke

- Facial Droop, Weakness
- Slurred Speech

Fever

- Hx: Illness or Malaise
- Skin Flushed, Hot

Cardiac

- Brady, Tachy
- Shock, Chest Pain

• Sepsis

Altered LOC Imperatives

- Altered LOC and syncope are **complex** problems.
 - Most important step is to consider and **search for the cause**.
 - Investigate the scene and take a **careful history**.
- Unstable patients should be treated aggressively.
 - Be prepared for a Medical CODE.
- Alcohol and drugs can mask other causes of altered LOC.
 - **Don't assume** Intoxication is the only problem.
- Syncope may be caused by or result in **trauma**.
 - Maintain a high index of suspicion.

Notes

- Consider an atypical Cardiac cause in diabetics and the elderly.
- Consider Sepsis if cleared for Critical Care and pt is delirious.
- May investigate pt's GCS:
 - Check each response
 - Repeat **as needed**
 - Record the **best effort**
 - Add the three numbers
 - Normal score is **15**
 - Worst score is **3**

Glasgow Coma Scale

Eyes	Verbal	Motor	
none	none	none	1
pain	moaning	extensor	2
verbal	words	flexor	3
normal	confused	withdraw	4
	normal	localizes	5
	normal		6

Teasdale, SG glasgowcomascale.org

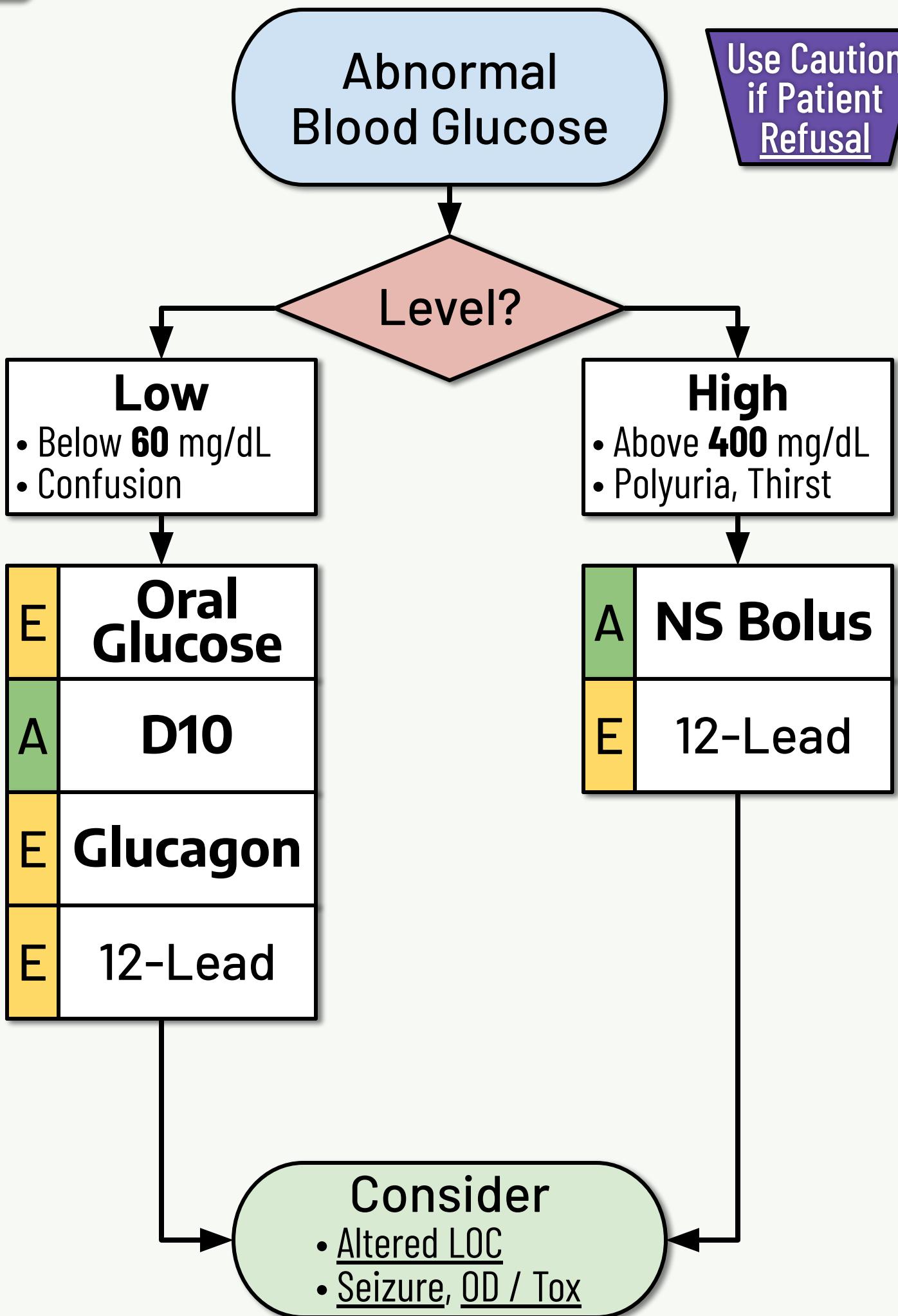
Pediatrics

- Many causes of transient syncope are benign, but:
 - Prolonged altered LOC indicates potentially serious pathology.
 - Syncope **during exertion** can be a true cardiac emergency.

References

- Medscape Syncope: <https://emedicine.medscape.com/article/811669> [Ver: 1/17]
- Medscape Delirium: <https://emedicine.medscape.com/article/793247> [Ver: 8/22]
- Medscape Hypoglycemia: <https://emedicine.medscape.com/article/122122> [Ver: 2/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22

Use Caution
if Patient
Refusal



<u>Oral Glucose:</u> 15 grams	PO	Q 5 min x3	Adult Doses
<u>D10:</u> 100 mL	IV/IO	Q 5 min x5	
<u>Glucagon:</u> 1 mg	IM	x1	
<u>NS Bolus:</u> 1,000 mL	IV/IO	x1	

Diabetic Imperatives

- EMS intervention is not required for mild asymptomatic patients.
- Consider a concurrent Cardiac emergency in the elderly.
 - Many diabetic emergencies benefit from a **12-Lead if able.**
- Consider other causes of Altered LOC even with hypoglycemia.
- Hypoglycemia from **sulfonylureas** can be refractory & profound.
 - E.g. glipizide (Glucotrol®), glyburide, glimepiride (Amaryl®)
 - **Call Medical Control** for any refusal if taking **sulfonylureas**.

Medications

- **Oral Glucose** (Glutose 15™): Avoid if patient cannot swallow.
 - Consider regular food as an alternative if available.
 - Prioritize food & drink with **simple sugar** (like juice & candy).
 - Also provide complex carbs/protein (like **peanut butter**).
- **D10** (Dextrose 10%): Recheck glucose prior to repeat dosing.
 - May attempt without glucometer if hypoglycemia is likely.
- **Glucagon** (Glucagen®): Caution - improvement is temporary!
 - **Must provide additional glucose** after administration.
 - Give PO glucose if able, and be prepared to give **D10**.
 - **Call Medical Control** for any refusal after **Glucagon**.
 - **E** May use for pts 5+ y/o. Give whole vial intramuscular (IM).

Notes

- Avoid starting an IV in the **legs or feet** of a diabetic patient.
- Hyperglycemia with fruity odor may be **DKA** - emphasize IV fluids.
- Look for an **insulin pump**. May unplug the tube if **hypoglycemic**.

Pediatrics

- Consider treatment for any symptomatic peds **over 200 mg/dL**.
- Use Peds Reference or other approved source for peds dosing.

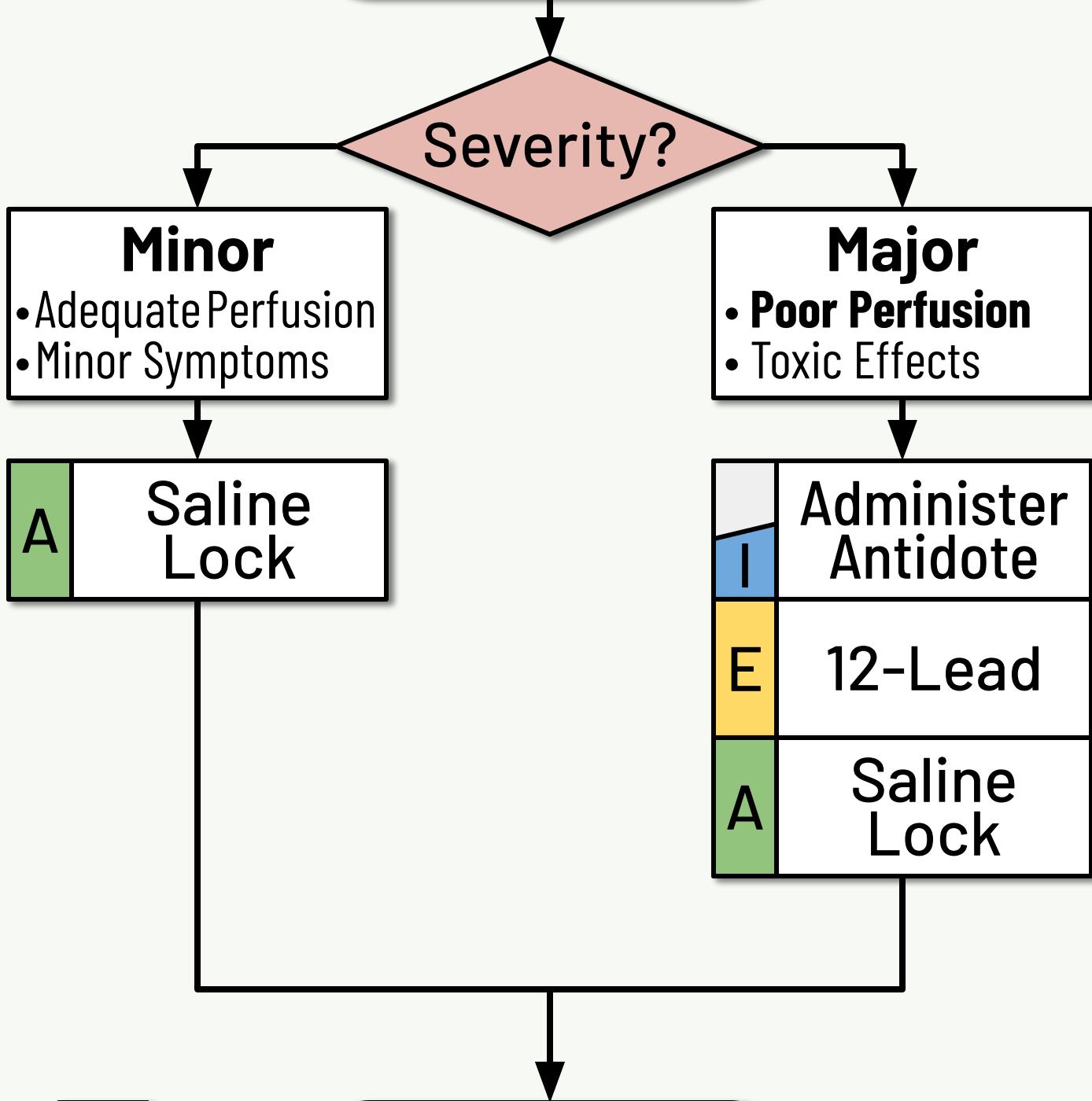
References

- Medscape Hypoglycemia: <https://emedicine.medscape.com/article/122122> [Ver: 2/23]
- Medscape DKA: <https://emedicine.medscape.com/article/118361> [Ver: 3/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22

Ensure Provider SAFETY

Symptomatic Toxic Exposure or Overdose

Use Caution if Patient Refusal



Ensure Patient DECON

Consider
• Co-ingestions, Brady, N/V
• Shock, Hyperthermia

Toxin

Toxin	Antidote	Dose	Route	Adult Antidote Doses
Opiates	<u>Narcan</u> :	up to 4 mg	IV/IO, IM/IN	
I β-blocker	<u>Glucagon</u> :	1 mg	IM	
I Organophos	<u>Atropine</u> :	2 mg	IV/IO, IM	
I Ca-blocker	<u>Calcium</u> :	1 g over 10 min	IV/IO	
I Tricyclic	<u>Bicarb</u> :	50 mEq	IV/IO	

Overdose / Tox Imperatives

- Collect a detailed history and **SDS** (Safety Data Sheet) if able:
 - Substance, quantity and time of ingestion or exposure
- Monitor **Airway** closely with all **caustic ingestions**.
- Not all ingestions require a specific antidote or intervention.
 - Stable patients may be monitored and transported.
 - Supportive care is sufficient for **alcohol** (ethanol) intoxication.

Medications

- **Narcan**[®] (Naloxone): Should only be used to treat **Hypoxia**.
 - May provide premeasured **intranasal** doses only.
 - A Titrate dose to resps & SpO₂. May start as low as **0.04 mg**.
 - May repeat PRN. Call **Medical Control** for refusal w/ **Narcan**.
- **Glucagon, Atropine**: Likely will need **multiple doses**.
- **Calcium** (Chloride): **Avoid** with **Rocephin**[®] or Digoxin[®] (fatal).
- **Bicarb** (Sodium Bicarbonate): Use for any EKG changes.
- Flush line well between **Calcium** and **Bicarb** (do **not** mix).
- **Mark 1**TM (Atropine/2-PAM): May use if MCI / nerve agent.
- **Charcoal** (activated): Only if directed by poison control.
- **I Cyanokit**[®] (Cyanide antidote): May use kit if indicated.

Notes

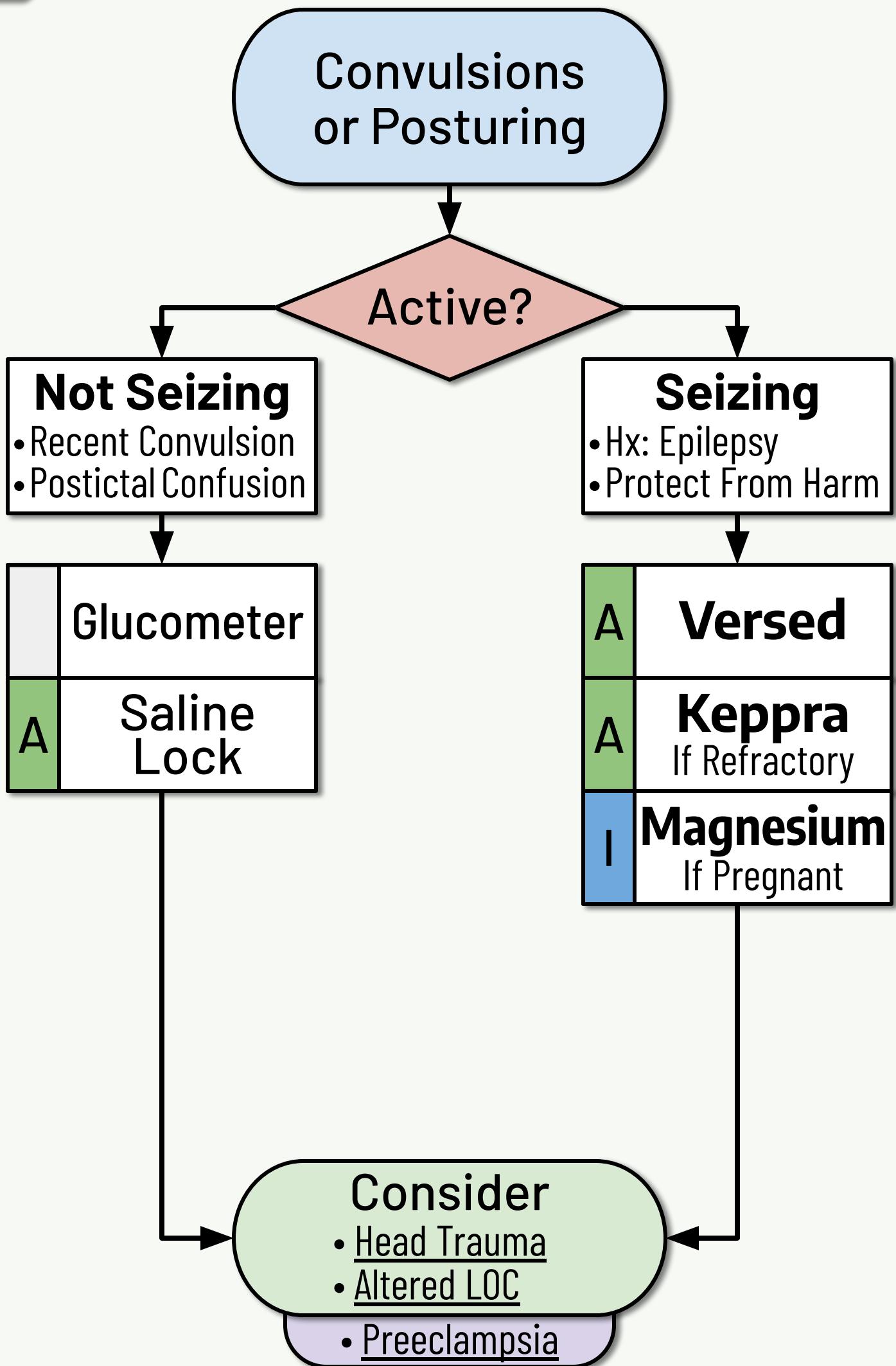
- If substance is known, consider **Poison Control**: 800-222-1222.
- This protocol includes chemical **ingestion** and organophosphates.
 - For **skin** exposure refer to Burns; for **gas** refer to Inhalation.

Pediatrics

- Just a **single pill** of some adult meds can cause profound shock.
 - Ingested **cigarettes or vape fluid** (nicotine) can be **fatal**.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Opioids: <https://emedicine.medscape.com/article/815784> [Ver: 8/23]
- Medscape Tricyclics: <https://emedicine.medscape.com/article/819204> [Ver: 1/23]
- Medscape Organophosphate: <https://emedicine.medscape.com/article/167726> [Ver: 3/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 25



Versed: 2.5 mg IV/IO, IM/IN Q 2 min x4

Adult Doses

Keppra: 3,000 mg IV/IO over 10 min

Magnesium: 4 grams IV/IO x1

Seizure Imperatives

- Active convulsions with Altered LOC should be treated promptly.
 - Meds are contraindicated without active convulsions.
 - Aggressively treat seizures due to alcohol or benzo withdrawal.
- Shaking while awake and responsive is unlikely to be a seizure.
 - Consider other causes such as Psychiatric or OD / Tox.
 - Non-epileptic **pseudoseizures** do not require intervention.
- **Use caution with needles** - increased risk of provider injury.

Medications

- **Versed**[®] (Midazolam): Only appropriate for active convulsions.
 - May double dose if using IM/IN to limit risks (5 mg Q 5 min x2).
- **Keppra**[®] (Levetiracetam): Second line if seizures continue.
 - Use weight based peds dosing for adults under 110 lbs (50 kg).
- **Magnesium** (sulfate): May cause Hypotension and Dyspnea.
 - Only useful for seizures in late Pregnancy (20 weeks & over).
 - Do not provide in early pregnancy. Eclampsia is unlikely.
 - Consider prophylactic dose if Preeclampsia & cleared for CC.

Notes

- Obtain details of patient's **seizure meds** if immediately available.
- Seizures can come in groups, be prepared to treat another seizure.
- Confusion after seizure is common and may last over 30 min.
 - Transient stroke-like paralysis is also possible but is **not** a CVA.

Pediatrics

- Peds under 5 y/o may have a seizure caused by Fever.
 - It is usually self limiting and does not require intervention.
 - Consider medication if longer than 5 min or seizure reoccurs.
 - Aggressively treat any peds seizure not associated with Fever.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Seizure: <https://emedicine.medscape.com/article/1184846>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22

[Ver: 7/22]

Acute Focal Neuro Deficits

	Ask Time Last Normal
	Do Stroke Survey
	Elevate Head of Bed

	Glucometer
E	12-Lead
A	Saline Lock

- Consider
- Breathing, Circulation
 - Altered LOC

Consider
Destination
Triage

Stroke Imperatives

- Treatment is time sensitive. Do not delay transport for procedures.
- **Time Last Normal** is not necessarily when symptoms started.
 - If noticed upon waking up: last normal is when they went to bed.
 - If altered LOC: last normal is when someone saw them normal.
- **Stroke Survey:** Start with the **Cincinnati Stroke** FAST exam.
 - Consider additional screening if able (Stroke VAN or NIHSS).
- **Elevate** head of bed approximately 30° (helps prevent aspiration).
- Attempt a Saline Lock **only once**. Leave other sites for ED staff.

Cincinnati Stroke

- Facial Droop?
- Arm Drift?
- Slurred Speech?
- Time Last Normal?

Stroke VAN

Must have Arm Drift

- Vision: Partial / Total Loss?
- Aphasia: Trouble Speaking?
- Neglect: Ignoring One Side?



- If you suspect a CVA
- & Last Normal < 6 h
- Call a **STROKE Alert**

Notes

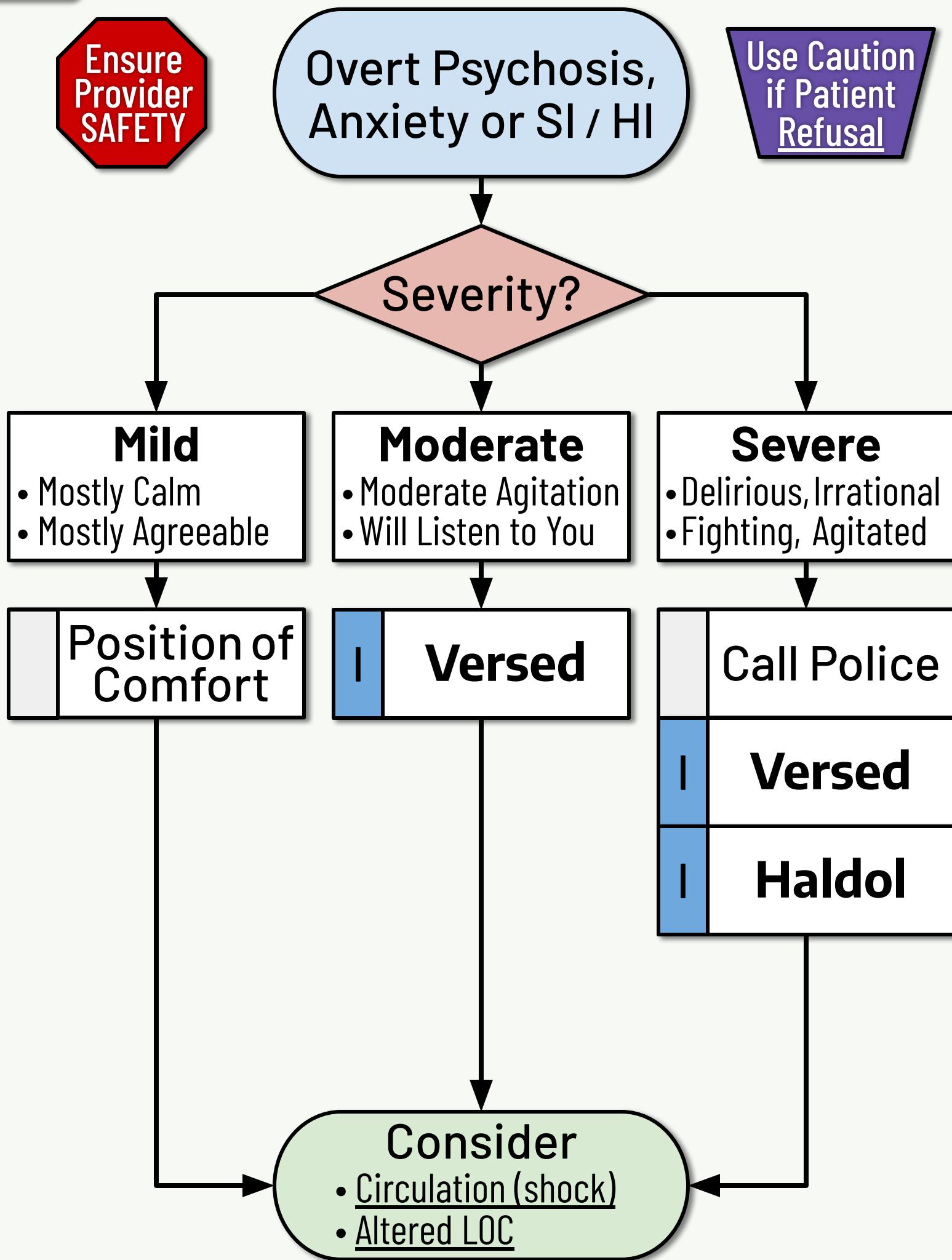
- Systemic thrombolysis (tPA, TNK) must occur **within 3-6 hours**.
 - Vascular neuro-intervention may be possible out to 24 hours.
- Encourage family or guardian to accompany patient.
 - There are important decisions to be made quickly at the ED.
 - Record phone number for family or guardian if possible.

Pediatrics

- Stroke is unlikely in peds. Consider other causes of Altered LOC.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- Medscape Stroke: <https://emedicine.medscape.com/article/1916852> [Ver: 2/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22



Versed: 2.5 mg IV/IO, IM/IN Q 2 min x4

Adult Doses

Haldol: 5 mg IM x1

Psychiatric Imperatives

- **Do not assume** psychosis. Evaluate and treat for other causes.
- Psychiatric patients may not have the capacity to Refuse.
 - Involve Police and call **Medical Control** for any psych refusal.
- Use of any restraint presents significant medical (and legal) risk.
 - **Attempt de-escalation first**. Restraint should be a **last resort**.
 - Use **only to ensure safety** of patient and providers.
 - Use only when risk of harm is greater than risk of restraint.
 - Elderly or frail patients are unlikely to need restraint.
- Physical restraint should only be used in conjunction with Police.
 - **Ask for Police** help if the patient is physically combative.
 - Beware any physical or verbal threats, aggression, or agitation.
- **Use caution with needles** - increased risk of provider injury.

Medications

- **Versed**[®] (Midazolam): Use with caution with peds and elderly.
 - May double dose if using IM/IN to limit risks (5 mg Q 5 min x2).
- **Haldol**[®] (Haloperidol): Requires transport and **ALS** monitoring.
- Antipsychotics may cause dystonic muscle spasms (not seizure).
 - Consider treatment with **Benadryl** if spasms are severe.
 - **I** **Benadryl**[®] (diphenhydramine): 25 mg PO, IV/IO, IM x1

Notes

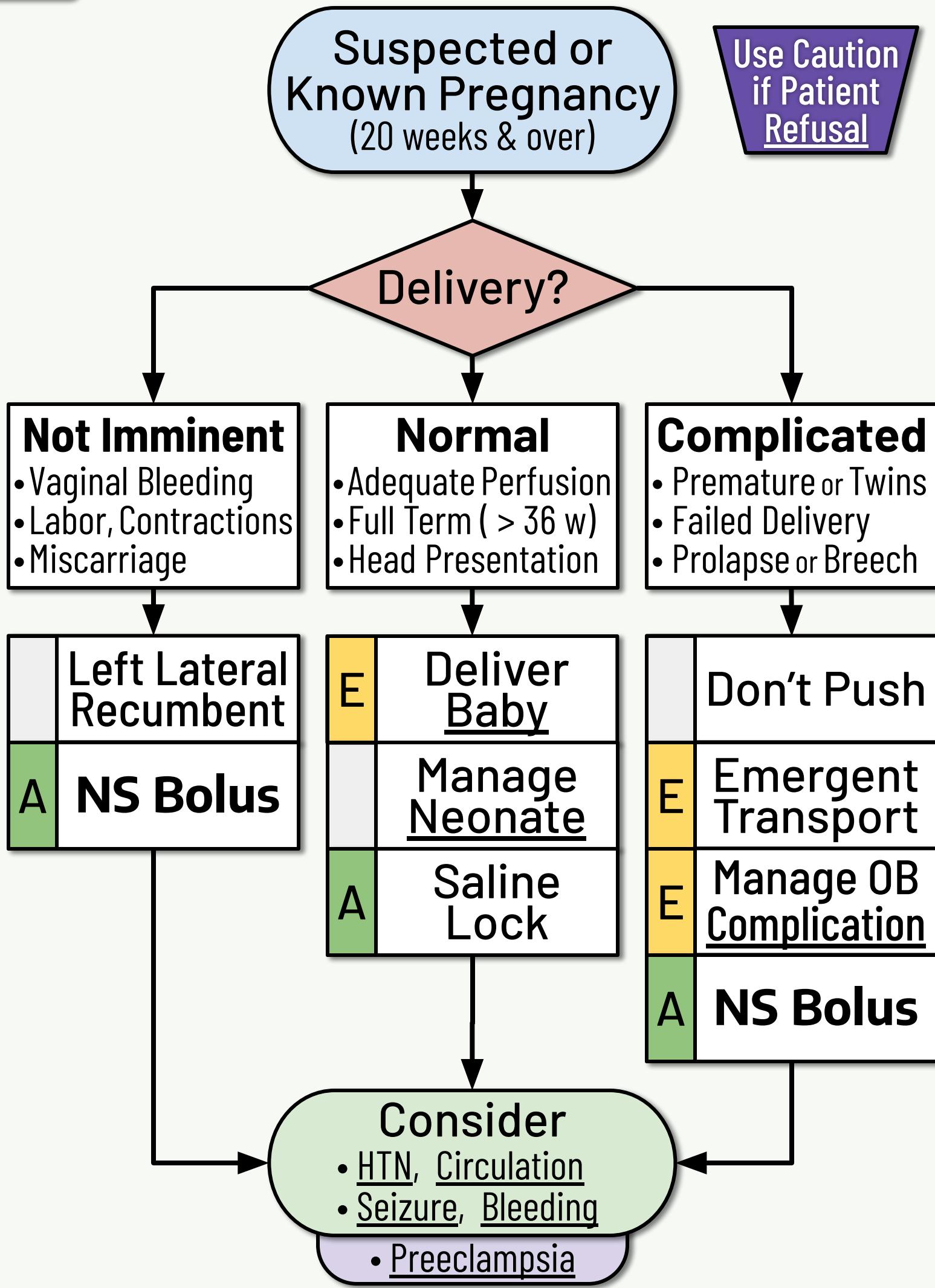
- Consider calling **Medical Control** for repeat dosing.
- SI / HI: Suicidal or Homicidal Ideation (any recent thoughts or acts)

Pediatrics

- Consider calling **Medical Control** prior to restraining peds.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Suicide: <https://emedicine.medscape.com/article/2013085> [Ver: 1/24]
- Medscape Aggression: <https://emedicine.medscape.com/article/288689> [Ver: 11/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 27

**NS Bolus: 1,000 mL**

IV/IO

x1

Adult

Pregnancy / Delivery Imperatives

- This protocol applies to **late pregnancy** (20 weeks & over).
 - There are no specific EMS interventions for early pregnancy.
 - Uterus palpable **above the umbilicus** suggests late pregnancy.
- Any SBP reading **above 160** mmHg may be **preeclampsia**.
 - Prioritize transport. Call **Medical Control** for any refusal.
 - Consider Preeclampsia treatment if appropriate & cleared for CC.
- Aggressively treat any Seizure as **eclampsia**.
- Any **maternal trauma** after 20 weeks should be transported.
 - Fetus may have injury that is not immediately obvious.
 - Even minor trauma (simple falls, etc) can cause fetal harm.
- **Prioritize transport for any complications** with delivery.
 - **Reduce cord** if found around the neck.
- **Manage OB Complications** during transport:
 - Failed Delivery / Shoulder Dystocia: transport knees to chest
 - Prolapse: don't handle cord, relieve pressure using fingers in vagina
 - Breech: do not pull, elevate presenting part if pressing on cord

Notes

- Remember not all medications are safe in pregnancy.
 - Call **Medical Control** if any question.
- **Postpartum bleeding** can be severe; **fundal massage** can help.
 - **A** If poor perfusion: **TXA** (Tranex. Acid): 1 g IV/IO over 10 m
- May attempt **home delivery** if uncomplicated and imminent.
 - Crowning and urge to push suggest delivery is imminent.
- Attempt to have a **chaperone** present for any genital evaluation.

Pediatrics

- Refer to Neonate for management of the newborn baby.

References

- Medscape Delivery: <https://emedicine.medscape.com/article/260036> [Ver: 2/24]
- Medscape Eclampsia: <https://emedicine.medscape.com/article/253960> [Ver: 2/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 36

Use Caution
if Patient
Refusal

Infant
Under 1 Month Old
(≤ 30 days)

**Stimulate,
Warm & Dry**

Pulse?

Over 100

- Warm, Pink Skin
- Active Cry

100 - 60

- Cyanosis
- Weak Cry

Under 60

- **Floppy Baby**
- Low / Zero APGAR

APGAR

**Encourage
Breastfeeding**

Provide O₂

**BVM
Assist**

Provide O₂

**BVM
Ventilate**

**Chest
Compression**

Epi

Peds

Consider

- Bradycardia
- Circulation / Shock

Epi: 0.5 mL (of 1 mg per 10 mL) IV/IO Q 5 min

Peds

Neonate Imperatives

- Most respond to simple stimulation.
 - **Dry off** & place on mom's chest.
 - Wait 60 sec before clamping cord.
 - Leave 6-10 inches of viable cord.
- **SpO₂ rises slowly** after birth.
 - Consider a sensor on **right hand**.
- Less common causes of distress: PTX, Hypoglycemia, Shock

Compressions

- Neonate: **120 /min**
- OPA/NPA: **3:1 w/ BVM**
- BIAD: **Continuous**

BVM Rate

- Neonate: **Q 2 sec (30 /min)**

APGAR:

	2	1	0
• Appearance	pink	blue	gray
• Pulse	100+	99-1	0
• Grimace	good	poor	none
• Activity	kicks	weak	limp
• Respiration	cry	gasp	0

Normal SpO₂:

1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

Notes

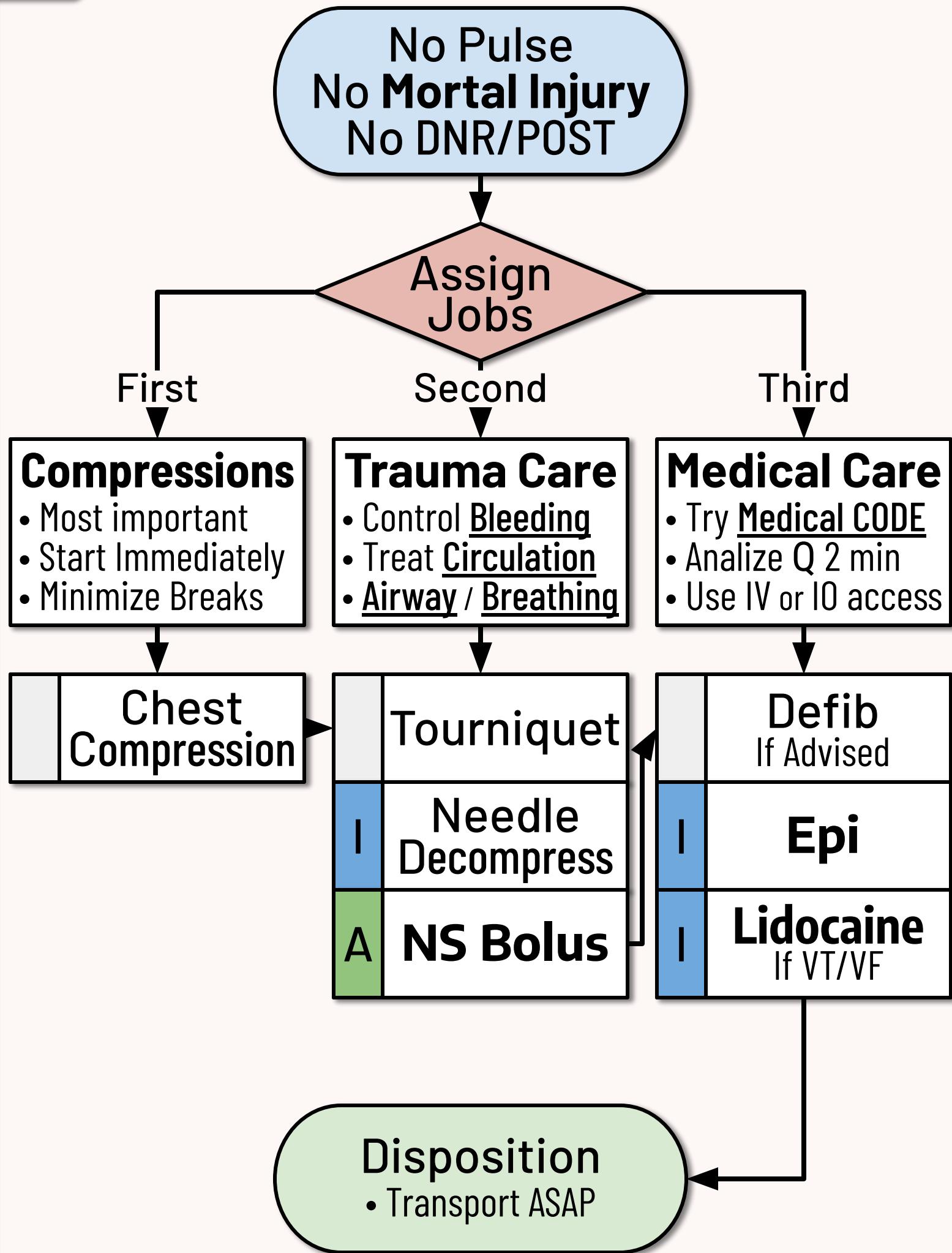
- May place newborn directly on mom's bare chest to **keep warm**.
- Document 1 and 5 minute **APGAR** scores - add up the total points.
- Use mom and baby **ID bands** if available.
- **Meconium suction** is not included in this protocol.
- Avoid high flow oxygen into a newborn's eyes.

Adults

- This protocol is for infants under 1 month (≤ 30 days) old only.
- It does not apply to adults or older peds.

References

- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Delivery: <https://emedicine.medscape.com/article/260036> [Ver: 2 / 24]
- Medscape Neonate: <https://emedicine.medscape.com/article/977002> [Ver: 5 / 21]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 36



NS Bolus: 1,000 mL	IV/IO x2	Adult Doses
Epi: 1 mg	IV/IO Q 5 min	
Lidocaine: 1 st 100 mg → 2 nd 50 mg	IV/IO Q 5 min x2	

CODE Imperatives

- Place **Tourniquets** if needed.
 - Limiting blood loss is critical.
- Try bilateral **Needle Decompression**.
 - Hidden pneumothorax may cause traumatic arrest.
- This protocol applies to cardiac arrest caused by **severe trauma**.
 - Refer to Medical CODE for arrest with only incidental injuries.
- Definitive treatment for traumatic arrest is the operating room.
 - Prioritize compression, tourniquets and **transport ASAP**.

- If Any Trauma CPR
- Or Unstable Vitals
- Call a **TRAUMA Alert**



Compressions

- Adult/Peds: **120** /min
- OPA/NPA: **30:2** w/ BVM
- BIAD/ETT: **Continuous**

Mortal Injuries

- Decapitation or Exposed Brain
- Destruction of Trunk or Organs
- Burned Beyond Recognition
- Massive Blunt Force, Explosion
- Over 30 min Since Arrest

Medications

- **NS Bolus** (0.9% Saline): Appropriate use in trauma is critical.
 - Be aggressive with fluid for Hypotension or **poor perfusion**.
 - Avoid aggressive fluids once SBP is **stable above 90** mmHg.
- **Lidocaine**: Adult doses OK for any pt **110-220** lbs (50-100 kg).
 - **Otherwise** use: **1st** 1 mg/kg → **2nd** 0.5 mg/kg

Notes

- Use caution with **compressions** and **defib** in a moving vehicle.
- EtCO₂ can help identify ROSC and guide termination decision.
- A well run CODE should operate like a **pit crew**. Focus on your job.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- ATLS®: www.facs.org/quality-programs/trauma/education/advanced-trauma-life-support/ [Ver: 10th]
- NAEMSP Mortal Injuries: <https://doi.org/10.3109/10903127.2012.755586> [Ver: 1 / 13]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34

Return of Pulse

Stabilize

- Control Bleeding
- Treat Circulation
- Airway / Breathing

E Emergent Transport

Tourniquet

I Needle Decompress

E 12-Lead

A Saline Lock

I **Ketamine**
If Agitated

Consider

- Bleeding, Shock
- Medical ROSC
- Intubation, Vent

Consider
Destination Triage

Ketamine: 20 mg IV/IO Q 5 min x2

Adult

Trauma ROSC Imperatives

- Most important aspect is to prioritize emergent transport.
 - **Get the patient to the hospital.**
- Reassess and repeat Needle Decompression as needed.
 - Repeat immediately if decompensation after initial success.
- Reassess and apply additional Tourniquets as needed.
 - Apply pressure and pack wounds for junctional bleeding.
- Consider a concurrent medical cause preceding the trauma.



- If Any Trauma CPR
- Or Unstable Vitals
- Call a **TRAUMA Alert**

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Medications

- **Ketamine** (Ketalar[®]): Dilute in NS and **give slowly over 10 min.**
 - Use weight based peds dosing for adults **under 110 lbs** (50 kg).

Notes

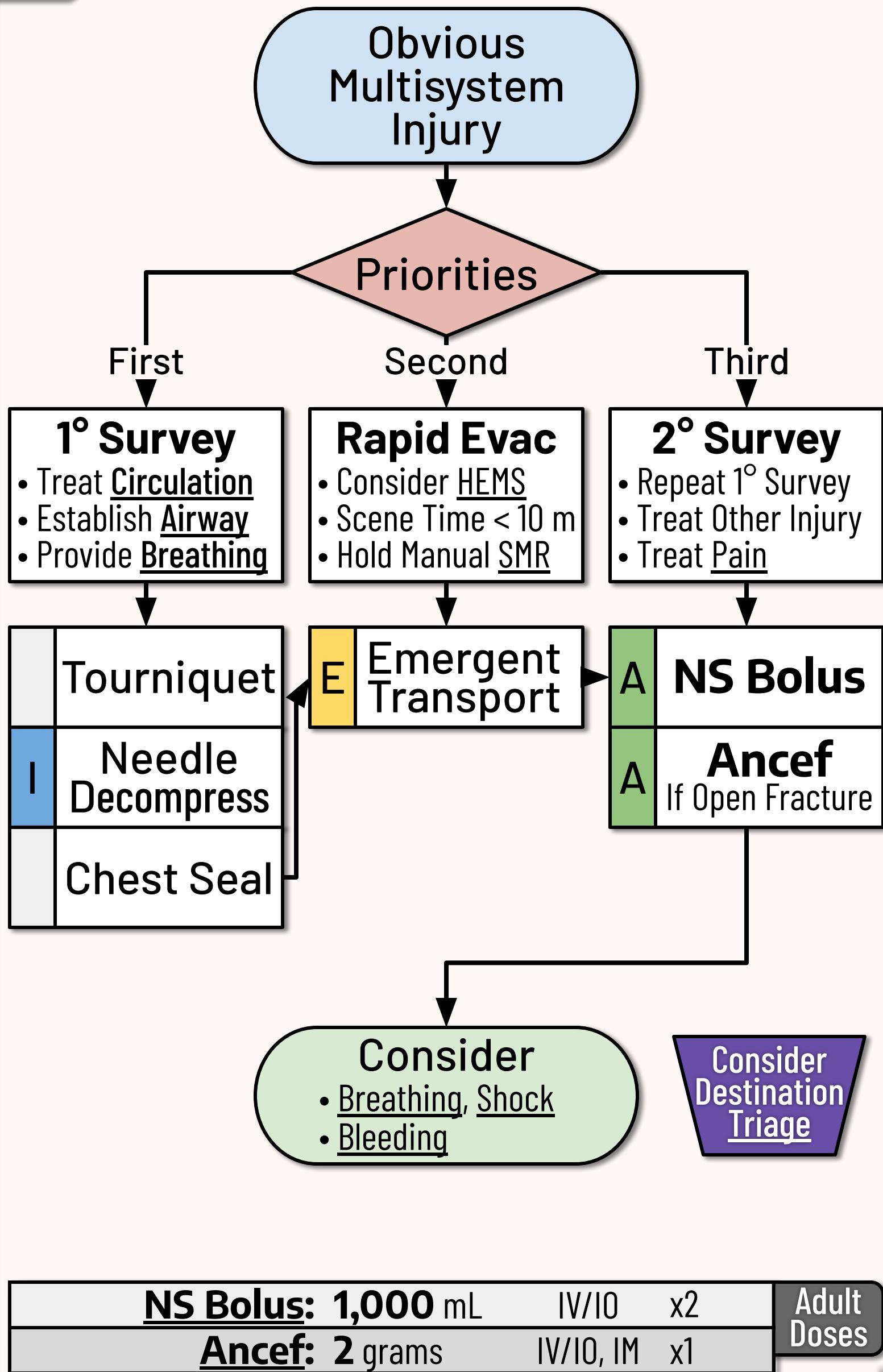
- Keep **normothermic** (hypothermia causes coagulopathy & bleeding)
- Consider Intubation and/or Vent if appropriate & cleared for CC.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- ATLS[®]: www.facs.org/quality-programs/trauma/education/advanced-trauma-life-support/ [Ver: 10th]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34



Major Trauma Imperatives

- Rapid transport is **critical** for massive life threatening injury.
 - **Get the patient to the hospital.**
 - Delay transport only to address major threats to life.
 - Secondary survey and treatment can occur during transport.
- It is appropriate to start with rapid manual immobilization only.
 - You may defer placing a c-collar to the secondary survey.
 - You should defer extremity splinting to the secondary survey.



- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Medications

- **NS Bolus** (0.9% Saline): Appropriate use in trauma is critical.
 - Be aggressive with fluid for Hypotension or **poor perfusion**.
 - Avoid aggressive fluids once SBP is **stable above 90** mmHg.
 - Consider fluid warmers and/or rapid infusers if available.
- **Ancef®** (Cefazolin): Provide if an open fracture is suspected.
 - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
 - Reconstitute powder with normal saline and **shake well** to mix.

Notes

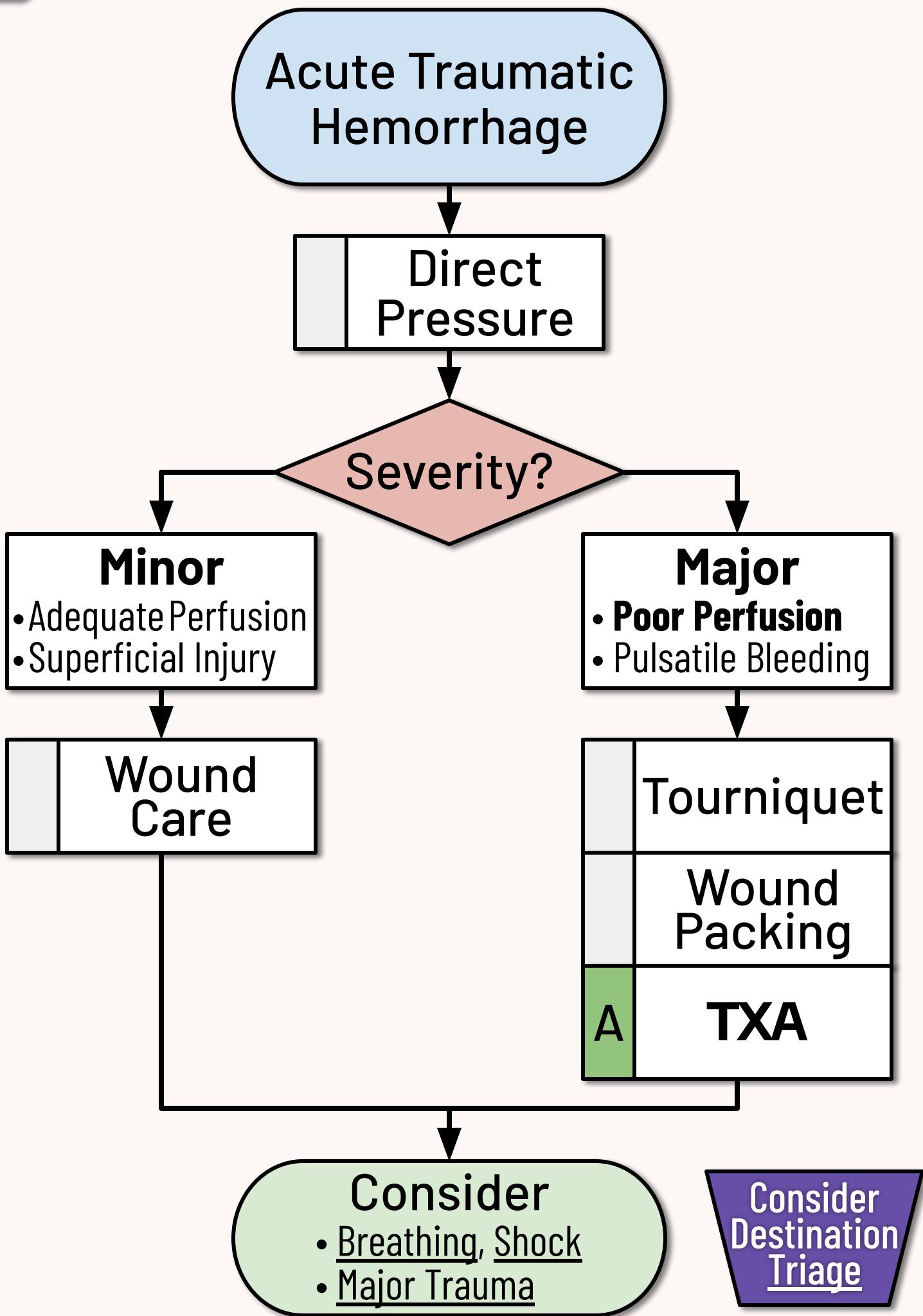
- Do not remove **impaled** objects. Splint object in position found.
- **Mechanism** is an important indicator of injury severity.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Polytrauma: <https://emedicine.medscape.com/article/1270888> [Ver: 12/18]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34



TXA: 1 gram

IV/IO

over 10 min

Adult

Bleeding Imperatives

- Advance to a **Tourniquet rapidly** for any major arm / leg bleeding.
 - Write the time of Tourniquet application on the patient.
- Packing may also help (especially junctional bleeds). **Do not** pack:
 - Unstable, depressed or open skull fractures; chest/abd. wounds
 - Bleeding from body orifices: vagina, rectum, ear, mouth, etc.



- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Medications

- **TXA** (Tranexamic Acid): Avoid if injury 3+ hours old or known PE.
 - Use for any major **external traumatic bleeding**.
 - Use for suspected **intra-abdominal bleeding** w/ poor perfusion.
 - Use for suspected **intra-thoracic bleeding** w/ poor perfusion.
 - Such as: pelvic fracture, rigid abdomen, major contusions, SOB
 - May also use for severe **postpartum** (non-traumatic) bleeding.
 - Avoid for other forms of suspected internal or medical bleeding.

Notes

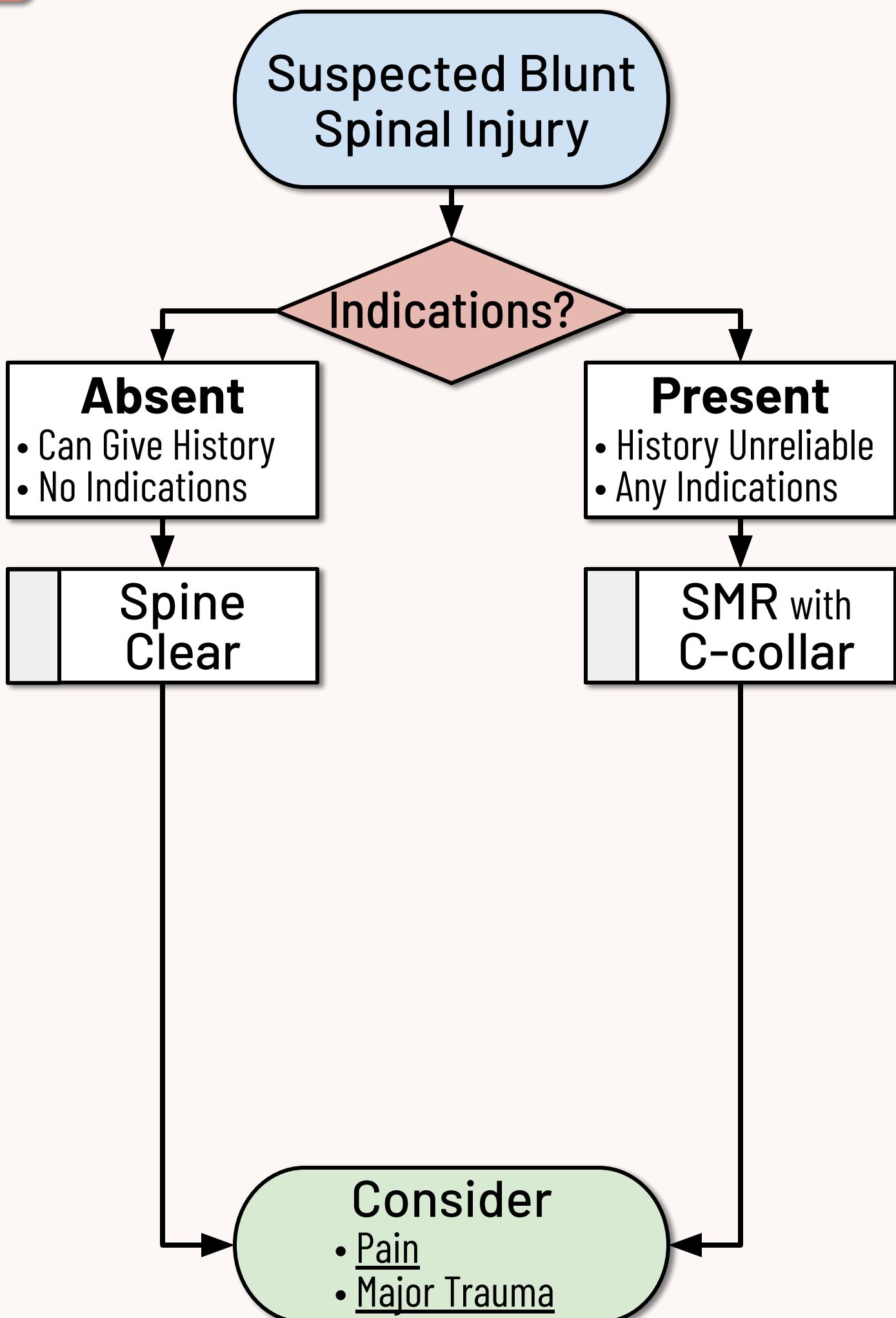
- Consider removing bystander dressings to investigate severity.
- Bandage wounds after bleeding is controlled.

Pediatrics

- Hypotension is a late sign of Shock in peds.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- ATLS[®]: www.facs.org/quality-programs/trauma/education/advanced-trauma-life-support/ [Ver: 10th]
- Stop the Bleed[®]: <https://www.stopthebleed.org/> [Ver: 2024]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34



Indications

- Spine Tenderness
- Spine Deformity
- Neuro Deficits
- Altered LOC from Baseline
- Acutely Intoxicated
- Distracting Injury or Mechanism

Immobilization Imperatives

- While backboards have historically been used to attempt spinal immobilization, **SMR** may also be achieved by use of a scoop stretcher, vacuum splint, **ambulance cot**, or other similar device to which a patient is safely secured. †
- Awake, compliant patients may be safely secured with seat belts.
- SMR requires **supine positioning** and a **c-collar**.
- A long spine board, a scoop stretcher, or a vacuum mattress is recommended to assist with **patient transfers** ... to minimize flexion, extension, or rotation of the possibly injured spine. †
 - May try gentle **self-extrication** from a vehicle (with a c-collar).
- There is no role for **SMR** in penetrating trauma. †

Notes

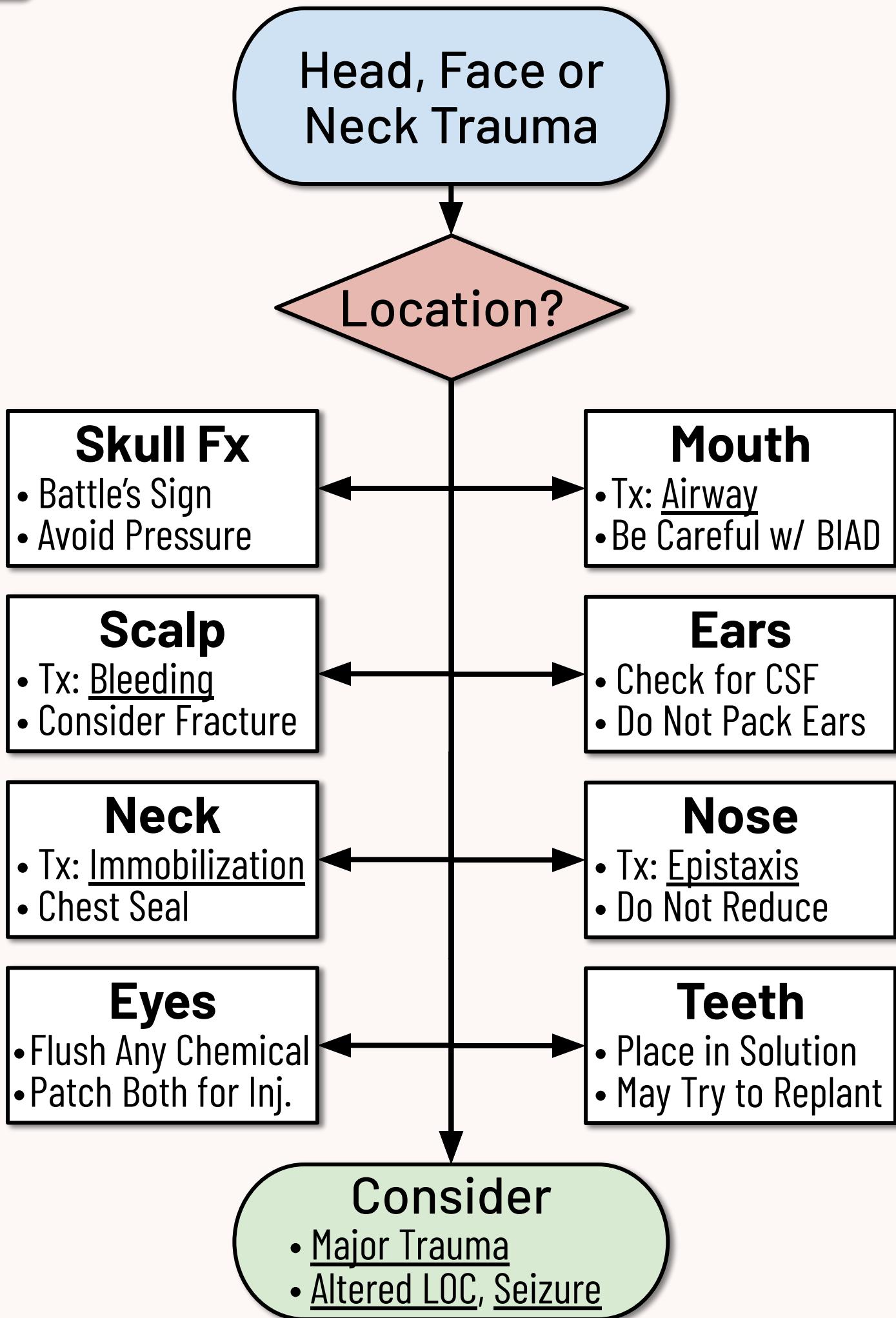
- **Spine Tenderness or Deformity** includes any:
 - Midline neck or back pain, tenderness, crepitus, step off etc.
- **Neuro Deficits** include any new symptoms of neurologic injury:
 - Unconscious greater than 1 min, or seizure
 - Paralysis, weakness, numbness, or vision changes
 - Shooting 'electric' pain, or tingling in any extremity
- **Altered LOC from Baseline** includes any change in mentation:
 - Glasgow Coma Scale less than baseline, new confusion
- **Acute Intoxication** includes any alteration in mentation due to:
 - Alcohol, medications, recreational or illegal drugs
- **Distracting Injury or Mechanism** may include:
 - Airway trauma, obvious SOB, major bleeding, or unstable vitals
 - Fall > 10 ft, flail chest, unstable pelvis, or 2° or 3° Burn > 10%
 - Major fracture, crushed, mangled, or amputated extremity
 - High risk MVC: > 60 mph, ejection, roll over, death, struck by car

Pediatrics

- Any child that cannot provide a reliable history should have **SMR**.

References

- ACS-COT, ACEP, NAEMSP: **SMR in Trauma - Joint Statement** † [Ver: 2018]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 33



Head Injury Imperatives

- Transport emergently if sudden changes in LOC.
- **Hypoxia** and **Hypotension** are associated with poor outcomes.
 - Investigate and treat for Hypoxia and Hypotension aggressively.
- Do not remove **impaled** objects. Splint object in position found.
- Intentional hyperventilation by EMS is not appropriate.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** predicts severity.

- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**



Notes

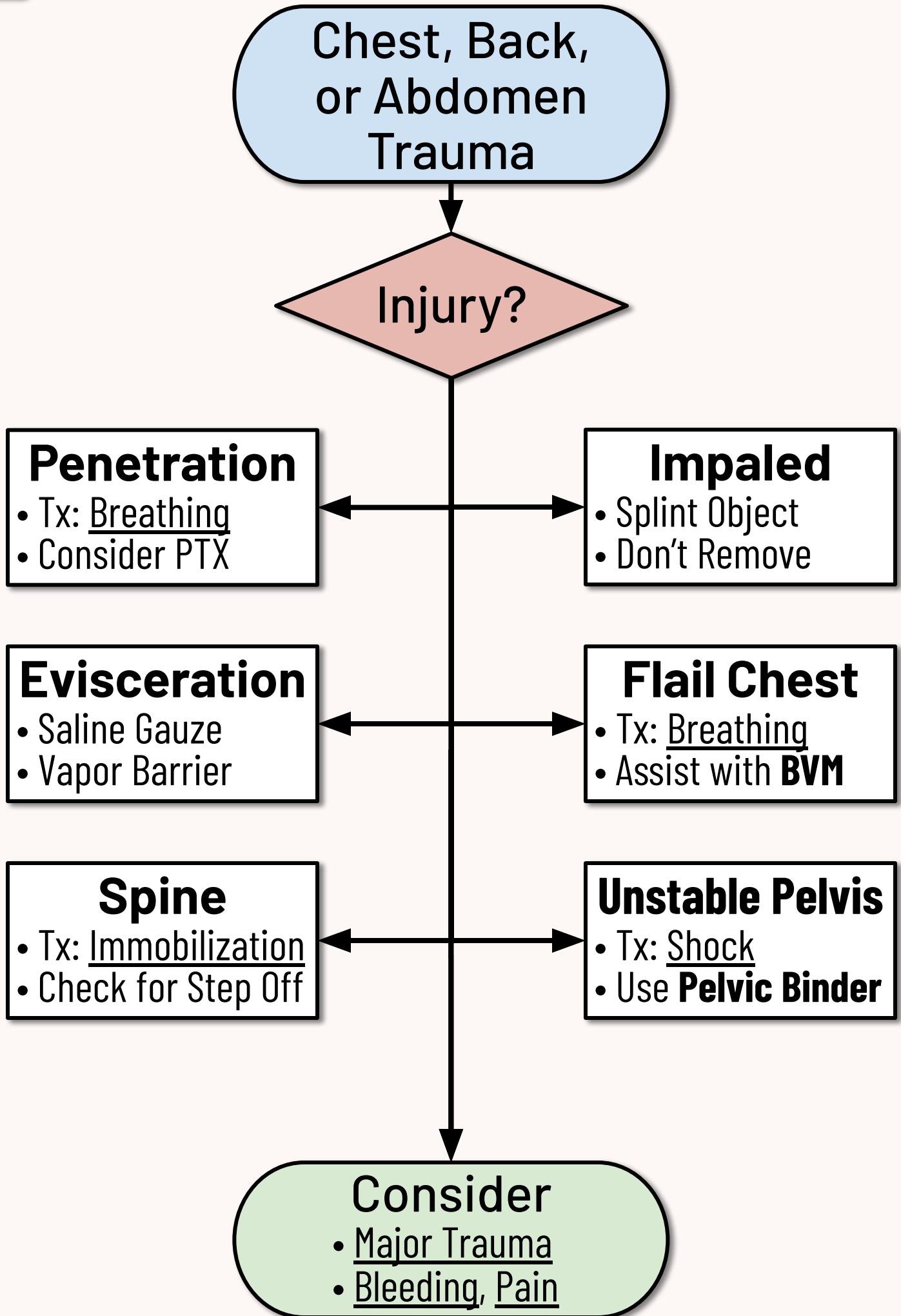
- **Skull Fx:** May cause bruising behind ears or around both eyes.
- **Scalp:** Direct pressure for brisk bleeding (unless skull crepitus/fx).
- **Neck:** All penetrations should have a chest seal.
- **Eye:** Contamination benefits from copious flushing (NS or water).
 - Patch both eyes for any penetrating injury.
- **Mouth:** Monitor Airway. May skip BIAD if obvious complications.
- **Ear:** Check any discharge for CSF by dropping on white paper.
 - A yellow / clear halo suggests CSF leak from skull fracture.
- **Nose:** Do not attempt to reduce. Treat for Epistaxis.
- **Teeth:** Transport avulsed teeth in Hank's solution or NS.
 - Attempt replantation only in uncomplicated & isolated injury.
- **Concussion:** Usually does not require EMS intervention.

Pediatrics

- Do not attempt replantation for primary (baby) teeth.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Head Injury: <https://emedicine.medscape.com/article/1163653> [Ver: 10/18]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 33



Trunk Injury Imperatives

- Do not remove **impaled** objects. Splint object in position found.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** is an important indicator of injury severity.

- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**



Notes

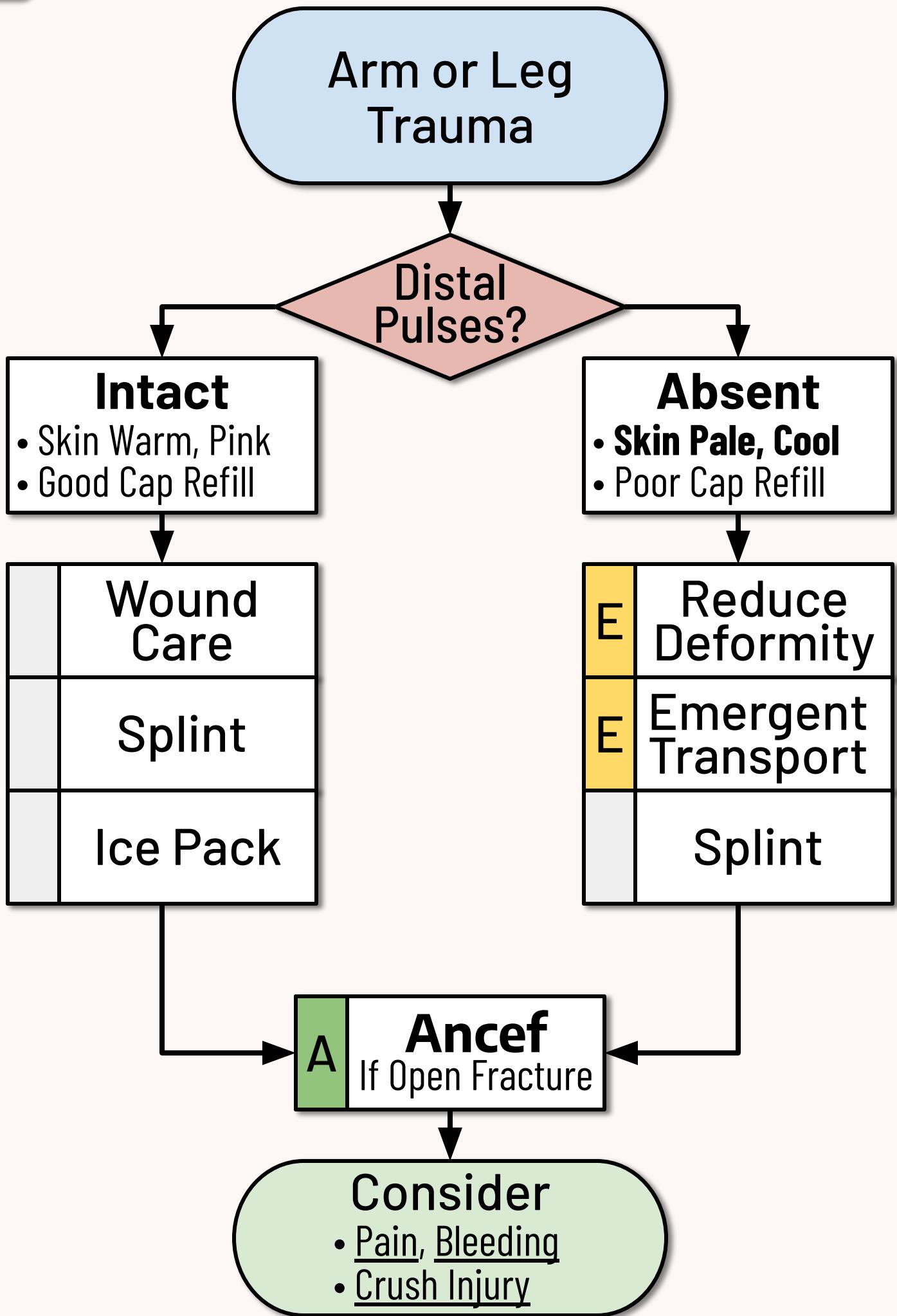
- **Penetration:** All penetrations should have a chest seal.
- **Evisceration:** Cover with saline gauze and vapor barrier.
- **Spine:** Monitor for Neuro Deficits and provide Immobilization.
- **Impaled:** Cut object free of wreckage. Do not remove from patient.
- **Flail Chest:** Monitor for Pneumothorax. Use BVM for Dyspnea.
- **Unstable Pelvis:** Assess with compression once. Use **Pelvic Binder**.

Pediatrics

- Trunk injury is more likely in peds struck by a car.

References

- Medscape Blunt Chest: <https://emedicine.medscape.com/article/428723> [Ver:11/22]
- Medscape Penetrating Abd: <https://emedicine.medscape.com/article/2036859> [Ver: 3/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 31

**Ancef:** 2 grams

IV/IO, IM x1

Adult

Extremity Injury Imperatives

- **Pulseless extremities** and **amputations** are true emergencies.
 - Record time of injury. Transport ASAP.
 - Wrap amputated parts in saline gauze and place in sealed bag.
 - Place bag on ice if available. Record time placed on ice.
- Advance to a **Tourniquet rapidly** for any major arm / leg bleeding.
 - Write the time of Tourniquet application on the patient.
- Remove adjacent and distal jewelry if able.
- Record peripheral neurovascular status before and after splinting.
- Consider a traction splint for **femur fractures** when appropriate.
 - Massive internal hemorrhage is possible with femur or hip fx.



Medications

- **Ancef®** (Cefazolin): Provide if an **open fracture** is suspected.
 - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
 - Reconstitute powder with normal saline and **shake well** to mix.

Notes

- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** is an important indicator of injury severity.

Pediatrics

- Consider **Child Abuse** for injuries that do not match the history.

References

- Medscape Fracture Care: <https://emedicine.medscape.com/article/1270717> [Ver: 3 / 22]
- Medscape Vascular Trauma: <https://emedicine.medscape.com/article/462752> [Ver: 10/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 30



Extremity Entrapment

Severity?

Minor

- Rapidly Extricated
- Distal Injury

Major

- Prolonged Crush
- Proximal Injury

E	12-Lead
	Monitor for Hyper K ⁺

E	Albuterol
A	NS Bolus
I	Calcium
E	12-Lead

Consider

- Bleeding, Shock
- Major Trauma

<u>Albuterol:</u> 10 mg	NEB (4 nebs) x1	Adult Doses
<u>NS Bolus:</u> 1,000 mL	IV/IO x2	
<u>Calcium:</u> 1 gram	IV/IO over 10 min	

Crush Injury Imperatives

- Aggressively treat major crush injury as soon as possible.
 - An initial 12-Lead is not necessary before treatment.
 - Do not wait for EKG changes to initiate treatment.
- Start treatment **during extrication** if safe and prudent.
 - May **delay extrication briefly** if treatment rapidly available.
- Remove adjacent and distal jewelry if able.

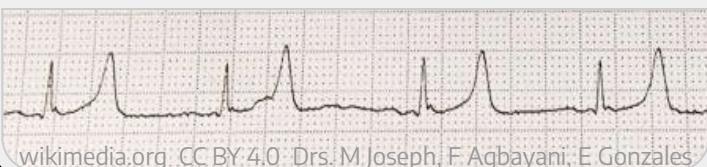
- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**



Medications

- **Albuterol** (Ventolin[®]): May give without an EKG if major crush.
 - Give **four** (4x) standard nebulizer treatments back-to-back.
- **NS Bolus** (0.9% Saline): Aggressive fluids help dilute potassium.
 - Consider aggressive fluids even without Hypotension.
- **Calcium** (Chloride): **Avoid** with **Rocephin[®]** or Digoxin[®] (fatal).

Hyper K⁺ EKG



K⁺ EKG Changes

- From minor to life threat:
 - Peaked T-waves
 - Long PRI / Loss of P-wave
 - Wide QRS (over 120 ms)
 - Slow IVR (then **sine wave**)

Notes

- Meds are unnecessary for isolated crush injury of hands or feet.
- Trapped patients may become **Hypothermic** even in warm climate.

Pediatrics

- May exhibit symptoms quicker than adults.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Rhabdo: <https://emedicine.medscape.com/article/1007814>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 30

[Ver: 2/24]

Suspected Exposure

Severity?

Major Hypo
 • Stopped Shivering
 • Cyanosis

Minor
 • Adequate Perfusion
 • Normal LOC

Major Hyper
 • Confused
 • Hot Skin

Active Warming

Glucometer

E 12-Lead

A NS Bolus

Passive Techniques

Splint
If Frostbite

Active Cooling

A NS Bolus

Consider
 • Circulation (shock)
 • Medical Code

Active Warming

- Remove Wet Clothes & Dry Off
- Heat Packs to Groin / Axilla
- Warmed IV Fluids

Active Cooling

- Fan, Misting, and/or Ice Bath
- Ice Packs to Groin / Axilla
- Chilled IV Fluids

NS Bolus: 1,000 mL

IV/IO x2

Adult

Cold / Heat Imperatives

- **Hyperthermia** is **not** the same as Fever.
 - Meds for Fever **worsen hyperthermia** and are contraindicated.
- **Confusion** is the hallmark of major **hyperthermic** emergencies.
 - Aggressively & actively cool anyone that is **hot & confused**.
 - **A** If shivering from active cooling: **Versed®** 2.5 mg IV/10 x1
- **Resuscitation** of major **hypothermia** is a special case:
 - Most important intervention is **active rewarming**.
 - Check carefully for pulse. If present, it will be **very** faint.
 - Provide **defib** and **ACLS meds** as per normal Medical Code.
 - Call **Medical Control** before termination of resuscitation.
- **Passive techniques** include clothing and environment changes.

Notes

- Special thermometers or **core temp** monitors may be helpful.
 - Major **hypothermia** is likely below: **86°F (30°C)**.
 - Major **hyperthermia** is likely above: **104°F (40°C)**.
- Excessive movement of **hypothermic** patients can cause V-Fib.
- Delay active rewarming if unable to maintain (e.g. prolonged evac).
- Drugs may also cause **hyperthermia**. The treatment is the same.
- Peds and the elderly will decompensate faster.
- Pad heat & ice packs. Do not place directly against the skin.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Hypothermia: <https://emedicine.medscape.com/article/770542> [Ver: 10/21]
- Medscape Heat Stroke: <https://emedicine.medscape.com/article/166320> [Ver: 7/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 35



Heat, Chemical,
or Electric Injury

Stop the
Burning

Severity?

Minor

- Superficial
- Less than 5% BSA

Major

- Deep or Blistering
- Face or Airway

Position of
Comfort

Wound
Care

A NS Bolus

Ensure
Patient
DECON

Consider

- Breathing, Shock
- Pain, OD / Tox

Consider
Destination
Triage

NS Bolus: 1,000 mL IV/IO x1

Adult

Burn Imperatives

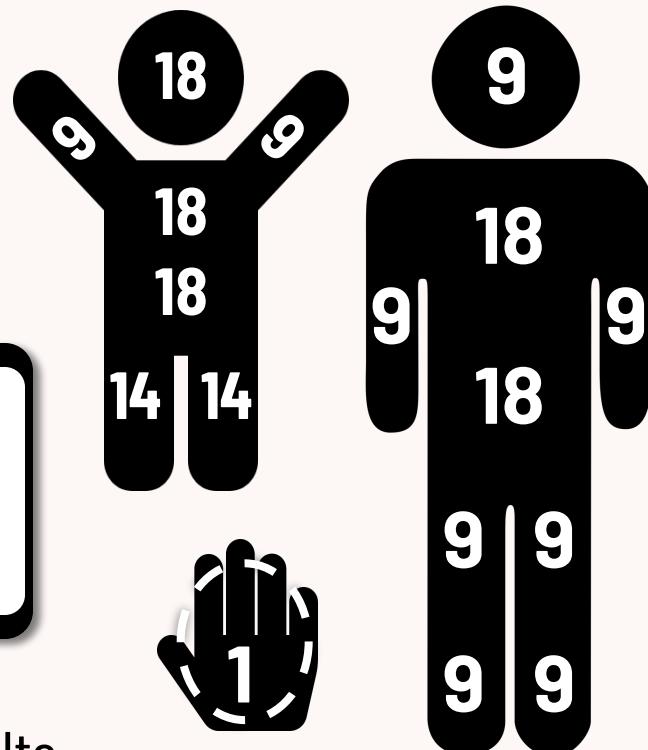
- Monitor Airway closely with any facial, nasal or oral burns.
- Be aggressive with fluids for **major burns**; watch for Hypothermia.
 - May use **ABLS rate** & fluid (LR if available, but NS is acceptable).
- **ALS** should monitor EKG for electrical burns.
- Remove adjacent and distal jewelry if able.

BSA percentage
(front and back)

ABLS rate:

- 14+ y/o: 500 mL/hr
- 6-13 y/o: 250 mL/hr
- 0-5 y/o: 125 mL/hr

- If Major Intervention
- Or Major Mechanism
- Call a **TRAUMA Alert**



Notes

- Rule of 9's can estimate BSA in adults.
 - Patient's palm (**with** fingers) is about 1% BSA.
 - Consider only partial and full thickness when calculating BSA.
- This protocol includes most exposures on **skin**.
 - For most **gas** exposures, refer to Inhalation.
 - For chemical **ingestion** or organophosphates, refer to OD / Tox.
- If substance is known, consider **Poison Control**: 800-222-1222.
- This does not include **radiation** exposure. Call **Medical Control**.
- Consider aeromedical Destination Triage if major burn > 20% BSA.
 - There are no ABA verified burn centers near the WVEMS region.

Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Burns: <https://emedicine.medscape.com/article/1278244>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 30

[Ver: 10/23]

Ensure Provider SAFETY

Toxic or Anoxic Gas Exposure

Remove from Harm

Assess for:

- Airway, Breathing
- Burns

Provide O₂

Consider

- Breathing, Shock
- OD / Tox, Bleeding
- Intubation

Ensure Patient DECON

Inhalation Imperatives

- Monitor Airway closely with any facial, nasal or oral burns.
 - Consider Intubation if appropriate and cleared for Critical Care.
- Provide high flow oxygen for any carbon monoxide (CO) exposure.
 - Symptoms may include: headache, confusion, red skin, N/V.
 - SpO₂ may read **false normal**. (CO can fool the SpO₂ monitor.)
 - Oxygen is critical for **pregnant females** exposed to CO.
- Even non-toxic gases can produce Hypoxia and dyspnea.
- **Cyanide** can be inhaled or ingested. High risk job sites may have:
 -  **Cyanokit**[®] (Cyanide antidote): May use kit if indicated

Notes

- SpCO monitors are available and work like SpO₂ monitors.
 - Normal: less than 3% (may be up to 6% in heavy smokers)
 - Exposure: 3% - 10%
 - Toxic: above 10%
- Most law enforcement **riot agents** are potent respiratory irritants.
 - Common agents include **tear gas** (CS) and **pepper spray** (OC).
 - Flush eyes and move to fresh air. Beware cross-contamination.
 - There are no specific antidotes. Provide supportive care.
- This protocol includes most **gas** exposures.
 - For most **skin** exposures refer to Burns.
 - For chemical **ingestion** or organophosphates, refer to OD / Tox.
- If substance is known, consider **Poison Control**: 800-222-1222.

Pediatrics

- May exhibit symptoms quicker than adults.

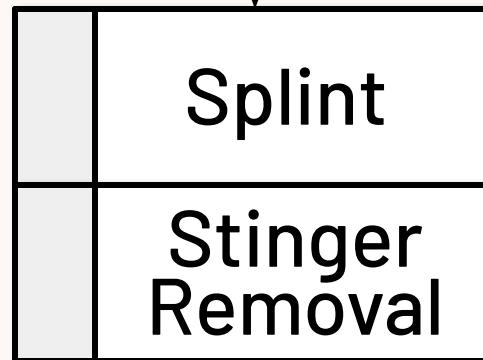
References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape CO: <https://emedicine.medscape.com/article/2085044> [Ver: 11/19]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 25



Animal or Insect Trauma

Assess for:
• Allergic Reaction
• Bleeding



Consider
• Pain
• Underlying Injury

Sting / Bite Imperatives

- **Don't bring** animals, snakes or bugs with you to the ED.
 - Do not risk provider safety to catch or photograph.
 - Law enforcement can assist with animal control if needed.
- Remove adjacent & distal jewelry; circumscribe any erythema.
- Venous tourniquets and wound suction are not indicated.
- Serious or deep bites (especially human & cat) need physician eval.
- Inquire about the **rabies status** of any domestic animal.

Notes

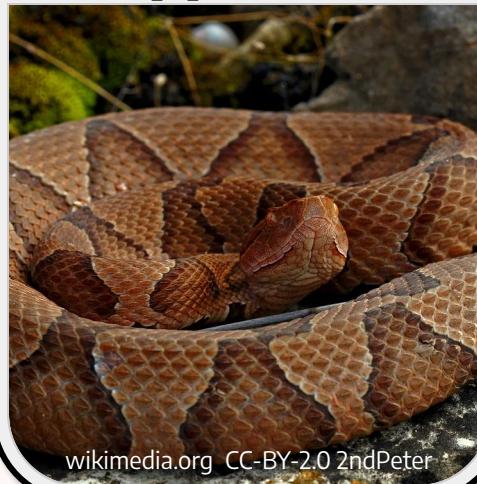
- Consider ice for animal bites and insect stings, avoid for snakes.
- Venomous **bites in VA**: Rattlesnake, Copperhead, and Black Widow
 - May also encounter venomous bites from **exotic pets**.
 - **Tick** bites do not usually require EMS intervention.
 - This protocol does not apply to **marine** stings or bites.
- If animal is known, consider calling **Poison Control**: 800-222-1222.

Rattlesnake



wikimedia.org CC-BY-2.0 PeterPaplanus

Copperhead



wikimedia.org CC-BY-2.0 2ndPeter

Black Widow



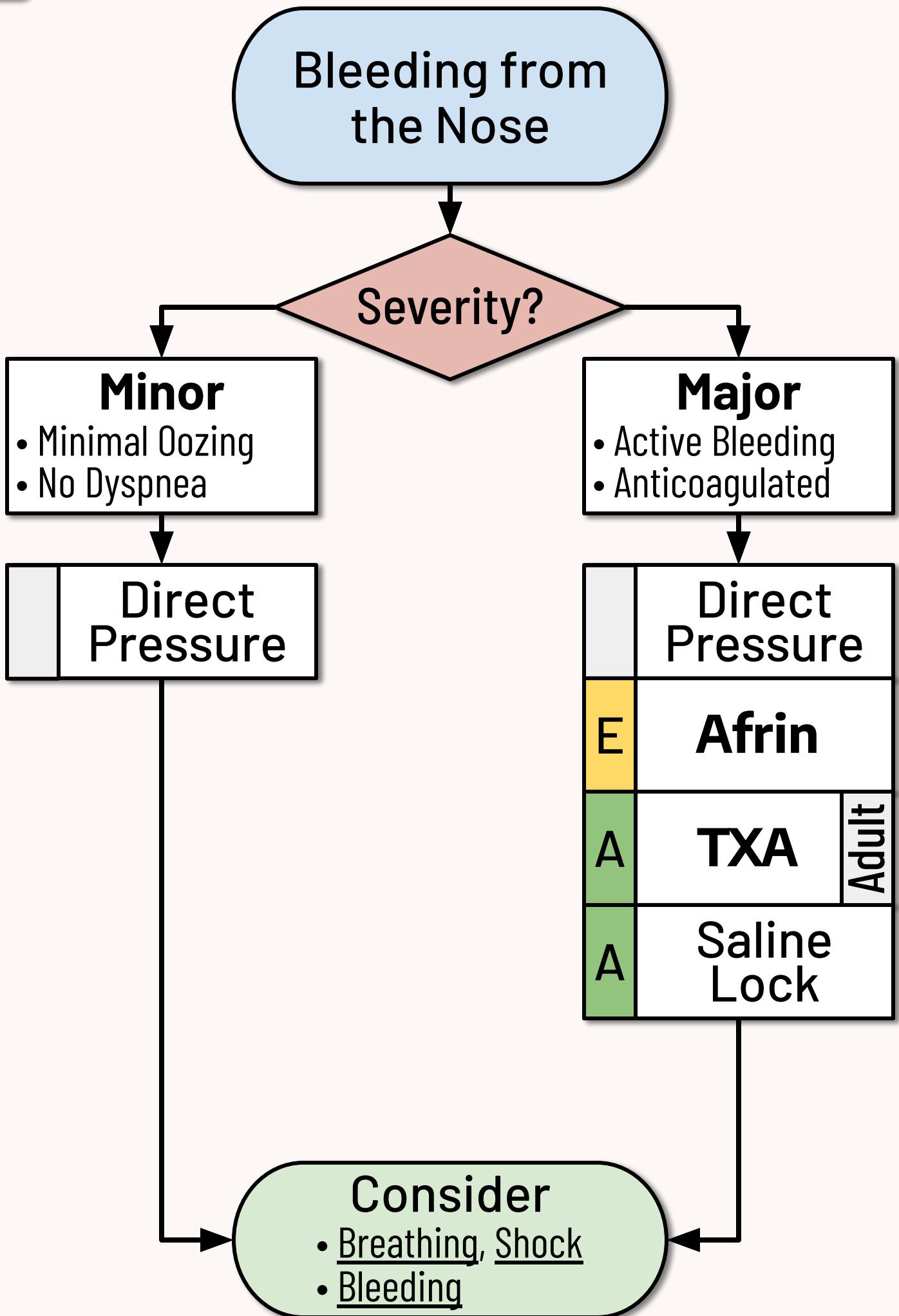
wikimedia.org CC-BY-SA-3.0 Shenrich91

Pediatrics

- Watch for first time Anaphylaxis.

References

- Medscape Snakebite: <https://emedicine.medscape.com/article/168828> [Ver: 4/21]
- Medscape Widow Spider: <https://emedicine.medscape.com/article/772196> [Ver: 5/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 35



Afrin: 1 spray IN Q 5 min x3

Adult
Doses

TXA: 150 mg IN x1

Epistaxis Imperatives

- Have the patient lean forward & **squeeze soft part of nose** firmly.
- **If still bleeding** - instruct patient to blow clots out before meds.
- Apply meds into affected nostril and squeeze nose firmly again.
- **May repeat doses** of meds in other nostril if bleeding continues.

Medications

- **Afrin**[®] (Oxymetazoline): Contraindicated with cardiac chest pain.
- **TXA** (Tranexamic Acid): Use **atomizer**. Avoid if known PE or DVT.

Notes

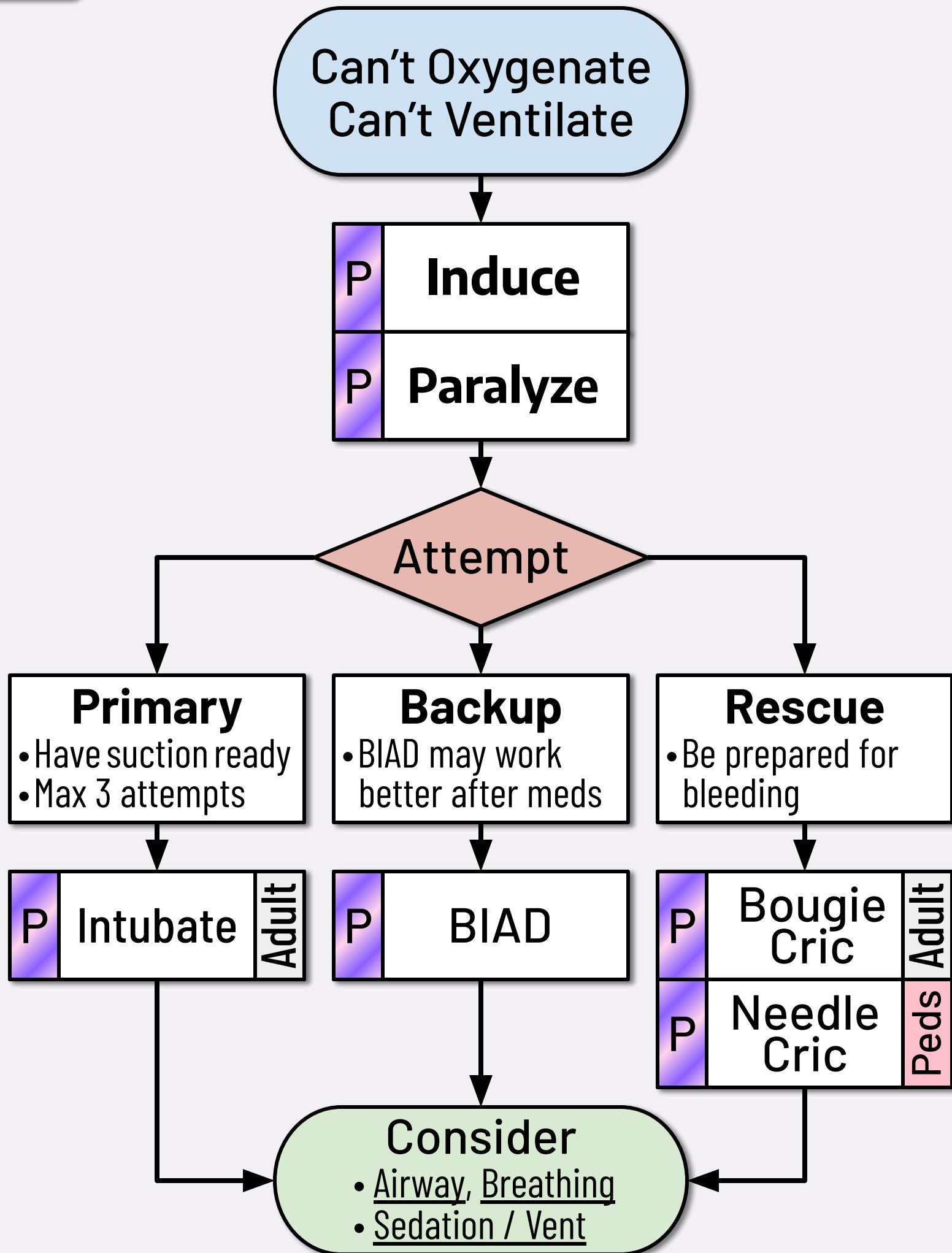
- It is very difficult to quantify the amount of blood loss.
- Check pharynx for possible **posterior bleeding**.
- Not all nose bleeds are traumatic. The treatment is the same.
- Ask about anticoagulation medications such as:
 - Aspirin (ASA)
 - Coumadin[®] (Warfarin)
 - Eliquis[®] (Apixaban)
 - Plavix[®] (Clopidogrel)
 - Xarelto[®] (Rivaroxaban)
 - Effient[®] (Prasugrel)
 - Pradaxa[®] (Dabigatran)
 - Brilinta[®] (Ticagrelor)
 - Lovenox[®] (Enoxaparin)

Pediatrics

- Nose bleeds are usually from minor trauma (nose picking).
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Epistaxis: <https://emedicine.medscape.com/article/764719> [Ver: 8/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29



Etomidate: 0.3 mg/kg	IV/IO	x1	Adult Doses
Ketamine: 2 mg/kg	IV/IO	x1	
Rocuronium: 1 mg/kg	IV/IO	x1	
Succinylcholine: 1.5 mg/kg	IV/IO	x1	

RSI Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.
 - Including **twelve (12) high fidelity** (or human) airway sims.
- In the last three (3) mo: practice **three (3) low fidelity** airway sims.
- Ongoing **physician quality review** of all training & live attempts.
- At least two (2) years experience as a cleared & active paramedic.

Imperatives

- **Two (2) CC/RSI Medics** must be on scene and work together.
 - **Maximum** of two (2) attempts per provider & max 3 (three) **total**.
- **Monitor EKG, SpO₂ and EtCO₂** with waveform. Try to maintain:
 - SpO₂ **above 90%**, EtCO₂ of **35-45 mmHg** (or for ROSC: 40-50 mmHg)
- **Preoxygenate** while predicting airway difficulty. Utilize **apneic O₂**.
- Utilize an RSI **prep checklist** and drug/vent reference materials.
- May use adjunct meds (e.g. push **pressors** if shock index > 0.8).
- **Video Laryngoscopy** is the standard of care; **record every case**.
 - Record the monitor/vitals and your face prior to each attempt.

Medications

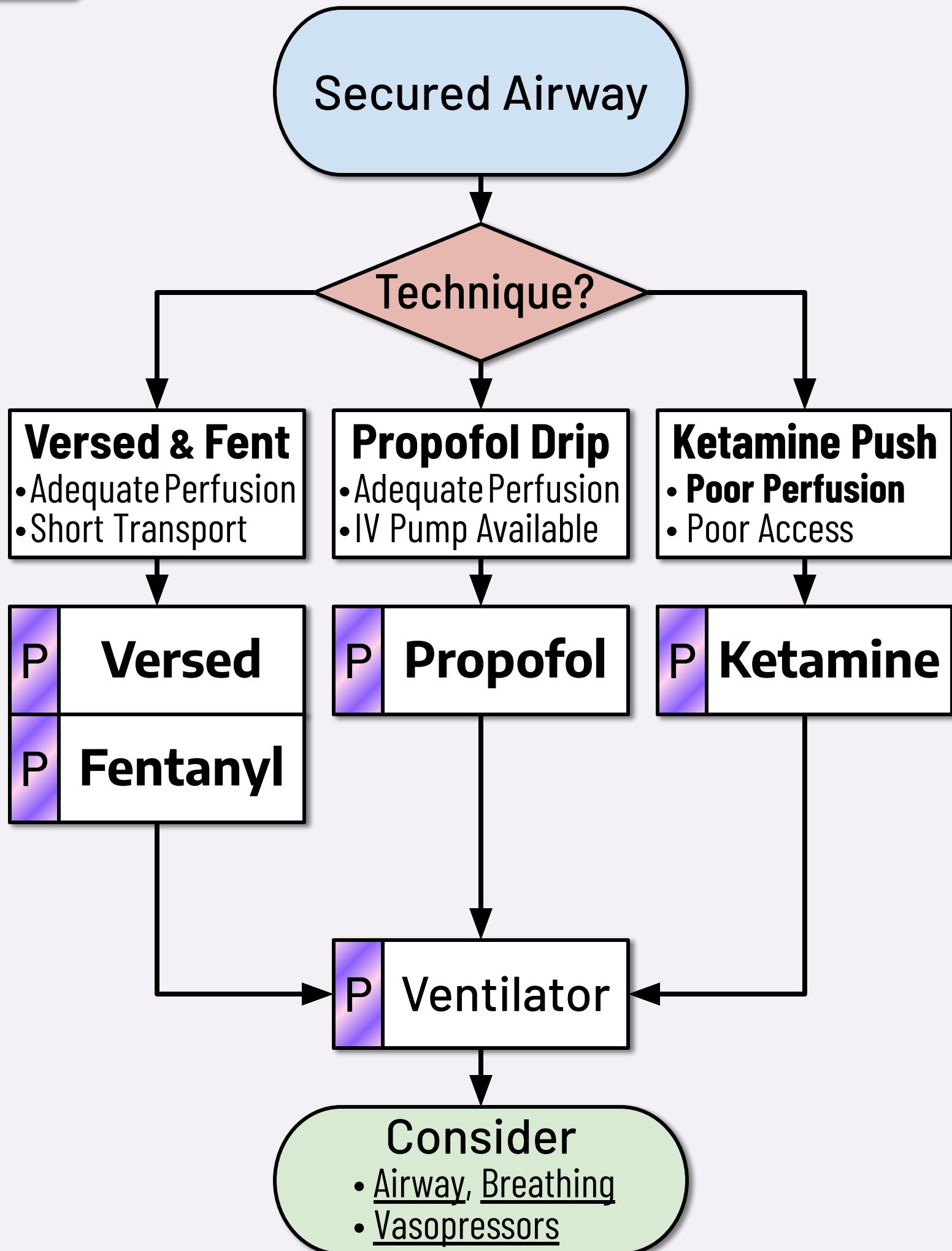
- **Etomidate** (Amidate[®]) or **Ketamine** (Ketalar[®]): Choose one.
 - Beware (uncommon) laryngospasm with **Ketamine**.
 - **Etomidate** is not appropriate for patients under 10 y/o.
- **Rocuronium** (Zemuron[®]): Onset - 1 min; Duration - 30 min
- **Succinylcholine** (Anectine[®]): Onset - 30sec; Duration - 5 min
 - Depolarizing, use caution with hyperkalemia, myopathies, burns.

Pediatrics

- Prehospital peds RSI (ETT intubation) has very poor outcomes.
- **RSA** (induction & paralytics w/ BIAD) is superior to RSI for peds.

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- NAEMSP Position Statement: <http://doi.org/10.1080/10903120500541506> [Ver: 2009]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 10



Fentanyl: 0.5-1 mcg/kg	IV/IO Q 30 min PRN	Adult Doses
Versed: 10-50 mcg/kg	IV/IO Q 30 min PRN	
Ketamine: 0.5-2 mg/kg	IM,IV/IO Q 30 min PRN	
Propofol: 50-200 mcg/kg/min	IV/IO Titrated Drip	

Sedation / Vent Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.

Imperatives

- Monitor patients **closely**. Sedation & vents are a delicate balance.
 - Use clinical sense and vital signs **including SpO₂ and EtCO₂**.
 - Be ready to **titrate settings** and assist with Suction and Airway.
- Use lung protective volumes w/ ventilator. Start at 4-8 mL/kg IBW.

Typical Adult Vent Settings

- Mode: **AC (V)** • Vt: **350** mL (or 450 mL if over 6' tall)
- BPM: **12-16** /min • FiO₂: **100%** (may titrate down 40-60%)
- PEEP: 5 mmHg • PIP Limit: 35 mmHg • I:E 1:3

Medications

- **Fentanyl** (Sublimaze[®]), **Versed** (Midazolam[®]): Use together.
 - One without the other is unlikely to produce adequate sedation.
- **Ketamine** (Ketalar[®]): Useful for peds and asthmatics.
 - Double dose for IM (watch concentration: max 3 mL per IM inj.)
- **Propofol** (Diprivan[®]): Start gtt near **150** mcg/kg/min.
 - **Use only with an IV pump** and an accurate patient weight.
 - Titrate to effect, aim for 30-50% **reduction** in first 30 min.
 - For elderly or debilitated: start lower (100 mcg/kg/min).
 - For peds: start higher (200 mcg/kg/min).

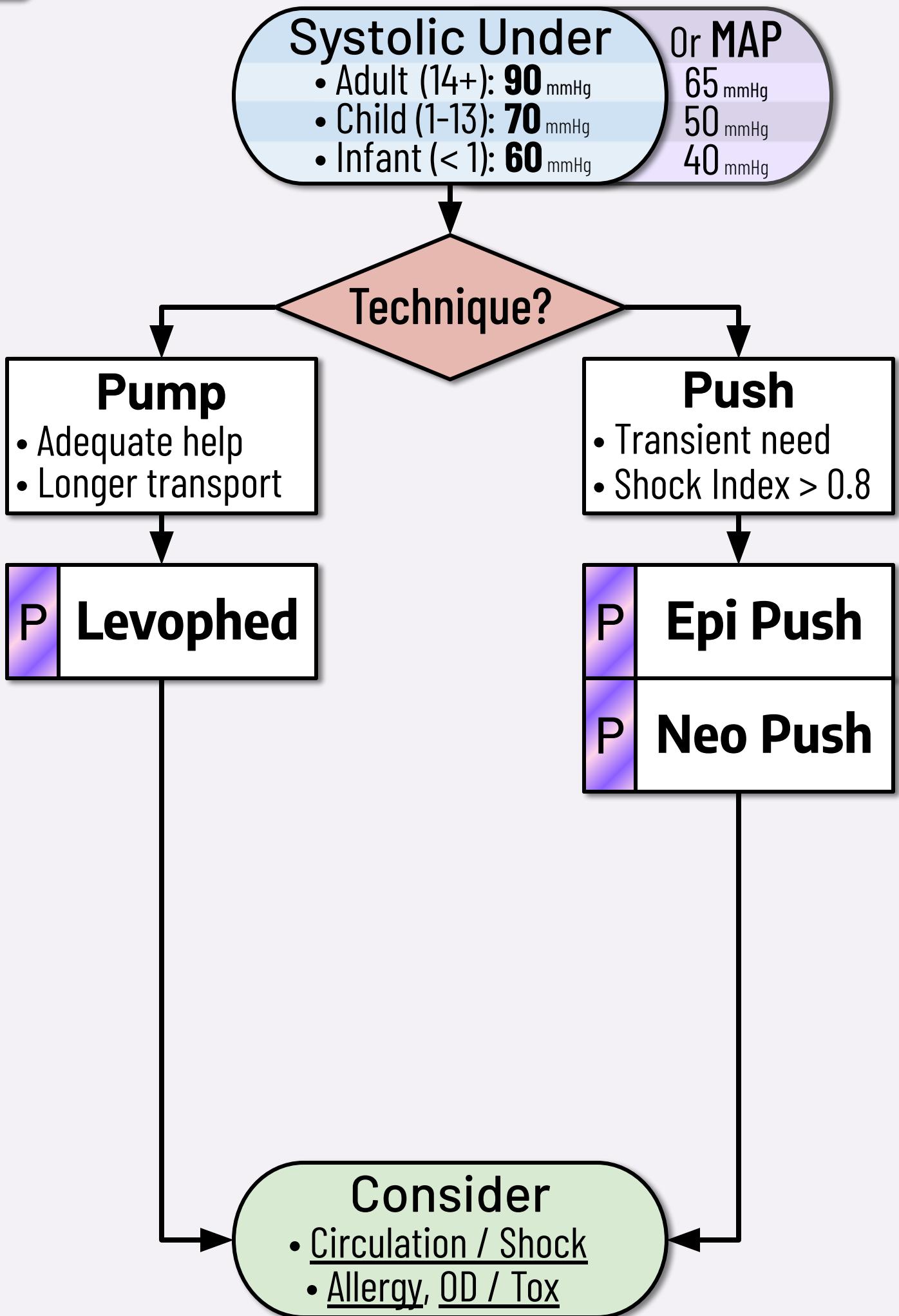
Pediatrics

- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Sedation: <https://emedicine.medscape.com/article/809993>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 27

[Ver: 4/21]



Levophed: 5-20 mcg/min IV/IO titrated gtt

Adult
Doses

Epi Push: 5-20 mcg IV/IO Q 2 min

Neo Push: 50-200 mcg IV/IO Q 2 min

Vasopressors Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.

Imperatives

- Inappropriate use of pressors can **cause harm**.
 - Double check dose calculation (beware multiple concentrations).

Medications

- Levophed**® (norepinephrine): Good for **septic shock**.
 - **Requires a pump** - it is inappropriate to dose by gravity gtt.
- Epi Push** (epinephrine): Good for **anaphylactic shock**.
 - Be prepared to repeat dosing; avoid in STEMI.
- Neo Push** (phenylephrine): Good for elevated **shock index**.

Shock Index

$$SI = \frac{\text{Pulse}}{\text{SBP}}$$

Poor Perfusion

- Suspect if **several** of these:
 - **Altered Mental Status**
 - Skin Pale, Cool, Diaphoretic
 - Tachycardia, Hypotension
 - Dyspnea, Tachypnea

Notes

- Shock Index** is a good predictor of hypotension from RSI.
 - Be ready with push dose pressors **if Shock Index is above 0.8**

Pediatrics

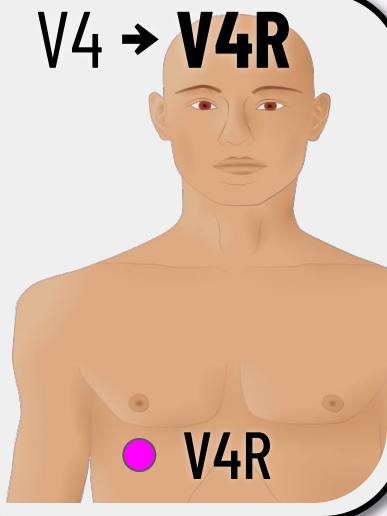
- Use Peds Reference or other approved source for peds dosing.
- Titrate to age-adjusted BP (vitals also listed in Peds Reference).

References

- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape Vasopressors: <https://emedicine.medscape.com/article/2172220> [Ver: 7 / 21]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7, 29

**Suspected ACS
with pathologic
EKG Changes**

V4 → V4R

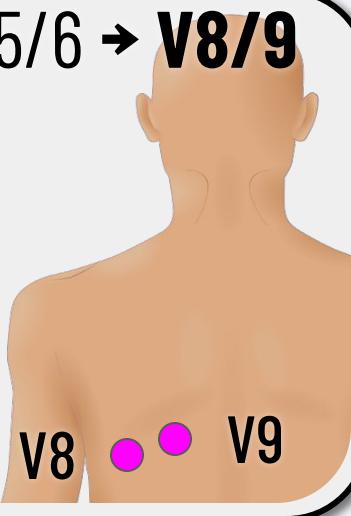


Treat for
Chest Pain

P 15-Lead
If Indicated

P Sgarbossa
V-pace or LBBB

V5/6 → V8/9



Confirm:

- Symptoms of **ACS**
- EKG with **STEMI**

P Heparin Adult

Consider
• Breathing, Shock
• Pain, Chest Pain

Consider
Destination Triage

Heparin: 5,000 units IV/IO x1

Adult

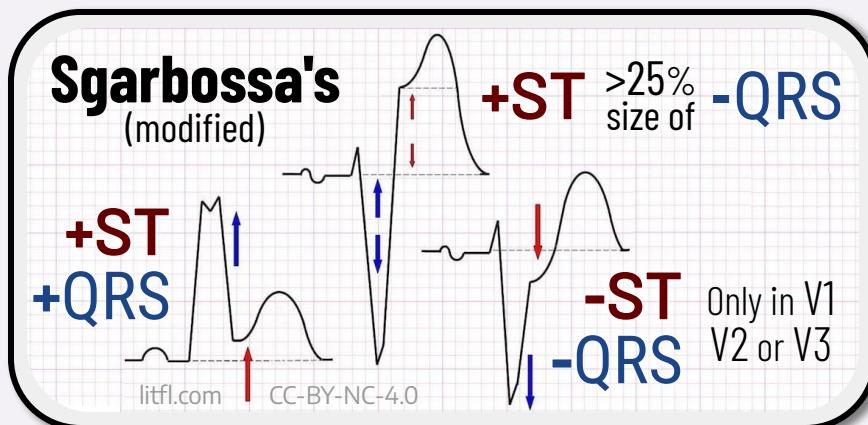
STEMI Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.

Imperatives

- Don't forget the basics: **O₂, ASA & Nitro**. Start **IV in left hand**.
- Perform **15-Lead EKG** if: **inferior** STEMI or **septal** ST depressions.
 - ST elevation in V4R is **right sided MI** - **Nitro** may cause shock.
 - ST elevations in V8 and V9 indicates a **posterior STEMI**.
- If V-pace or LBBB: any of **Sgarbossa's** criteria suggests a STEMI.

- If **V-pace** or **LBBB**
- w/ any **Sgarbossa**
- Call a **HEART Alert**



Medications

- **Heparin** (Sodium): verify dose/concentration, give slow IV push
 - Avoid if any suspected life-threatening bleeding (UGIB, ICH, etc).

Notes

- Notify ED **ASAP**. Prepare to **go straight to cath lab** if time allows:
 - **Shave** from belt to knees, place **defib pads**, change into a **gown**

Pediatrics

- May have early repolarization on EKG that mimics ST elevations.
 - But early repolarization **does not require** EMS intervention.
- True STEMI is very unlikely in peds - search for alternate causes.

References

- Medscape AMI: <https://emedicine.medscape.com/article/155919> [Ver: 5/19]
- ACC Expert Consensus: <https://www.jacc.org/doi/10.1016/j.jacc.2022.08.750> [Ver: 11/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 20

Systolic Over

- Adult (14+): **240** mmHg
- Child (1-13): **220** mmHg
- Infant (< 1): **200** mmHg

**Use Caution
if Patient
Refusal**

Severity?

Urgent

- Chest Pain, SOB
- Headache

Emergency

- Altered LOC
- Organ Damage

**Treat as
Hypertension**

P

Lopressor

P

Magnesium
If Pregnant

Consider

- Pain, Pregnancy, Seizure
- Cardiac, SOB, Stroke

Lopressor: 5 mg

IV/IO Q 5 min x2

**Adult
Doses**

Magnesium: 4 grams

IV/IO over 10 min

Malignant HTN Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.

Imperatives

- Inappropriate use of antihypertensives can **cause harm**.
 - Consider & investigate for **underlying causes** of Hypertension.
- Focal neurologic deficits are more likely to be a Stroke.
 - Lowering BP during a stroke can **cause harm**.
- Use antihypertensives **only if organ damage** from HTN is likely.
 - Focus on underlying causes if organ damage is unlikely.

Medications

- **Lopressor[®]** (Metoprolol):
 - Aim for 10-20% reduction in systolic BP. Do not exceed 25%.
 - Contraindicated if SBP under 190 mmHg or pulse under 60 /min.
 - Call **Medical Control** if SBP remains elevated after two doses.
- **Magnesium** (Sulfate): only use for **severe preeclampsia**.
 - Severe symptoms include: HTN, HA, confusion, dyspnea, edema.
 - Consider providing for **seizure prophylaxis** if SBP > 160 mmHg.
 - Monitor **deep tendon reflexes** for toxicity - d/c if reflexes lost.

Notes

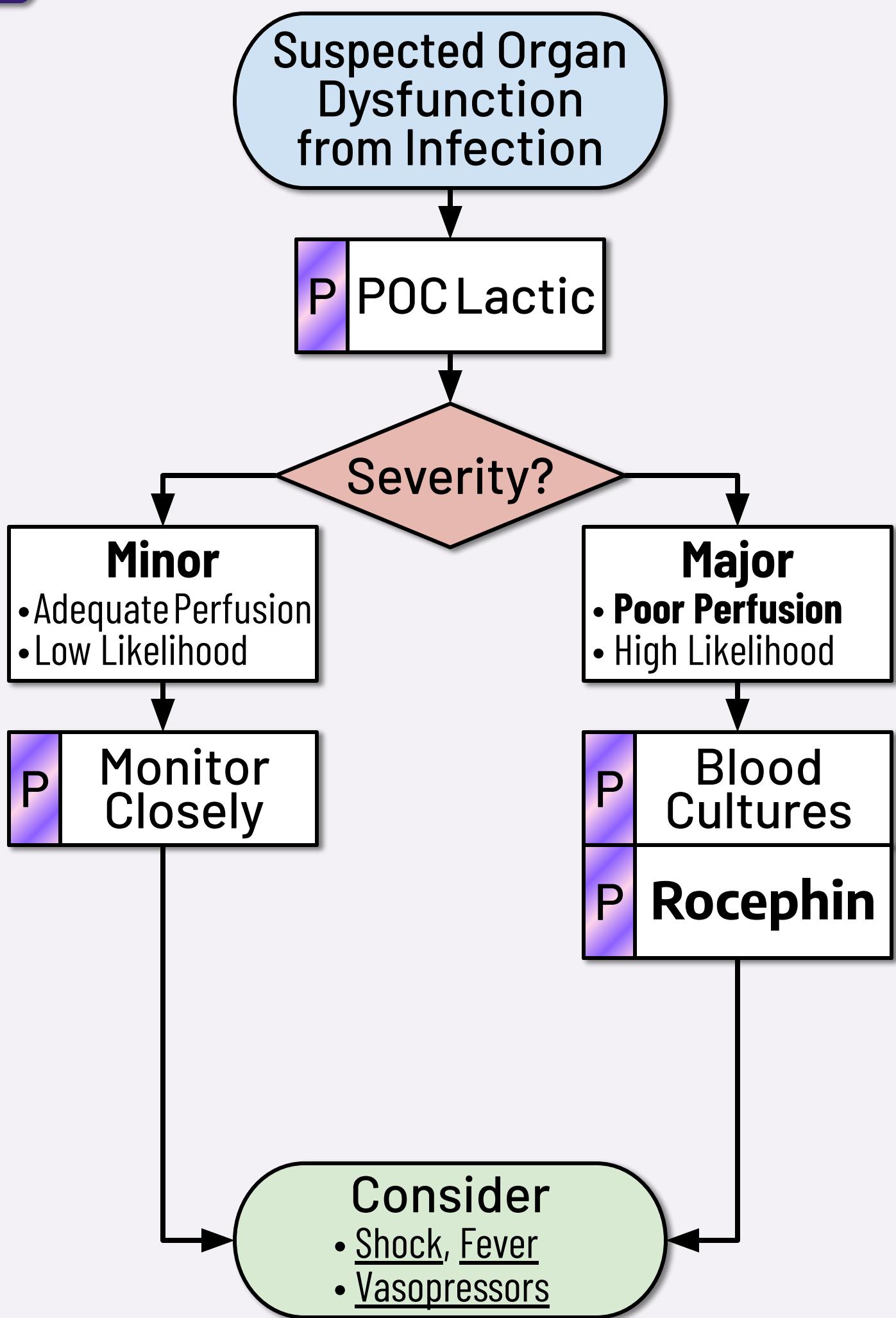
- Signs of **organ damage** from HTN may include:
 - Obvious global weakness, paralysis, seizure, encephalopathy
 - Severe headache and vomiting, mental status changes
 - Vision **loss** or blurred (not simple flashes or double vision)

Pediatrics

- Malignant HTN is unlikely in peds. Call **Medical Control** for advice.

References

- Medscape Malignant HTN: <https://emedicine.medscape.com/article/241640> [Ver: 5/20]
- Medscape Eclampsia: <https://emedicine.medscape.com/article/253960> [Ver: 2/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7



Rocephin: 1 gram IV/IO, IM x1

Adult

Sepsis Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.

Organ Dysfunction

- Suspect if **several** of these:
 - Pulse > 90 /min, Lactic > 2 mmol/L
 - Resp > 20 /min, EtCO₂ < 25 mmHg
 - Temp > 100.4 °F (> 38 °C)
 - Temp < 96.8 °F (< 36 °C)
 - Decrease in mental status
 - Increased O₂ requirement

- Organ Dysfunction
- Suspected Infection
- Call a **SEPSIS Alert**



Suspect Infection

- With any **recent history** of:
 - Fever, cough, antibiotic use
 - Indwelling line / catheter
 - Open wound / decub ulcer
 - Surgery / major procedure

Imperatives

- Sepsis is life-threatening organ dysfunction caused by... infection. †
- [For possible] sepsis, we suggest measuring **blood lactate**. †
- [For] **sepsis without shock**, we recommend rapid assessment of the likelihood of infectious versus noninfectious causes... †
- [For] a **low likelihood** of infection and **without shock**, we suggest deferring antimicrobials while continuing to closely monitor... †
- [For] **septic shock** or a **high likelihood** for sepsis, we recommend administering antimicrobials immediately... †

Medications

- Rocephin**[®] (Ceftriaxone): First line for undifferentiated sepsis.
 - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
 - Reconstitute with **NS** for IV/IO, and **Lidocaine** for IM.
 - **Do not** use with **Calcium** - potentially fatal.

Pediatrics

- It is appropriate to **defer antibiotics** (minimal evidence for peds).

References

- Surviving Sepsis Campaign: International Guidelines 2021 †
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 24

[Ver:11/21]

Page 93

General

Glucometer

E

12-Lead

A

Saline Lock

Page 96

Resuscitation

Chest Compression

Defib

A

I O

Page 99

Bleeding

Wound Care

Tourniquet

Wound Packing

Page 94

Airway

Heimlich

A

Magill Forceps

Page 97

Adjuncts

NPA

OPA

A

OG-Tube

Page 100

Injury

SMR with C-collar

Splint

E

Reduce Deformity

Stinger Removal

Page 95

Breathing

BVM

E

NIPPV

Page 98

Advanced Adjuncts

E

BIAD

I

Needle Decompress

Page 101

Cardiac

I

Pacing

I

Cardioversion

Page 102

Obstetrics

E

Deliver Baby

E

Manage OB Complication

Page 103
• Critical Care

1. Prepare glucometer and test strip.
2. Identify and clean site.
 - The patient may have a preference.
3. Pierce skin with lancet to obtain blood sample.
 - May alternatively obtain blood from IV attempt if meter allows.
4. Place blood in/on reagent strip per manufacturer's instructions.

Glucometer

1. Enter patient info into monitor.
2. Prepare chest and place electrodes.
3. Instruct pt to **lay still**. Press button on monitor to acquire 12-lead.
4. Acquire EKG while **not moving**. Try to **minimize artifact**.
5. Transmit EKG to ED. May contact receiving hospital to confirm.

E 12-Lead

E May read machine Interpretation. **I** May interpret directly.

1. Investigate for good site.
 - AC and wrist are common sites.
 - Try to avoid legs, forehead and jugular unless necessary.
 - Advance rapidly to **IO in emergencies**. May start w/ IO in a CODE.
 2. Clean site well. Apply a venous tourniquet.
 3. Perform venipuncture with appropriate size needle/cath.
 4. Watch for flash of blood; advance catheter (do not rethread cath).
 5. Lab draw order: (culture), **blue**, (red), **gold**, **green**, **purple**, (gray)
 6. Attach lock and flush with saline. Secure well with tape.
- NOTE: It is almost always inappropriate for EMS to access an established indwelling central line (such as **dialysis** or **PICC line**). EMS may consider using established lines only during a CODE.

A Saline Lock

1. Help patient **cough if able**.

Heimlich

2. Attempt thrusts only if truly choking:

- Adult (14+): Abdominal thrusts (Use chest thrusts if obese/preg.)
- Child (1-13): Abdominal thrusts
- Infant (<1): 5 back blows then 5 chest thrusts

3. Keep going until choking relieved or pt becomes unresponsive.

- **Begin CPR** if unresponsive.

4. Remove any foreign bodies from mouth before ventilation.

- Do not perform blind finger sweeps.

1. Awake pts may suction themselves.

Suction

2. Prepare suction device with tip:

- Oropharynx: **hard tip** (e.g. Yankauer or DuCanto™)
- **E** Nasal/BIAD/ETT/trach/stoma: **flexible cath** (french).

3. Insert tip with suction off and/or vent hole uncovered.

- May use 2-3 mL saline to loosen secretions.
- **E** Consider detailed trach care: remove/clean inner cannula.

4. Cover vent hole and apply suction as tip is withdrawn.

1. Confirm patient is unresponsive.

A

**Magill
Forceps**

2. Visualize posterior pharynx.

- May utilize laryngoscope. (Average adults use Mac #3.)

3. Use Magill Forceps to remove any identified foreign bodies.

- Consider using **suction**.

4. Secure Airway with BIAD if needed.

1. Prepare appropriately sized BVM.
 - Connect to high-flow **oxygen**.
 - Extend O₂ reservoir if equipped.
2. Maintain adequate mask seal. **Dual rescuers is preferred.**
 - Single Rescuer: Use E - C clamp technique.
 - Dual Rescuers: Use two handed technique.
3. Ventilate with slow deliberate squeezing of bag.
 - Assist with natural rate if adequate.
 - Provide additional breaths if natural rate is inadequate.

BVM

1. Explain procedure to pt.
 - Consider an NPA if tolerated.
2. Start the flow of oxygen to the mask. Set **basic mask at 7.5 cmH₂O**.
 - Alternate: use CPAP or BiPAP mode on vent w/ OMD approval.
 - Start vent **CPAP at 7.5 cmH₂O** and **BiPAP at 10/5 cmH₂O** (IPAP/EPAP)
3. Place the mask over patient's nose and mouth.
4. Ensure adequate seal by adjusting placement and tighten straps.
5. Provide encouragement. Monitor closely for complications.
 - **Remove promptly if vomiting or unresponsive.**
 - **I** Consider treatment of **anxiety** to assist with compliance.
6. May titrate pressures: higher if hypoxic, lower if hypotensive.
 - Likely beneficial to use **nebulizers in-line** if indicated & able.

E

NIPPV

1. Confirm no pulse and not breathing.

2. Place hands on chest:

- Adult (14+): Two hands w/ fingers interlaced over center of chest

- Child (1-13): One hand over center of chest

- Infant (<1): Two hands circling chest using thumbs

3. Push hard and fast. Compress about 1/3 the depth of the chest.

4. **Minimize interruption.** Compressions are the most important.

5. Switch personnel every 2 min or sooner if needed.

NOTE: Consider placing a **mechanical CPR device** after first 2 min.

Chest Compression

1. Cut clothes to expose chest.

- Consider shaving excessive hair.

- Remove any medication patches. Wipe off residue.

2. Apply defibrillator pads. Avoid implanted devices or catheters.

3. When indicated, stop compressions and analyze cardiac rhythm.

E Use AED "analyze" function. **I** May interpret directly.

4. If shock indicated: **charge defibrillator while continuing CPR.**

- Start at max, or follow manufacturer's or OMD's dosing guideline.

- Use Peds Reference or other approved source for peds dosing.

5. **Assertively state "CLEAR!"** Visually confirm everyone is clear.

6. Defibrillate by pressing **SHOCK**. **Restart CPR immediately.**

- Consider moving the defib pads (**vector change**) if refractory.

- Routine use of double sequential defib is not recommended.

Defib

1. Prepare IO device and select site.

- Consider pre-treating for Pain.

- **Tibial plateau & humeral head** are typical. Follow OMD guidance.

2. Insert IO following manufacturer's recommended procedure.

3. Secure well with bulky dressing or other manufactured device.

4. Consider admin of low-dose Lidocaine for local discomfort.

A

IO

Lidocaine: 10 mg IO Q 5 min x3 PRN Pain Adult

5. Consider using a pressure bag to increase fluid rates if needed.

1. Measure appropriate NPA size:
 - Tip of nose to angle of jaw
2. Apply water-soluble lube to NPA.
3. Insert NPA into nare with bevel toward septum.
 - Start on larger nare. Rotate slowly if resistance is felt.
4. If unsuccessful: try more lube, smaller size and / or other side.
 - Minor **nose bleeding is common.**

 NPA

1. Measure appropriate OPA size:
 - Corner of mouth to angle of jaw
2. Insert OPA into mouth slowly. May use tongue blade to assist.
 - Insert with tip to **nose for adults** and tip to **toes for ped.**
3. Rotate into place. Remove promptly if any gagging.

 OPA

1. Measure appropriate tube depth:
 - Tip of nose to the stomach
2. Only place a prehospital OG-tube with an **appropriate airway**.
3. Lubricate the OG-tube.
4. Place into airway device per manufacturer's recommendation.
5. Advance the tube gently until the appropriate depth is reached.
6. Confirm placement and then secure the tube.
 - Inject air. Listen for bubbles in the stomach.
 - Attempt to aspirate gastric contents.
7. Continue to decompress the stomach of air and / or food.
 - Use low suction or manually aspirate with large tip syringe.

 A

OG-Tube

E

BIAD

1. Prepare appropriately sized device:
 - Apply water-soluble lube.
 - Average adults use an **iGel #4 (green)**.
2. Open mouth and pull jaw and tongue forward (or use jaw thrust).
3. Insert BIAD into pharynx. Follow curve of the palate and tongue.
 - Stop when resistance is felt & teeth are near the depth line.
 - May rotate to facilitate insertion. Rock gently to seat in airway.
4. **If a balloon** is present: inflate per manufacturer's instruction.
6. Confirm placement. Secure well with tape or other device.
 - Use auscultation, capnometry, EtCO₂ and SpO₂ if available.
7. If BIAD fails, **try again with a different size**.
 - Most common failure of a BIAD is inappropriate size.

I

Needle Decompress

1. Identify side and clean best site:
 - Peds: 2nd intercostal midclavicular
 - Adults: **4th or 5th intercostal anterior to midaxillary line**
2. Insert large (12- or 14- gauge) IV needle into the skin at 90°
 - Preferably use a needle specifically made for decompression.
 - Go just over the top of the rib to minimize bleeding.
3. Advance until a "pop" is felt and / or you hear a hiss of air.
 - Hold needle in place, **advance cath only** the rest of the way.
4. Remove the needle, leaving the plastic cath in place.
5. Cover the exposed catheter hub with a chest seal.
6. Vent chest seal or **repeat decompression** if dyspnea returns.

 Wound Care

1. Apply **direct pressure** for bleeding.
 - Consider tourniquet or packing.
2. If bleeding is easily controlled, irrigate contaminated wounds.
 - Consider pre-treatment of Pain.
3. Cover wounds with sterile gauze and apply appropriate dressing.
 - Monitor and **document distal pulse**, movement and sensation.
 - Cover **burns** with sterile burn dressing.
 - Apply a **chest seal** (occlusive) to any neck or trunk penetration.

 Tourniquet

1. Apply **direct pressure** for bleeding.
 - Confirm massive limb bleeding.
2. Apply tourniquet proximal to bleed per manufacturer instruction.
3. **Tighten** until bleeding is controlled. **Secure windlass** in place.
 - Consider placing second tourniquet if bleeding continues.
 - Consider treatment of Pain.
4. **Record time** on tourniquet or directly on the patient's skin.

 Wound Packing

1. Apply **direct pressure** for bleeding.
 - If stable, consider simple wound care.
 - If massive bleeding from a limb, consider a tourniquet.
 - Packing is ideal for **junctional injury** (neck, axilla, groin).
 - Do not pack skull or thorax wounds. Do not pack natural orifices.
2. If bleeding continues, **wipe** gross blood and clot out of wound.
3. Insert packing inch by inch as deep as possible into wound.
 - Avoid rapidly stuffing a large wad. **Pack deep** and deliberately.
 - Insert as much packing into the wound as possible.
 - **E** May use hemostatic packing agents (e.g. QuikClot®)
4. Re-apply **direct pressure** on top of packing.
 - Consider treatment of Pain.

	SMR with C-collar
--	----------------------

1. Provide **manual** cervical SMR.
2. Prepare appropriately sized **c-collar**.
 - Apply c-collar while maintaining manual cervical SMR.
3. **Use adjuncts** to minimize all spinal motion while transferring.
 - Such as: backboard, scoop stretcher, vacuum mattress, etc.
 - May try gentle **self-extrication** from a vehicle (with a c-collar).
4. Once on the cot, **adjuncts may be removed** if appropriate.
 - Awake, compliant patients can be safely secured with seat belts.
 - Up to 30° of head elevation may be used to maintain an airway.
5. Manual cervical SMR may be released if the patient will hold still.
 - Otherwise: secure the head to an appropriate adjunct.

NOTE: Some patients (due to size, age or anatomy) will not be appropriate for standard equipment. Never force a patient into a non-neutral position. Use alternate techniques or manual SMR.

	Splint
--	--------

1. Provide manual immobilization.
 2. Remove or cut clothing if able.
 3. Check and **document distal pulse**, movement and sensation.
 4. Select appropriate splint. Secure above and below injury.
 5. Recheck and **document distal pulse**, movement and sensation.
 - Reapply or remove the splint if any decline in distal function.
- NOTE:** Consider a traction splint for an isolated femur fracture.

E	Reduce Deformity
---	---------------------

1. Confirm **no pulse distal to injury**.
2. Explain procedure to patient.
 - Consider pre-treating for Pain if time and condition allow.
3. Manually reduce injury and splint in anatomic neutral position.
4. Recheck and **document distal pulse**, movement and sensation.

	Stinger Removal
--	--------------------

1. Inspect wound for stinger.
2. If visualized, scrape stinger away.
 - Use tool with firm edge, like a credit card. Do not use tweezers.

I

Pacing

1. Place defib pads **and EKG limb leads.**
 - Consider pre-treating for Pain.
 - Wipe off any topical meds. Avoid implanted devices or catheters.
2. Place monitor in "pacing" mode.
 - Select initial rate of **80 bpm** for adults.
 - Use Peds Reference or other approved source for peds rate.
 - Select initial energy of **80 mA** for all patients.
 - Alternate: follow manufacturer's or OMD's dosing guideline.
3. Slowly increase mA output until electrical capture is noted.
 - Note pacer spikes on EKG screen.
4. Once electrical capture is noted, check for mechanical capture.
 - Pulse should correspond to electrical activity on EKG screen.
5. Continue to increase mA output if no mechanical capture.
6. Maintain a balance between pt comfort and medical necessity.
 - Treat Pain and/or Anxiety from pacing as soon as appropriate.
 - Consider reducing energy if appropriate.

I

Cardioversion

1. Place defib pads **and EKG limb leads.**
 - Consider pre-treating for Pain.
 - Wipe off any topical meds. Avoid implanted devices or catheters.
2. Enable **SYNC** mode and charge to **100 J** for adults.
 - Alternate: use manufacturer's or OMD's dosing guideline.
 - Use Peds Reference or other approved source for peds dosing.
3. **Assertively state "CLEAR!"** Visually confirm everyone is clear.
4. Cardiovert by pressing **and holding** the **SHOCK** button.
 - There may be a noticeable delay before energy is delivered.
5. Reassess patient and rhythm. Escalate and repeat as needed.
 - Follow manufacturer's or OMD's escalation guideline.
 - Consider moving the defib pads (**vector change**) if refractory.
 - Use Peds Reference or other approved source for peds dosing.

E

Deliver Baby

1. **Expose patient.** Have a chaperone.
 - Visually inspect vaginal area.
2. Identify presenting part. Prioritize **transport if not crowning.**
 - If any problems, manage complications and transport ASAP.
3. **Support & deliver head.** Try to prevent explosive birth.
4. **Check for cord around neck.** Slip over head if found.
5. **Deliver shoulders.** Deliver top shoulder first.
 - May flex mom's legs to chest to assist.
 - May press on mom's lower abdomen to assist.
6. Deliver body. Caution: **neonates are slippery.**
7. Manage Neonate. (Stimulate, warm, clean, dry.)
 - May place baby on mothers chest for skin-to-skin contact.
 - May encourage breastfeeding after uncomplicated delivery.
8. Keep baby level with mom and **delay cord clamping** ~60 sec.
 - Clamp about **6-10 in. away** from the baby. Cut between clamps.
 - Leave a long viable stump for the ED to use (for lines & lab draw).
9. Massage mother's lower abdomen (fundal massage).
 - This should help stop postpartum bleeding.
 - **A** If poor perfusion: **TXA** (Tranex. Acid): 1 g IV/IO over 10 m
10. Prepare for delivery of the placenta. Do not pull on the cord.
 - Take the placenta to the hospital with mom and baby.

E

Manage OB Complication

1. **Prioritize emergent transport.**
2. **Tell mom: Do Not Push.**
3. Continue standard care. Treat: Breathing, Pain, etc.
 - EMS can do very little for: **preemies**, **twins**, or **breech** birth.
4. Try to help during transport.
 - Failed Delivery / Shoulder Dystocia: transport knees to chest
 - Prolapse: don't handle cord, relieve pressure using fingers in vagina
 - Breech: do not pull, elevate presenting part if pressing on cord

1. Confirm all alternatives have failed.

2. Prepare supplies and **suction**.

3. **Locate cricothyroid** membrane. **Clean skin** if time allows.

- Visualize spot under thyroid cartilage and above tracheal rings.

4. Use **Bougie** for adults or **Needle** for peds.

4a. **Bougie**: Expect blood, this is a tactile skill.

- Make large **vertical incision** through skin.

- Find the cricothyroid membrane w/ finger.

- Stab **horizontal incision**, bubbles are good.

- **Insert a bougie**, then a **trach** over bougie.

(Or #6 ETT: advance 1-2 cm past balloon.)

- **Inflate balloon** taught. Remove bougie.

4b. **Needle**: Use small syringe with saline.

- Attach 10-12g needle & cath. Insert at 90°.

- Pull suction. Advance slowly till bubbles.

- Angle down. Advance cath. Remove needle.

- Use Transtracheal Jet Insufflation device.

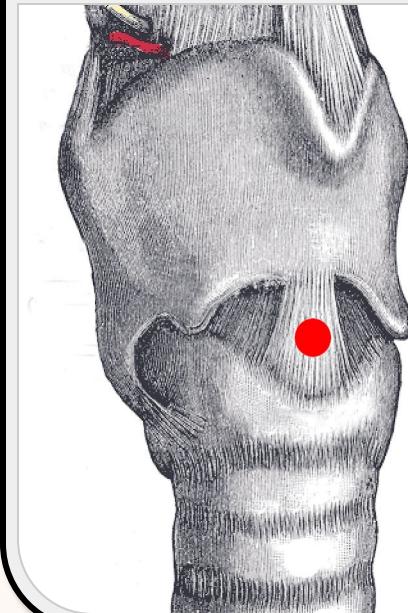
5. **Confirm** placement. **Secure** well w/ tape or manufactured device.

- Use auscultation, clinical response, skin color, SpO₂ and/or EtCO₂.

P

Cric

Cricothyroid Membrane



wikimedia.org CC-BY-SA 3.0 Philippin

1. Attach appropriate **patient circuit**.

P

Ventilator

2. Attach high pressure **oxygen hose**.

3. Inspect fresh gas / emergency air intake filters.

4. **Power on** the vent and configure operating mode & parameters.

5. Perform operational test and **attach to patient**. Monitor closely.

Typical Adult Vent Settings

- Mode: **AC (V)**
- Vt: **350 mL** (or 450 mL if over 6' tall)
- BPM: **12-16 /min**
- FiO₂: **100%** (may titrate down 40-60%)
- PEEP: 5 mmHg
- PIP Limit: 35 mmHg
- I:E 1:3

Reviewed: Apr 2024

Page 105 - Medications

- WVEMS Drug Box

Page 106 - Abuse

- Patient Abuse and Neglect
- Infant Abandonment

Page 107 - Bystanders, Physicians

- Verification of On Scene Personnel
- Physician Orders

Page 108 - Termination

- Withholding Resuscitation
- Termination Resuscitation

Page 109 - Ventricular Assist Devices

- Left Ventricular Assist Devices

Page 110 - Standbys, Police

- EMS Standbys
- Scene Rehab
- Law Enforcement Assistance

Page 111 - Refusals

- Patient Refusals
- Who is a Patient

Page 112 - Destination

- Destination Triage Plan: STEMI, Stroke, Trauma

Page 113 - Deceased, MCI

- Deceased Subjects
- Mass Casualty

WVEMS Drug Box

- Drug Boxes are intended to be used on only ONE patient prior to restocking. Under extenuating circumstances, such as back-to-back calls with no time in-between to exchange the box, or in a mass casualty situation, it may be necessary to use a box on more than one patient. Such use must be appropriately documented on the patient care reports.
 - Agencies participating in the regional drug box exchange program shall follow the procedures below regarding the use and exchange of boxes at regional hospitals.
1. EMS provider breaks RED drug box seal and places broken seal in top tray. There will be a new (unused) GREEN seal in both the drug box, and in the narcotics box, and these must be retained for resealing the opened box(es) after use.
 2. EMS provider documents medications used on the patient care report and the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form. A physician's signature shall be obtained when a provider obtains online orders for medications (including DEA number in any and all cases where online orders for narcotics are used). Boxes will be returned to the Emergency Department, if the signature of the physician or nurse is not legible and/or there is not a DEA number when needed and the regional council will be notified. Enter the RESEAL serial number(s) on the WVEMS/BREMS Pharmacy Administration Record - Physician Order Form.
 3. EMS provider and E.D. nurse, physician, pharmacist, pharmacy technician and/or other person as authorized, checks used box to account for narcotics. Both assure that all trash and used needles have been removed from the box. The old (broken) seal should be left in the box and forwarded to the pharmacy. The nurse, physician, or authorized person will sign the appropriate space indicating that all narcotics have been accounted for. After everything is accounted for, the AIC shall use the green reseal(s) provided in the drug box/narcotics box and seal the box(es).
 4. E.D. nurse, physician, pharmacist or pharmacy technician, or authorized person issues a new box to the EMS provider. Both complete the "Drug Box Exchange Log". The seal on the new box is not to be broken until needed on the scene of an emergency. Boxes on which seals have been broken must be returned to the E.D. or Pharmacy for exchange. The medical facility may require additional documentation. If the facility requires a copy of a PPCR or patient reporting printout with an explanation of why the seal was broken, this must accompany the box.
 5. Pharmacy will fill the box, replacing used items, in accordance with the box schematic. The pharmacy checks the box to assure all contents are present and in-date. The box is sealed with a numbered seal provided by the EMS Council. A hospital sticker indicating the date of the first drug to expire is to be placed on the outside of the box.
 6. If a box is returned to the pharmacy with dirty needles or excessive litter and debris, the box will be taken out of service and the EMS Council notified. The Council will notify the agency and/or personnel responsible and they will be required to report to the hospital to correct the situation. Repeated occurrences by the same provider/agency may result in suspension or revocation of drug box privileges.
 7. Refilled boxes are returned to the E.D. or stored in the pharmacy for distribution. Each hospital is responsible to ensure that the boxes are properly secured against tampering while at the hospital.
 8. If an EMS provider opens a box and finds one or more medications missing, the provider shall document such on the PPCR or patient reporting software and the EMS provider shall notify the EMS Council in writing of the discrepancy; noting the box number and seal number in the report. If the missing drug is a narcotic refer to item # 11. As long as the missing medication is not a narcotic, the box may be returned to service by the hospital pharmacy after restocking.
 9. No item for item exchange of drug box contents may be made in the E.D. The box must be returned to the pharmacy to be checked, restocked, and resealed.
 10. **NARCOTICS:** When controlled substances are used on a call; **wastage** should be performed in the emergency department in the presence of a certified/licensed professional in conformance with the State Board of Pharmacy Regulations. For the purposes of this policy, "certified/licensed professionals" includes: Pharmacist, nurse, prescriber, or **a second EMS Provider**. See Virginia Administrative Code Sections 18 VAC 110-20-500 and 12 VAC 5-31-520. The AIC and the authorized persons listed above will document the amount of the controlled substance administered, and the amount (if any) wasted. This should be recorded on the WVEMS/BREMS Pharmacy Administration Record - Physician Order Form and signed by the provider and the witness. The authorized person signing, and the ALS technician will then properly dispose and account for the narcotic according to hospital policy.
 11. In the event that medications are missing from the box the following steps must be followed:
 - A. If the seal is found to be broken during a routine drug inspection:
 1. Avoid handling the box
 2. Contact the Western Virginia EMS Council
 3. Contact Virginia State Police. (NARCOTICS ONLY)
 4. Contact the agency Chief or Captain
 5. Complete & file a drug diversion form with the Office of EMS (see 12 VAC 5-31-520, D of the Va EMS Rules & Regs)
 6. Have drug box inspection forms ready for Virginia State Police, WVEMS EMS Council, and Va OEMS personnel
 - B. If the seal is on the box and medications are missing while performing patient care or after arriving at the hospital:
 1. Continue patient care. You may continue to utilize the contents of the box
 2. If the medication needed is missing consider requesting another unit to rendezvous - DO NOT DELAY TRANSPORT
 3. Upon arrival at the hospital notify the E.D. Nursing Supervisor of the problem.
 4. Follow the procedures listed in 11-A.
 5. The box must be secured in the hospital and may be released only after being notified by the EMS Council.
 6. Notify the hospital that this box must be sequestered in the pharmacy until released by the EMS Council.
 - C. In all cases you will be asked to write a report stating the events surrounding the incident. It should include the box number, seal number, witnesses and a description of what occurred.
 - D. Depending on the individual circumstances, the Operational Medical Director of the agency or the Regional Medical Director may suspend the agency's authorization to administer drugs in the pre-hospital setting pending the outcome of a formal investigation by law enforcement or the Office of EMS, and may require implementation of additional security measures at the agency's expense.

Patient Abuse and Neglect

- Abuse in this policy is considered any physical, sexual and / or mental injury of any child, domestic partner, senior citizen, or incapacitated adult by another person through action or neglect. Abuse may be at the hand of a partner, parent, caregiver, spouse, neighbor, or adult child of the patient. The recognition, appropriate reporting, and referral of abuse is a critical step to improving patient safety, providing quality health care, and preventing further abuse. This also ensures EMS compliance as **Mandatory Reporters** under the Code of Virginia 22 VAC 30-100-15.
- Be aware of the potential for abuse in all patients. In any case where abuse is suspected, first protect the patient and the EMS team from harm. Collect as much information as possible and preserve physical evidence if able. Signs of abuse may include:
 - **Physical:** injuries that are inconsistent with the reported mechanism, injuries in different stages of healing, defensive injuries (e.g. to forearms), or injuries during pregnancy
 - **Psychological:** excessive passivity, compliant / fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, or med non-compliance
 - **Neglect:** inappropriate level of clothing for weather, inadequate hygiene, inattentive caregiver, or malnutrition
- Immediately report any suspicious findings to both the receiving hospital (if transported) and social services:
 - For **children** contact Child Protective Services at 800-552-7096.
 - For **adults** contact Adult Protective Services at 888-832-3858.
 - For **domestic violence** offer law enforcement intervention and provide the patient with the National Hotline, 800-799-SAFE.

Infant Abandonment

- The Code of Virginia (§18.2-371.1 B.2) **allows** a new parent to **surrender their newborn** to a hospital or EMS agency under certain circumstances. EMS providers should accept without hesitation, assess, and transport any infant surrendered to them.

Verification of On Scene Personnel

- The delivery of prehospital care at the scene of an emergency is the responsibility of the **responding EMS resources**. Occasionally, bystanders may be crucial to providing or assisting with treatment. Bystanders can be considered when the immediate needs outweigh the EMS resources available, or if a bystander can provide a unique resource. EMS should never authorize or perform any intervention outside their scope **or comfort level**.
- Bystanders may have a unique understanding of a specialized **medical condition or device**. EMS should consider the advice of patients or bystanders such as: case workers/patient aides, or mental health professionals, or caretakers managing a vent at home, or a patient with an LVAD, etc. EMS must call **Medical Control** for any orders to deviate from routine EMS care.
- **BLS procedures** are frequently taught as a component of common first aid. Appropriate bystanders may assist with common first aid when EMS resources are insufficient. EMS must direct bystanders and maintain overall responsibility.
- **ALS interventions** are only appropriate by responding ALS resources. A formal mutual aid agreement or authorization by **Medical Control** must exist prior to delivery of ALS interventions. EMS has no authority to enable non-EMS medical personnel (RN, NP, PA, CRNA, RT, etc.) to perform ALS interventions.

Physician Orders

- Physicians represent a unique resource. EMS may follow written or verbal orders from a patient's established physician. EMS may also follow **appropriate** verbal orders from a physician bystander on scene. EMS should only consider orders outside these protocols **if the physician bystander accompanies EMS** to the hospital. Call **Medical Control** if there is any conflict.

Withholding Resuscitation

- Resuscitation is not appropriate if efforts are futile or against the patient's explicit wishes. **Withhold resuscitation if any signs of obvious death, mortal injury, or if the patient has a DNR / POST.**
- Ask about a DNR / POST for any **hospice or nursing home** patient.
- EMS should attempt to validate any DNR / POST with family or health care workers. Begin resuscitation and call **Medical Control** if there is any question. EMS may stop resuscitation once verified.

Termination of Resuscitation

- Transportation during resuscitation is not optimal and exposes EMS crews to significant risk. This policy balances the potential benefit of prolonged resuscitation against the risks of emergent transport.
- **Prioritize transport for any special case.** If attempting resuscitation, these special cases may benefit from resources not available in the field. Prioritize compressions and AED and transport ASAP.
- **ALS** should resuscitate on scene for non-special cases. Call **Medical Control** if no ROSC **within 30 min.**
- BLS should try to turn over care to ALS (or the hospital) within 15 min. **Prioritize transport if a hospital is within 15 min.** Extended BLS resuscitation beyond 15 min may still be successful if the arrest is witnessed by EMS or if any shock is ever advised by the AED.

Special Cases

- Suspected Traumatic Cause
- Pediatric or Pregnant Patients
- Hypothermia or Drowning
- Lightning or Electric Shock
- Overdose or Poisoning

ALS Termination

- Not a **Special Case**
- No ROSC within **30 min**

BLS Termination

- Not a **Special Case**
- Not witnessed by EMS
- Never shocked by AED
- No ALS within **15 min**
- No ROSC within **15 min**

Prioritize transport if witnessed by EMS or any shock advised regardless of time to the hospital. Call **Medical Control** if not witnessed by EMS, and not shocked, and no ALS after 15 min.

Ventricular Assist Devices (e.g. LVAD)

- Ventricular assist patients can quickly become very complicated.
 - Their life literally depends on complex medical machinery.
 - **When in doubt, follow regular protocols.**
- All LVAD patients will have an assigned "**LVAD center**".
 - The patient should have the emergency phone number.
 - EMS may try to **contact the LVAD center** with any problems.
 - Call **Medical Control** to verify any recommendations.
- Diagnosing ventricular assist device problems is complex.
 - **Do not unplug anything.**
 - Consider the advice of the patient and any trained bystanders.
 - Some devices may provide voice prompts for troubleshooting.
 - Call **Medical Control** to verify any recommendations.
- Patients who are alive and well **may not have a palpable pulse**.
 - It may be impossible to palpate or auscultate a blood pressure.
 - Do not start CPR on patients who are obviously alive and well.
- A ventricular assist device makes diagnosis of arrest difficult.
 - Look for other signs of life and listen for pump noise.
 - Chest compressions may harm a ventricular assist device.
 - Consider the advice of trained bystanders or the LVAD center.
 - Call **Medical Control ASAP** for any **unconscious LVAD** patient.
- **Bring all device supplies** and information to the ED with you.
 - Bring batteries and cords.
 - Bring paperwork and contact information.
- Consider destination triage in consultation with **Medical Control**.

EMS Standbys

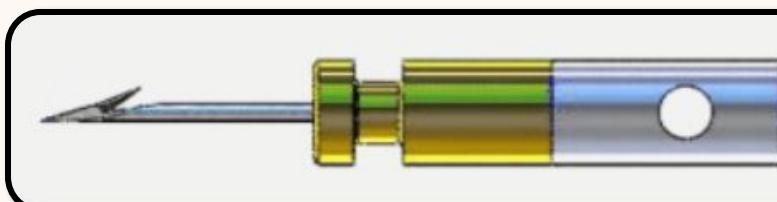
- EMS may be utilized to standby at a scene without a specific pt.
- EMS should complete a full report for any patients or treatments.
 - Consider simple interventions such as PO pain meds and ice.
 - Document a refusal if any patient declines transport.

Scene Rehab

- EMS may provide rehab for **large scenes** like structure fires, etc.
 - This may include abbreviated screening and / or treatment.
 - Rehab is **only applicable to fellow first responders**.
- EMS should coordinate all activity with incident command.
- Standard rehab includes a specific area dedicated to **medical ops**.
 - Rehab generally involves checking vital signs and simple exam.
 - Provide PO fluids and food. Monitor until back to baseline.
 - An abbreviated record may be substituted for a full report.
 - Incident command will dictate who may return after rehab.

Law Enforcement Assistance

- EMS may be called to evaluate a patient in custody.
 - Always offer transport. EMS can **never recommend** a refusal.
 - EMS can provide treatment, but cannot "clear" a patient.
 - Officers may elect to decline transport, but should sign a refusal.
 - Officers should accompany any patient in custody.
 - Call **Medical Control** if there is any conflict.
- EMS may remove CEW (**Taser™**) probes as part of wound care.
 - EMS should document a full report.
 - Officers may sign a refusal for a person under their arrest.
 - Probes are small straight barbs. Stretch skin tight and pull out.
 - The **barb is in-line with the score mark** on the probe.



←
Score Line

Patient Refusals

- Refusals represent a unique medical risk. EMS should complete a formal refusal with **at least one witness signature** for any patient who declines any intervention and / or transport.
- EMS should encourage treatment and transport for every patient.
 - **Never refuse transport. Never encourage a refusal.**
- All patients who wish to refuse must be **eligible** to make their own decisions. Eligible patients include:
 - Legal Adults (18 y/o and older)
 - Minors (< 18 y/o) who are married, divorced or emancipated
- The Code of Virginia (§54.1-2969 C,D) allows any **minor 14-17 y/o** to direct treatment **only if no responsible party** is reasonably available. This includes the ability to refuse treatment / transport.
- The Code of Virginia (§54.1-2969 G) allows **pregnant minors** to direct treatment **only relating to the delivery of their baby.**
- A responsible party (parent, guardian, medical POA etc.) may have the authority to refuse for a patient who is not eligible on their own.
- Any patient (or responsible party) who wishes to refuse must also demonstrate **capacity**. This requires them to be awake, oriented, and able to demonstrate understanding of the potential risks.
 - Patients with altered LOC lack capacity and cannot refuse.
 - Suicidal patients lack capacity and cannot refuse.
- Call **Medical Control** and enlist law enforcement help for any patient who attempts to refuse, but should not be allowed to do so.

Who is a Patient?

- Any person for whom EMS is specifically summoned should be considered a patient. Every patient should have a full report completed with a transport or a refusal documented.
- Not every person on scene of an emergency needs to be considered a patient. EMS is not obligated to document a refusal for a person who declines EMS assessment, **and** is acting normally without obvious distress, **and** for whom EMS was not specifically summoned.
 - A refusal should be documented if there is any doubt.

Destination Triage Plan

- In some specific cases patients may benefit from triage directly to a more appropriate facility. Consider bypassing the closest facility and increasing transport time by **no more than 30 minutes** for:
 - Specific **emergent needs**: **STEMI**, LVO **Stroke**, or **Major Trauma**
 - Anticipated specialty services (ortho, OB/GYN, pediatrics, ENT, etc.)
 - Pre-established physician (recent surgery, oncology, dialysis, etc.)
 - System status (agency utilization, need for admission, etc.)
- Consider utilization of **HEMS** for critical illness or longer transports.



Acute STEMI with chest pain

- Adults should have an appropriate presentation (chest pain, etc.) and an EKG identified as *** **ACUTE MI** *** by automated analysis.
- ALS**: may manually identify EKG changes of 1 mm or more of ST segment elevation in 2 or more anatomically contiguous leads.
- Appropriate WVEMS cardiac hospitals (with emergent PCI) include:
 - Carilion **Roanoke** Memorial & Carilion **New River Valley**
 - Lewis Gale **Salem** & Lewis Gale **Montgomery** & Sovah **Danville**

Acute Large Vessel (LVO) Stroke

- Patients must have a definite **time last normal under 6 hrs** and at least one positive finding on a **Cincinnati Stroke** (FAST) exam.
- Must also have **arm drift** and at least one finding on a **Stroke VAN**.
- Appropriate WVEMS stroke hospitals (PSC, TSC, or CSC) include:
 - Carilion **Roanoke** & Lewis Gale **Salem** & Sovah **Danville**

Major or Unstable Trauma

- Patients should meet trauma triage guidelines with **major injury** and / or **major mechanism** and / or **major burns** > 20% BSA.
- Appropriate WVEMS trauma hospitals (Level I or II) include:
 - Carilion **Roanoke** Memorial & Lewis Gale Hospital **Salem**

Deceased Subjects

- EMS may occasionally encounter a deceased subject.
 - Maintain respect for the deceased and their family.
 - Always **involve law enforcement**. Always **write a full report**.
- If resuscitation was not attempted:
 - Consider all deceased subjects as a potential **crime scene**.
 - Limit EMS ingress/egress and coordinate with law enforcement.
 - Law enforcement may request EMS to confirm death.
- If resuscitation was attempted and subsequently terminated:
 - **Medical Control** should already be involved.
 - Do not remove any pads, leads, invasive lines or tubes.
 - EMS may disconnect hardware such as EKG wires and BVM.
 - Defer to the direction of law enforcement or Medical Examiner.
- In some situations law enforcement may release the body.
 - EMS should not transport the deceased to the ED.
 - EMS may offer courtesy transport to a funeral home.
 - EMS may remove lines, tubes, etc if the body is released.
 - Courtesy transport is not required. Defer to agency policy.
 - Inform Medical Control of any courtesy transports.
- **EMS may confirm death** in several ways including:
 - Lack of pulse, respirations and response.
 - **Obvious Death** or **Mortal Injury**.
 - Asystole in at least two cardiac leads with EKG gain at max.
- EMS may consider assisting with last rites if requested by family.

Mass Casualty

- **Call for more help. Begin a standardized MCI triage system.**
 - Several systems are described, such as START and JumpSTART.
- Do the most good for the most people until adequate help arrives.
 - Consider utilizing any available resources, such as bystanders.
 - Prioritize life-saving interventions.
 - Triage and prioritizing care during an MCI is not abandonment.
 - Consider "reverse triage" if mass casualty **lightning strike**.
- **Notify the receiving hospital(s)** as soon as possible.

Protocol Medication Reference

115	Adenosine (Adenocard®)	Afrin® (Oxymetazoline)
116	Albuterol (Ventolin®)	Amiodarone (Pacerone®)
117	Ancef® (Cefazolin)	Aspirin (Baby ASA)
118	Atropine (AtroPen®)	Atrovent® (Ipratropium)
119	Benadryl® (Diphenhydramine)	Bicarb (Sodium Bicarbonate)
120	Calcium (Chloride)	D10 (Dextrose 10%)
121	Decadron® (Dexamethasone)	Dopamine (Intropin®)
122	Epi, Epi Push (Epinephrine)	Epi Drip (Epinephrine)
123	Epi Neb (Epinephrine)	Etomidate (Amidate®)
124	Fentanyl (Sublimaze®)	Glucagon (Glucagen®)
125	Glucose (Glutose 15™)	Haldol® (Haloperidol)
126	Heparin (Sodium)	Ibuprofen (Motrin®)
127	Keppra® (Levetiracetam)	Ketamine (Ketalar®)
128	Levophed® (Norepinephrine)	Lidocaine (Xylocaine®)
129	Lopressor® (Metoprolol)	Magnesium (Sulfate)
130	Narcan® (Naloxone)	Neo Push (Phenylephrine)
131	Nitro (Nitroglycerin)	NS Bolus (0.9% Saline)
132	Propofol (Diprivan®)	Rocephin® (Ceftriaxone)
133	Rocuronium (Zemuron®)	Succinylcholine (Anectine®)
134	TXA (Tranexamic Acid)	Tylenol® (Acetaminophen)
135	Versed® (Midazolam)	Zofran® (Ondansetron)

WVEMS Drug Box

- WVEMS provides a standardized drug box that contains many of the medications used in these protocols. Agencies may use the drug box when available, but must follow the Drug Box Policy.



- 2024 Box Layout:

Western VA EMS Council
Orange Drug Box Med List

Medication	Size	Par Type
Adenosine	6 mg	4 Injectables (any)
Albuterol 0.083%	2.5 mg	4 Neb solution (unit)
Amiodarone	150 mg	3 Injectables (any)
Aspirin (baby)	81 mg	≥4 Tablets (chewable)
Atropine	1 mg	2 Injectables (any)
Calcium Chloride	1 gram	1 Injectables (any)
Cefazolin	1 gram	1 Injectables (any)
D10	500 mL (min)	Bag (or 2x 250 mL)
Dexamethasone	4 mg	2 Injectables (any)
Diphenhydramine	50 mg	1 Injectables (any)
Dopamine	250 mL (min)	Bag (1600 mcg/mL)
Epi 1 mg/mL	30 mg	1 Injectables (any)
Epi 1 mg/10 mL	1 mg	3 Prefill (syringe)
Fentanyl	100 mcg	3 Injectables (any)†
Glucagon	1 mg	1 Kit (only)
Haloperidol	5 mg	1 Injectables (any)
Ipratropium 0.02%	0.5 mg	1 Neb solution (unit)
Ketamine 10 mg/mL	200 mg (min)	1 Injectables (any)†
Levetiracetam	500 mg	6# Injectables (any)
Lidocaine	100 mg	3 Prefill (syringe)
Magnesium	1 gram	4 Injectables (any)
Metoprolol	5 mg	2 Injectables (any)
Midazolam	10 mg (min)	1 Injectables (any)†
Naloxone	4 mg	1 Injectables (any)
Nitroglycerin	0.4 mg	≥4 Tablets (sealed)
Normal Saline	10 mL	2 Prefill (syringe)
Normal Saline	50 mL	3 Bag (for mixing)
Ondansetron	4 mg	2 Injectables (any)
Ondansetron ODT	4 mg	2 Tablets (oral)
Oxymetazoline	15 mL	1 Spray bottle
Sodium Bicarbonate	50 mEq	1 Injectables (any)
Tranexamic Acid	1 gram	1 Injectables (any)

v240408

Approved by WVEMS Protocol Workgroup 8 Apr 2024

2024

Supplies

- IV additive label x3
- Carpuject device (only if needed)
- Atomizer device x2 (MAD w/o syringe)
- 60 gtt IV drip set
- Nebulizer pipe / kit

† Narcotics

- Fentanyl
- Ketamine
- Midazolam

*** New Meds**

- none

New Par

- Cefazolin
- Levetiracetam

(removed)

- none

Adenosine**Adenocard®****Use**

- Tx: SVT
- Adults: **12 mg** IV/IO
- Peds: 0.1 - 0.2 mg/kg

Caution

- PMH: COPD, asthma
- PMH: WPW, bradycardia, AV block
- PMH: Theophylline, Digoxin®
- May cause: palpitations
- **Preg C:** safety not established

Notes

- Give **rapid IV push** followed by **rapid saline flush**.
- Protocols: Tachycardia
- Antiarrhythmic: Class V - Onset: seconds - Duration: 10 s
- <https://reference.medscape.com/drug/342295>

**Afrin®****Oxymetazoline****Use**

- Tx: Nosebleeds
- Adults: **1 spray** IN
- Peds: 6 y/o and above only

Caution

- PMH: CAD, HTN
- May cause: HA, nose discomfort
- **Preg C:** safety not established

Notes

- Protocol: Epistaxis
- Adrenergic: α -agonist - Onset: seconds - Duration: 6 hr
- <https://reference.medscape.com/drug/343408>



Albuterol

Ventolin®

Use

- Tx: Wheezing, Hyperkalemia
- Adults: **2.5 mg** Neb
- Peds: 0.15 mg/kg

Caution

- PMH: antiretroviral therapy
- PMH: hypokalemia
- May cause: tremor, anxiety
- May cause: palpitation, tachycardia
- **Preg C:** safety not established

Notes

- Protocols: Dyspnea, Allergic Reaction
- Four (4x) nebs back-to-back for Hyperkalemia, Crush
- Adrenergic: β -agonist - Onset: 30 min - Duration: 2 hr
- <https://reference.medscape.com/drug/343426>

**Amiodarone**

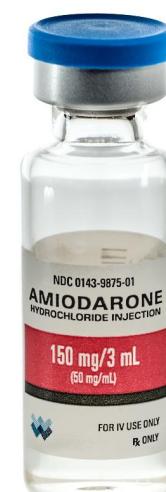
Pacerone®

Use

- Tx: V-Tach / V-Fib
- Adult CODE: **300**, then **150 mg** IV/IO
- Peds CODE: 5 mg/kg, then 5 mg/kg
- Gtt: over 10 min (peds over 30 min)

Caution

- PMH: antiretroviral therapy
- PMH: bradycardia
- May cause: bradycardia, HA
- May cause: hypotension, dizzy
- **Preg D:** known risks

**Notes**

- Protocols: Tachycardia, Medical CODE, Medical ROSC
- Dilute in NS and **give over 10 min if non-emergent**
- Antiarrhythmic: Class III - Onset: mins - Duration: hours
- <https://reference.medscape.com/drug/342296>

Ancef®**Use**

- Tx: Open Fractures
- Adults: **2 grams** IV/IO, IM
- Peds: 10-30 mg/kg IV/IO, IM

Caution

- **PCN / Cephalosporin Allergy**
- May cause: anaphylaxis
- **Preg B:** likely safe

Notes

- Protocols: Major Trauma, Extremity Injury
- **Reconstitute:** w/ 3 mL NS for IM; dilute in 10 mL for IV/IO
- Antibiotic: 1st Gen Ceph -Onset: minutes -Duration: hours
- <https://reference.medscape.com/drug/342492>

Cefazolin**Aspirin****Use**

- Tx: Angina
- Adults: **81 mg** x4 PO (chew)
- Peds: <*do not use*>

Caution

- PMH: GI bleeding, low platelets
- May cause: GERD, bleeding
- **Preg D:** known risks

Baby ASA**Notes**

- Protocols: Chest Pain
- Antiplatelet (and NSAID) - Onset: 5 min - Duration: 4 hrs
- <https://reference.medscape.com/drug/343279>

Atropine

AtroPen®

Use

- Tx: Brady, Organophosphate OD
- Adults: **1 mg** IV/IO (brady)
- Peds: 0.02 mg/kg

Caution

- PMH: Glaucoma, AV block
- May cause: palpitations
- May cause: dry mouth, HA
- **Preg C:** safety not established

Notes

- **Organophosphate OD** may require massive doses.
- Protocols: [Bradycardia, Overdose / Tox](#)
- Anticholinergic - Onset: seconds - Duration: minutes
- <https://reference.medscape.com/drug/343093>



Atrovent®

Ipratropium Bromide

Use

- Tx: Wheezing
- Adults: **0.5 mg** Neb
- Peds: 0.25 mg if <6 y/o (<20 kg)

Caution

- PMH: glaucoma
- May cause: HA, cough
- **Preg B:** likely safe

Notes

- Protocols: [Dyspnea, Allergic Reaction](#)
- Anticholinergic - Onset: 15 minutes - Duration: 3 hours
- <https://reference.medscape.com/drug/343416>



Benadryl®**Diphenhydramine****Use**

- Tx: Allergic Reactions, Dystonia
- Adults: **25 mg** IV/IO, IM, PO
 - May give 50 mg PO for adults
- Peds: 1 mg/kg

Caution

- PMH: glaucoma, elderly
- May cause: **sedation**, delirium
- May cause: dry mouth
- **Preg B:** likely safe

Notes

- Protocols: Allergic Reaction, Psychiatric
- Antihistamine - Onset: 15 min - Duration: 4 hours
- <https://reference.medscape.com/drug/343392>

**Bicarb****Sodium Bicarbonate****Use**

- Tx: Acidosis, Arrhythmia
- Adults: **50 mEq** IV/IO
- Peds: 1 mEq/kg

Caution

- **Beware extravasation**
- Do not mix: **Calcium**
- May cause: alkalosis, CHF
- May cause: hypokalemia
- **Preg C:** safety not established

Notes

- Protocols: Overdose / Tox
- Electrolyte: alkali - Onset: 15 minutes - Duration: 1 hour
- <https://reference.medscape.com/drug/342305>



Calcium

Calcium Chloride

Use

- Tx: Hyperkalemia, Ca-blocker OD
- Adults: **1 gram** IV/IO
- Peds: 20 mg/kg
- Give **over 10 min** (or bolus in CODE)

Caution

- **Beware extravasation**
- Do not mix: **Rocephin®**, **Digoxin®**
- Do not mix: **Bicarbonate**
- May cause: tachy, brady, N/V, HA
- **Preg C:** safety not established

Notes

- Protocols: Hyperkalemia, OD/Tox, Crush Inj
- Dilute in NS and **give over 10 min if non-emergent**
- Electrolyte: cofactor - Onset: minutes - Duration: hours
- <https://reference.medscape.com/drug/344432>



D10

Dextrose 10%

Use

- Tx: Hypoglycemia
- Adults: **100 mL** IV/IO
- Peds: 5 mL/kg

Caution

- **Beware extravasation**
- May cause: edema
- May cause: hyperglycemia
- **Preg C:** safety not established

Notes

- Protocols: Diabetic
- Glucose Monosaccharide - Onset: mins - Duration: 40 min
- <https://reference.medscape.com/drug/342705>



Decadron®**Dexamethasone****Use**

- Tx: Inflammation
- Adults: **8 mg** IV/IO, IM, PO
- Peds: 0.5 mg/kg

Caution

- PMH: antivirals, anticoagulants
- PMH: **diabetics**, birth control
- May cause: hyperglycemia
- May cause: delirium
- **Preg C**: safety not established

Notes

- Protocols: Dyspnea, Allergic Reaction
- Steroid: glucocorticoid - Onset: minutes - Duration: hours
- <https://reference.medscape.com/drug/342741>

**Dopamine****Intropin®****Use**

- Tx: Shock, Hypotension
- Adults: **5 mcg/kg/min** IV/IO
- Peds: 5 mcg/kg/min
- Titrate rate (up to 4x) to effect

Caution

- PMH: tachycardia
- PMH: antidepressants
- May cause: arrhythmia
- May cause: HA, N/V
- **Preg C**: safety not established

Notes

- Protocols: Circulation / Shock
- Catecholamine - Onset: 5 minutes - Duration: 10 minutes
- <https://reference.medscape.com/drug/342435>



Epi, Epi Push**Epinephrine, EpiPen®****Use**

- Tx: Shock, Brady, Arrest, Anaphylaxis
- Adults: **1 mg** IV/IO (CODE)
- Peds: 0.01 mg/kg (Brady, CODE)
- Smaller doses: Allergy, Push Pressor

Caution

- PMH: CAD, HTN
- May cause: **palpitations**
- May cause: anxiety, arrhythmia
- May cause: HTN, flushing
- **Preg C:** safety not established

Notes

- Protocols: Brady, CODE, Allergy, Neonate, Vasopressors
- See also: **Epi Drip** (below) for Circulation / Shock
- Adrenergic: α, β agonist - Onset: 1 min - Duration: varies
- <https://reference.medscape.com/drug/342437>

**Epi Drip****Epinephrine, Adrenalin****Use**

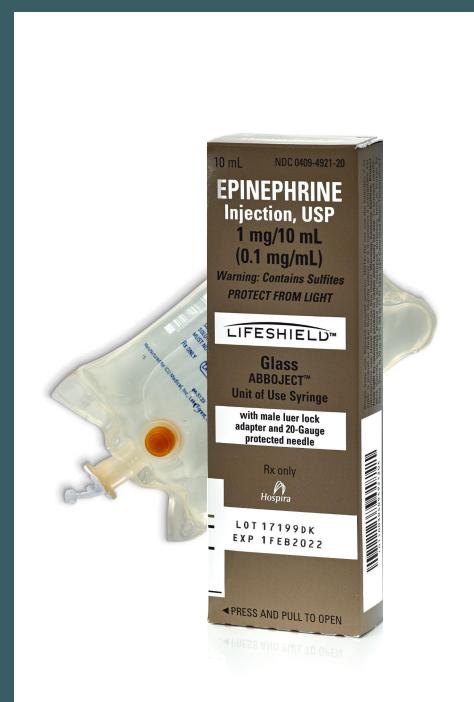
- Tx: Hypotension, Shock
- Adults: **1 gtt/sec macro** drip set
- Peds: 1 gtt/sec micro drip set
- Mix **1 mg Epi** into **1L NS**: 1 mcg/mL

Caution

- PMH: CAD, HTN
- May cause: **palpitations**
- May cause: anxiety, arrhythmia
- May cause: HTN, flushing
- **Preg C:** safety not established

Notes

- Protocols: Circulation / Shock
- See also: **Epi** (above) for Brady, CODE, Allergy, Neonate
- Adrenergic: α, β agonist - Onset: 1 min
- <https://reference.medscape.com/drug/342437>



Epi Neb**Epinephrine, Adrenalin****Use**

- Tx: Dyspnea, Asthma, Croup
- Adults: **5 mg Neb** (5 mL)
- Peds: 0.5 mg/kg Neb (max 5 mL)
- Use **1 mg/mL vials** (not 0.1 mg/mL prefill)

Caution

- PMH: CAD, HTN
- May cause: **palpitations**
- May cause: anxiety, arrhythmia
- May cause: HTN, flushing
- **Preg C:** safety not established

Notes

- Protocols: Dyspnea
- See also: **Epi** and **Epi Drip** (above) for CODE, etc.
- Adrenergic: α, β agonist - Onset: 1 min
- <https://reference.medscape.com/drug/342437>

**Etomidate****Amidate®****Use**

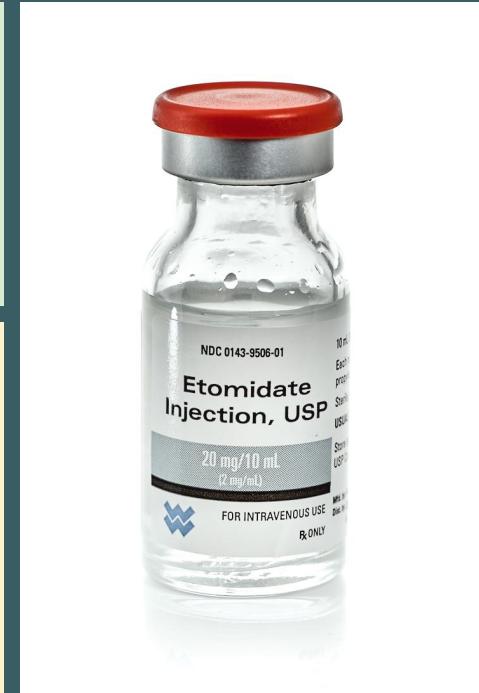
- Tx: RSI/RSA Induction
- Adults: **0.3 mg/kg** IV/IO
- Peds: 0.3 mg/kg (10+ y/o only)
- 0-9 y/o safety not established

Caution

- PMH: adrenal insufficiency
- May cause: **limb jerking**
- May cause: **eye twitching**
- **Preg C:** safety not established

Notes

- Protocols: Intubation / RSI
- Central Hypnotic - Onset: seconds - Duration: minutes
- <https://reference.medscape.com/drug/343098>



Fentanyl

Sublimaze®

Use

- Tx: Acute Moderate / Severe Pain
- Adults: **50 mcg** IV/IO, IM/IN
- Peds: 0.5 - 2 mcg/kg

Caution

- PMH: MAOIs (antidepressants)
- May cause: **respiratory depression**
- May cause: **hypotension**
- May cause: delirium, N/V
- **Preg C:** safety not established

Notes

- Protocols: Pain
- Critical Care: Sedation / Vent
- Opioid: μ -agonist - Onset: seconds - Duration: 45 min
- <https://reference.medscape.com/drug/343311>



Glucagon

Glucagen®

Use

- Tx: Hypoglycemia, β -blocker OD
- Adults: **1 mg** IM
- Peds: 0.5 mg if < 6 y/o (< 20 kg)

Caution

- PMH: pheochromocytoma
- PMH: starvation, **Coumadin**
- May cause: nausea / vomiting
- Beware: **refractory hypoglycemia**
- **Preg B:** likely safe

Notes

- **β -blocker OD** may require multiple doses.
- Protocols: Diabetic, Overdose / Tox
- Hepatic glycogenolysis - Onset: 10 min - Duration: 30 min
- <https://reference.medscape.com/drug/342712>



Glucose**Oral Glucose, Glutose 15™****Use**

- Tx: Hypoglycemia
- Adults: **15 grams** PO
- Peds: 0.5 g/kg

Caution

- PMH: hyperglycemia
- May cause: hyperactivity
- **Preg A:** demonstrated safe

Notes

- Protocols: [Diabetic](#)
- Monosaccharide - Onset: mins - Duration: 40 min
- <https://reference.medscape.com/drug/342705>

**Haldol®****Haloperidol****Use**

- Tx: Severe Psychosis
- Adults: **5 mg** IM
- Peds: 0.075-0.15 mg/kg (6+ y/o)
- 0-5 y/o: safety not established

Caution

- PMH: antiarrhythmics, Long QT
- PMH: Parkinson's disease
- May cause: **hypotension, NMS**
- May cause: dystonia
- **Preg C:** safety not established

**Notes**

- Protocols: [Psychiatric](#)
- Antipsychotic: dopa blocker - Onset: 10 m - Duration: 18 h
- <https://reference.medscape.com/drug/342974>

Heparin

Heparin Sodium

Use

- Tx: ST-Elev. Myocardial Infarction
- Adults: **5,000 units IV/IO**
- Peds: *<do not use>*
- Double check concentration

Caution

- PMH: induced thrombocytopenia
- Do not mix: **Haldol**
- May cause: bleeding
- **Preg C:** safety not established

Notes

- Protocols: [STEMI](#)
- Anticoagulant - Onset: immediate - Peak: 2-4 hours
- <https://reference.medscape.com/drug/342169>



Ibuprofen

Advil®, Motrin®

Use

- Tx: Fever, Pain
- Adults: **400 mg PO**
- Peds: 10 mg/kg

Caution

- PMH: recent CABG, CKD
- PMH: GI bleeding
- May cause: epigastric pain
- May cause: N/V, dizzy
- **Preg D:** known risks

Notes

- Protocols: [Fever, Pain](#)
- NSAID: cox inhibitor - Onset: 30 min - Duration: 4 hours
- <https://reference.medscape.com/drug/343289>



Keppra®**Levetiracetam****Use**

- Tx: Status Epilepticus, Seizures
- Adults: **3,000 mg IV/IO**
- Peds: 20 mg/kg (6 y/o and older)
- Dilute in NS and **give over 10 min**

Caution

- PMH: paranoid psychosis
- May cause: fatigue, weakness
- May cause: hypertension, headache
- **Preg C:** safety not established

Notes

- Protocols: [Seizure](#)
- Novel Antiepileptic - Peak: 1 hour - Half-life: 6-8 hours
- <https://reference.medscape.com/drug/343013>

**Ketamine****Ketalar®****Use**

- Tx: Severe Pain, Discomfort
- Adults: **20 mg IV/IO, IM/IN (pain)**
- Peds: 0.25 - 0.5 mg/kg
- Higher doses for Critical Care

Caution

- PMH: increased ICP, glaucoma
- May cause: **laryngospasm**
- May cause: **hypersalivation**
- **Preg N/A:** not categorized

**Notes**

- Protocols: [Pain](#), [Med ROSC](#), [Trauma ROSC](#), [RSI](#), [Sedation](#)
- Dilute in NS, **give over 10 min if used IV/IO in pain/ROSC**
- Dissociative anesthetic - Onset: 30 s - Duration: minutes
- <https://reference.medscape.com/drug/343099>

Levophed®**Norepinephrine****Use**

- Tx: Hypotension, Septic Shock
- Adults: **5 - 20 mcg/min IV/IO**
- Peds: 0.05 mcg/kg/min
- Dilute **4 mg in 250 mL**, use a **pump**

Caution

- **Beware extravasation**
- PMH: CAD, HTN, MAOI meds
- May cause: HTN, arrhythmia
- May cause: anxiety, flushing
- **Preg C:** safety not established

Notes

- Protocols: Vasopressors
- **Dilute in D5W** if available (NS is OK, but will lose potency)
- Adrenergic: β , α agonist - Onset: 1 min - Duration: 1 min
- <https://reference.medscape.com/drug/342443>

**Lidocaine****Use**

- Tx: V-Tach / V-Fib, (or pain after IO)
- All Pts: 1 mg/kg, then 0.5 mg/kg IV/IO
 - Typical Adults: **100 mg**, then **50 mg**
- Pain after IO (adult only): 10 mg IO

Caution

- PMH: antiarrhythmics, AV block
- Do not mix: **Digoxin®**
- May cause: **hypotension**
- May cause: N/V, seizure
- **Preg B:** likely safe

Notes

- Protocols: Med CODE/ROSC, Trauma CODE, IO Procedure
- Antiarrhythmic: Class IB - Onset: 45 sec - Duration: 10 min
- <https://reference.medscape.com/drug/342302>

Xylocaine®

Lopressor®**Use**

- Tx: HTN, Tachycardia
- Adults: **5 mg** IV/IO
- Peds: <do not use>

Caution

- PMH: CHF, AV block
- May cause: **hypotension**, syncope
- May cause: **bradycardia**, dizzy
- **Preg C:** safety not established

Notes

- Protocols: Malignant HTN
- β -blocker - Onset: minutes - Duration: hours
- <https://reference.medscape.com/drug/342360>

Metoprolol**Magnesium****Use**

- Tx: TdP, Preeclampsia, Eclampsia
- Adults: **2 - 4 grams** IV/IO
- Peds: 25 - 50 mg/kg

Caution

- PMH: DKA, AV block
- Do not mix: **Digoxin®**
- May cause: hypoxia, edema, **shock**
- **Monitor reflexes** to avoid toxicity
- **Preg D:** known risks

Notes

- Protocols: Tachycardia, Medical CODE, Seizure, Malig. HTN
- Dilute in NS and **give over 10 min if non-emergent**
- Electrolyte - Onset: seconds - Duration: hours
- <https://reference.medscape.com/drug/344444>

Magnesium Sulfate

Narcan®**Naloxone****Use**

- Tx: Opiate OD
- Adults: **0.04 - 4 mg** IV/IO, IM/N
- Peds: 0.1 mg/kg

Caution

- May cause: **opiate withdrawal**
- May cause: N/V, Abdominal Pain
- **Preg C:** safety not established

Notes

- Protocols: [Overdose / Tox](#)
- Opioid (μ) antagonist - Onset: 2 min - Duration: 45 min
- <https://reference.medscape.com/drug/343741>

**Neo Push****Phenylephrine****Use**

- Tx: Hypotension, Shock Index > 0.8
- Adults: **50 - 200 mcg** IV/IO
- Peds: 5 - 20 mcg/kg
- 0-1 y/o: safety not established

Caution

- **Beware extravasation**
- PMH: heart block, CHF
- May cause: HTN, **bradycardia**
- May cause: anxiety, flushing
- **Preg:** safety not established

Notes

- Protocols: [Vasopressors](#)
- **Must dilute in NS** to concentration of 100 mcg/mL
- Adrenergic: α agonist - Onset: 10 min - Duration: 15 min
- <https://reference.medscape.com/drug/342444>



Nitro**Nitroglycerin, Nitrostat®****Use**

- Tx: Angina
- Adults: **0.4 mg** SL
- Peds: <do not use>

Caution

- PMH: recent (36 h) **PDE5 inhibitors**
- PMH: ergot (pain/migraine) med
- May cause: **HA**, hypotension
- **Preg B:** likely safe

Notes

- Protocols: Chest Pain, Dyspnea
- Systemic vasodilator - Onset: 1 min - Duration: 30 min
- <https://reference.medscape.com/drug/342280>

**NS Bolus****0.9% Normal Saline****Use**

- Tx: Hypotension, Hypovolemia
- Adults: **1,000 mL** IV/IO
- Peds: 20 mL/kg

Caution

- PMH: CHF, CKD, HTN
- May cause: **hypervolemia**
- May cause: edema
- **Preg C:** safety not established

**Notes**

- Protocols: Shock, Tachy, Fever, HyperK⁺, Diabetic, Preg Major Trauma / CODE, Crush, Cold/Heat, Burn
- Sterile H₂O & NaCl - Onset: seconds - Duration: varies
- <https://www.rxlist.com/normal-saline-drug.htm>

Propofol

Diprivan®

Use

- Tx: Sedation
- Adults: **150 mcg/kg/min** IV/IO
- Peds: 200 mcg/kg/min (3+ months)
- 0-2 months: safety unknown

Caution

- PMH: CKD, renal failure
- May cause: **hypotension, apnea**
- Titrate down **rapidly** in **first 30 min**
- Aim for 30-50% **reduction** quickly
- **Preg B:** likely safe

Notes

- Protocols: Sedation / Vent
- Sedative/hypnotic: GABA - Onset: secs - Duration: mins
- <https://reference.medscape.com/drug/343100>



Rocephin®

Ceftriaxone

Use

- Tx: Infection
- Adults: **1 gram** IV/IO, IM
- Peds: 25 - 50 mg/kg

Caution

- **PCN / Cephalosporin Allergy**
- Do not mix: **Calcium** (may be fatal)
- May cause: allergic reaction
- **Preg B:** likely safe

Notes

- Protocols: Sepsis
- **Reconstitute:** w/ 3 mL - NS for IV/IO, or 2% Lido for IM
- Antibiotic: 3rd Gen Ceph - Onset: minutes - Duration: hours
- <https://reference.medscape.com/drug/342510>



Rocuronium

Zemuron®

Use

- Tx: RSI Paralysis
- Adults: **1 mg/kg** IV/IO
- Peds: 0.6 mg/kg (3+ months old)
- 0-2 months: safety unknown

Caution

- PMH: liver failure, ascites
- **Beware** Malignant Hyperthermia
- May cause: paralysis, apnea
- **Preg B:** likely safe

Notes

- Protocols: Intubation / RSI
- Non-depolarizing - Onset: 1 minute - Duration: 30 minutes
- <https://reference.medscape.com/drug/343109>

**Succinylcholine**

Anectine®

Use

- Tx: RSI Paralysis
- Adults: **1.5 mg/kg** IV/IO
- Peds: 2 mg/kg

Caution

- PMH: **hyperkalemia**, burns
- **Beware** Malignant Hyperthermia
- **Beware** Pediatric Myopathy
- May cause: paralysis, apnea
- **Preg C:** safety not established

Notes

- Protocols: Intubation / RSI
- Depolarizing - Onset: 30 seconds - Duration: 5 minutes
- <https://reference.medscape.com/drug/343102>



TXA

Tranexamic Acid

Use

- Tx: Bleeding, Epistaxis
- Adults: **1 gram** IV/IO (or 150 mg IN)
- Peds: 10 - 25 mg/kg
- Dilute in NS and **give over 10 min**

Caution

- PMH: seizure, **known DVT/PE**
- May cause: **hypotension**
- May cause: visual changes, N/V
- **Preg B:** likely safe

Notes

- Protocols: Bleeding, Pregnancy, Epistaxis, OB Procedures
- Antifibrinolytic - Onset: minutes - Duration: 3 hours
- <https://reference.medscape.com/drug/342087>



Tylenol®

Acetaminophen

Use

- Tx: Fever, Pain
- Adults: **500 mg** PO
- Peds: 15 mg/kg

Caution

- PMH: end stage liver disease
- **Preg B:** likely safe

Notes

- Protocols: Fever, Pain
- Analgesic: antiprostaglandin - Onset: 1 hr - Duration: 4 hrs
- <https://reference.medscape.com/drug/343346>



Versed®**Use**

- Tx: Seizure, Delirium
- Adults: **2.5 mg** IV/IO, IM/IN
- Peds: 50 - 75 mcg/kg

Caution

- PMH: antivirals, glaucoma
- May cause: **respiratory depression**
- May cause: hypotension
- **Preg D:** known risks

Notes

- Protocols: Seizure, Psych, Cold / Heat
- Critical Care: Sedation / Vent
- Benzo: GABA agonist - Onset: 3 minutes - Duration: 1 hour
- <https://reference.medscape.com/drug/342907>

Midazolam**Zofran®****Use**

- Tx: Nausea, Vomiting
- Adults: **4 mg** IV/IO, IM/IN, PO
- Peds: 0.1 mg/kg

Caution

- PMH: antidepressants, Long QT
- May cause: HA, fatigue
- **Preg B:** likely safe

Ondansetron**Notes**

- Protocols: Nausea / Vomiting
- Use **injectable for IV/IO & IM/IN**; use **ODT for PO**
- 5-HT3 antagonist - Onset: seconds - Duration: hours
- <https://reference.medscape.com/drug/342052>



- WVEMS uses the **Handtevy Standard**.
 - **Age is the primary** reference.
 - This allows **preparation en route**.
- Length / color tape is also an option.
 - Use tape if very small / very large.
 - Use tape if age is unknown.
- Weight based dosing is tertiary.
 - Estimating weight is less accurate.
- Vitals may be lower while sleeping.
- Use same route & frequency as adult.

E EMT Peds Dosing

- Peds med math is **not in EMT scope**.
- May give regular adult dose for ages:
 - **Afrin®** (oxymetazoline): ≥ 6 y/o
 - **Albuterol** (Ventolin®): ≥ 2 y/o
 - **Atrovent®** (ipratropium): ≥ 5 y/o
 - **Glucagon** (Glucagen®): ≥ 5 y/o
 - **Oral Glucose** (Glutose®): ≥ 2 y/o
 - **Narcan®** (naloxone): ≥ 1 y/o
 - **Zofran ODT®**: ≥ 11 y/o
- May give **EpiPen Jr®** for 3-8 y/o, or adult **EpiPen®** for ≥ 9 y/o.
 - May also use color coded / dose limiting administration systems.
- May **follow the directions** on the OTC box and give OTC doses of:
 - **Benadryl**, **Ibuprofen**, and **Tylenol**

137	Premie
138	0-3 mo
139	4-5 mo
140	6-11 mo
141	1 year
142	2 years
143	3 years
144	4 years
145	5 years
146	6 years
147	7 years
148	8 years
149	9 years
150	10 years
151	11 years
152	12 years
153	13 years

References

- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Handtevy - Pediatric Emergency Standards: <https://handtevy.com> [Ver: 5/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 18

Normal VitalsP: **120 - 170** /minR: **40 - 70** /minSBP: **55 - 90** mmHg**Resuscitation****Defib:** **4 → 8 J**Prefill (1/10) **Epi:** **0.2 mL**Prefill (2%) **Lido:** **0.1 → 0.1 mL****Common**

NS Bolus: 40 mL

Afrin: < do not use >

Albuterol: 0.42 mg

Ancef: < do not use >

Atrovent: 0.25 mg

Benadryl: < do not use >

D10: 10 mL

Decadron: 1.2 mg

Epi (allergy): 0.02 mg

Epi (brady/code): 0.02 mg

Epi Neb: 1 mg

Fentanyl: < do not use >

Glucose: < do not use >

Ibuprofen: < do not use >

Keppra: < do not use >

Ketamine (pain): < do not use >

Narcan: 0.02 mg

Tylenol: 32 mg

TXA: 50 mg

Versed: < do not use >

Zofran: < do not use >

Misc

IV Cath: 24 g (yellow)

iGel Airway: #1 (pink)

Pacing Rate: 145 /min

Cardioversion: 2 → 4 J

Vent: < do not use >

Less Common

Adenosine: 0.3 mg

Amiodarone: < do not use >

Atropine: 0.1 mg

Bicarbonate: 1 mEq

Calcium: 40 mg

Dopamine: drop every 60 s

Glucagon: 0.5 mg

Haldol: < do not use >

Lidocaine (10): < do not use >

Magnesium: 100 mg

Epi Push: 2 mcg

Etomidate: < do not use >

Ketamine (RSI): < do not use >

Levophed: 0.1 mcg/min

Lopressor: 1 mcg/min

Neo Push: 20 mcg

Rocephin: 100 mg

Rocuronium: < do not use >

Succinylcholine: 4 mg

Normal Vitals

P: 100 - 160 /min

R: 30 - 60 /min

SBP: 60 - 100 mmHg

Resuscitation**Misc****Defib:** 8 → 15 J

IV Cath: 24 g (yellow)

Prefill (1/10) **Epi:** 0.4 mL

iGel Airway: #1 (pink)

Prefill (2%) **Lido:** 0.2 → 0.1 mL

Pacing Rate: 130 /min

Common

Cardioversion: 4 → 8 J

NS Bolus: 80 mL

Vent: < do not use >

Afrin: < do not use >

Less Common

Albuterol: 0.83 mg

Adenosine: 0.3 mg

Ancef: < do not use >

Amiodarone: < do not use >

Atrovent: 0.25 mg

Atropine: 0.1 mg

Benadryl: < do not use >

Bicarbonate: 2 mEq

D10: 20 mL

Calcium: 80 mg

Decadron: 2.4 mg

Dopamine: drop every 60 s

Epi (allergy): 0.04 mg

Glucagon: 0.5 mg

Epi (brady/code): 0.04 mg

Haldol: < do not use >

Epi Neb: 2 mg

Lidocaine (I0): < do not use >

Fentanyl: 5 mcg

Magnesium: 200 mg

Glucose: < do not use >

Epi Push: 2 mcg

Ibuprofen: < do not use >

Etomidate: < do not use >

Keppra: < do not use >

Ketamine (RSI): < do not use >

Ketamine (pain): < do not use >

Levophed: 0.2 mcg/min

Narcan: 0.04 mg

Lopressor: 2 mcg/min

Tylenol: 64 mg

Neo Push: 20 mcg

TXA: 100 mg

Rocephin: 200 mg

Versed: < do not use >

Rocuronium: < do not use >

Zofran: < do not use >

Succinylcholine: 8 mg

Normal Vitals

P: 105 - 160 /min

R: 30 - 60 /min

SBP: 70 - 100 mmHg

Resuscitation**Misc****Defib:** 10 → 20 J

IV Cath: 24 g (yellow)

Prefill (1/10) **Epi:** 0.6 mL

iGel Airway: #1.5 (blue)

Prefill (2%) **Lido:** 0.4 → 0.2 mL

Pacing Rate: 130 /min

Common

Cardioversion: 6 → 10 J

NS Bolus: 120 mL

Vent: <do not use>

Afrin: <do not use>

Less Common

Albuterol: 1.25 mg

Adenosine: 0.6 mg

Ancef: 166 mg

Amiodarone: 30 mg

Atrovent: 0.25 mg

Atropine: 0.12 mg

Benadryl: <do not use>

Bicarbonate: 3 mEq

D10: 30 mL

Calcium: 120 mg

Decadron: 3.6 mg

Dopamine: drop every 60 s

Epi (allergy): 0.06 mg

Glucagon: 0.5 mg

Epi (brady/code): 0.06 mg

Haldol: <do not use>

Epi Neb: 3 mg

Lidocaine (I0): <do not use>

Fentanyl: 5 mcg

Magnesium: 300 mg

Glucose: <do not use>

Epi Push: 4 mcg

Ibuprofen: <do not use>

Etomidate: <do not use>

Keppra: <do not use>

Ketamine (RSI): 12 mg

Ketamine (pain): 2 mg

Levophed: 0.3 mcg/min

Narcan: 0.06 mg

Lopressor: 3 mcg/min

Tylenol: 80 mg

Neo Push: 40 mcg

TXA: 150 mg

Rocephin: 300 mg

Versed: 0.5 mg

Rocuronium: 6 mg

Zofran: <do not use>

Succinylcholine: 12 mg

Normal VitalsP: **110 - 160** /minR: **24 - 38** /minSBP: **70 - 100** mmHg**Resuscitation****Misc****Defib: 15 → 30 J**

IV Cath: 24 g (yellow)

Prefill (1/10) **Epi: 0.8 mL**

iGel Airway: #1.5 (blue)

Prefill (2%) **Lido: 0.4 → 0.2 mL**

Pacing Rate: 135 /min

Common

Cardioversion: 8 → 15 J

NS Bolus: 160 mL

Vent: Vt 50 mL @ 30 /min

Afrin: <do not use>

Less Common

Albuterol: 1.25 mg

Adenosine: 0.9 mg

Ancef: 200 mg

Amiodarone: 40 mg

Atrovent: 0.25 mg

Atropine: 0.16 mg

Benadryl: 5 mg

Bicarbonate: 4 mEq

D10: 40 mL

Calcium: 160 mg

Decadron: 4.8 mg

Dopamine: drop every 30 s

Epi (allergy): 0.08 mg

Glucagon: 0.5 mg

Epi (brady/code): 0.08 mg

Haldol: <do not use>

Epi Neb: 4 mg

Lidocaine (I0): <do not use>

Fentanyl: 5 mcg

Magnesium: 400 mg

Glucose: <do not use>

Epi Push: 4 mcg

Ibuprofen: 80 mg

Etomidate: <do not use>

Keppra: <do not use>

Ketamine (RSI): 16 mg

Ketamine (pain): 2 mg

Levophed: 0.4 mcg/min

Narcan: 0.08 mg

Lopressor: 4 mcg/min

Tylenol: 112 mg

Neo Push: 40 mcg

TXA: 200 mg

Rocephin: 400 mg

Versed: 0.5 mg

Rocuronium: 8 mg

Zofran: 0.8 mg

Succinylcholine: 16 mg

Normal VitalsP: **90 - 150** /minR: **22 - 30** /minSBP: **72 - 105** mmHg**Resuscitation****Defib:** 20 → 50 JPrefill (1/10) **Epi:** 1 mLPrefill (2%) **Lido:** 0.6 → 0.3 mL**Common**

NS Bolus: 200 mL

Afrin: <do not use>

Albuterol: 1.25 mg

Ancef: 266 mg

Atrovent: 0.25 mg

Benadryl: 10 mg

D10: 50 mL

Decadron: 6 mg

Epi (allergy): 0.1 mg

Epi (brady/code): 0.1 mg

Epi Neb: 5 mg

Fentanyl: 5 mcg

Glucose: <do not use>

Ibuprofen: 100 mg

Keppra: <do not use>

Ketamine (pain): 3 mg

Narcan: 0.1 mg

Tylenol: 144 mg

TXA: 200 mg

Versed: 1 mg

Zofran: 1 mg

Misc

IV Cath: 22 g (blue)

iGel Airway: #1.5 (blue)

Pacing Rate: 120 /min

Cardioversion: 10 → 20 J

Vent: Vt 60 mL @ 28 /min**Less Common**

Adenosine: 0.9 mg

Amiodarone: 50 mg

Atropine: 0.2 mg

Bicarbonate: 10 mEq

Calcium: 200 mg

Dopamine: drop every 30 s

Glucagon: 0.5 mg

Haldol: <do not use>

Lidocaine (10): <do not use>

Magnesium: 500 mg

Epi Push: 6 mcg

Etomidate: <do not use>

Ketamine (RSI): 20 mg

Levophed: 0.5 mcg/min

Lopressor: 5 mcg/min

Neo Push: 60 mcg

Rocephin: 500 mg

Rocuronium: 10 mg

Succinylcholine: 20 mg

Normal VitalsP: **85 - 140** /minR: **22 - 30** /minSBP: **74 - 110** mmHg**Resuscitation****Defib:** 20 → 50 JPrefill (1/10) **Epi:** 1.2 mLPrefill (2%) **Lido:** 0.6 → 0.3 mL**Common**

NS Bolus: 250 mL

Afrin: <do not use>

Albuterol: 2.5 mg

Ancef: 333 mg

Atrovent: 0.25 mg

Benadryl: 10 mg

D10: 60 mL

Decadron: 7.2 mg

Epi (allergy): 0.12 mg

Epi (brady/code): 0.12 mg

Epi Neb: 5 mg

Fentanyl: 10 mcg

Glucose: 15 grams

Ibuprofen: 120 mg

Keppra: <do not use>

Ketamine (pain): 3 mg

Narcan: 0.12 mg

Tylenol: 176 mg

TXA: 300 mg

Versed: 1 mg

Zofran: 1.2 mg

Misc

IV Cath: 22 g (blue)

iGel Airway: #2 (gray)

Pacing Rate: 110 /min

Cardioversion: 10 → 20 J

Vent: Vt 70 mL @ 28 /min**Less Common**

Adenosine: 1.2 mg

Amiodarone: 60 mg

Atropine: 0.24 mg

Bicarbonate: 12 mEq

Calcium: 240 mg

Dopamine: drop every 30 s

Glucagon: 0.5 mg

Haldol: <do not use>

Lidocaine (10): 2 mg

Magnesium: 600 mg

Epi Push: 6 mcg

Etomidate: <do not use>

Ketamine (RSI): 24 mg

Levophed: 0.6 mcg/min

Lopressor: 6 mcg/min

Neo Push: 60 mcg

Rocephin: 600 mg

Rocuronium: 12 mg

Succinylcholine: 24 mg

Normal VitalsP: **85 - 140** /minR: **22 - 30** /minSBP: **76 - 115** mmHg**Resuscitation****Defib: 30 → 70 J**Prefill (1/10) **Epi: 1.5 mL**
Prefill (2%) **Lido: 0.8 → 0.4 mL****Common**

NS Bolus: 300 mL

Afrin: <do not use>

Albuterol: 2.5 mg

Ancef: 400 mg

Atrovent: 0.25 mg

Benadryl: 15 mg

D10: 75 mL

Decadron: 8 mg

Epi (allergy): 0.15 mg

Epi (brady/code): 0.15 mg

Epi Neb: 5 mg

Fentanyl: 10 mcg

Glucose: 15 grams

Ibuprofen: 140 mg

Keppra: <do not use>

Ketamine (pain): 4 mg

Narcan: 0.14 mg

Tylenol: 224 mg

TXA: 350 mg

Versed: 1 mg

Zofran: 1.6 mg

Misc

IV Cath: 22 g (blue)

iGel Airway: #2 (gray)

Pacing Rate: 110 /min

Cardioversion: 15 → 30 J

Vent: Vt 90 mL @ 28 /min**Less Common**

Adenosine: 1.5 mg

Amiodarone: 75 mg

Atropine: 0.3 mg

Bicarbonate: 15 mEq

Calcium: 300 mg

Dopamine: drop every 20 s

Glucagon: 0.5 mg

Haldol: <do not use>

Lidocaine (10): 2 mg

Magnesium: 750 mg

Epi Push: 8 mcg

Etomidate: <do not use>

Ketamine (RSI): 30 mg

Levophed: 0.8 mcg/min

Lopressor: 8 mcg/min

Neo Push: 80 mcg

Rocephin: 666 mg

Rocuronium: 15 mg

Succinylcholine: 30 mg

Normal VitalsP: **75 - 120** /minR: **22 - 26** /minSBP: **78 - 115** mmHg**Resuscitation****Misc****Defib: 30 → 70 J**

IV Cath: 22 g (blue)

Prefill (1/10) **Epi: 1.7 mL**

iGel Airway: #2 (gray)

Prefill (2%) **Lido: 1 → 0.5 mL**

Pacing Rate: 95 /min

Common

Cardioversion: 15 → 30 J

NS Bolus: 350 mL

Vent: Vt 100 mL @ 24 /min

Afrin: <do not use>

Less Common

Albuterol: 2.5 mg

Adenosine: 1.8 mg

Ancef: 466 mg

Amiodarone: 85 mg

Atrovent: 0.25 mg

Atropine: 0.35 mg

Benadryl: 15 mg

Bicarbonate: 17 mEq

D10: 85 mL

Calcium: 350 mg

Decadron: 8 mg

Dopamine: drop every 20 s

Epi (allergy): 0.17 mg

Glucagon: 0.5 mg

Epi (brady/code): 0.17 mg

Haldol: <do not use>

Epi Neb: 5 mg

Lidocaine (I0): 2 mg

Fentanyl: 10 mcg

Magnesium: 850 mg

Glucose: 15 grams

Epi Push: 10 mcg

Ibuprofen: 160 mg

Etomidate: <do not use>

Keppra: <do not use>

Ketamine (RSI): 35 mg

Ketamine (pain): 5 mg

Levophed: 0.9 mcg/min

Narcan: 0.16 mg

Lopressor: 9 mcg/min

Tylenol: 256 mg

Neo Push: 100 mcg

TXA: 400 mg

Rocephin: 833 mg

Versed: 1.5 mg

Rocuronium: 17 mg

Zofran: 2 mg

Succinylcholine: 34 mg

Normal VitalsP: **70 - 115** /minR: **20 - 24** /minSBP: **80 - 115** mmHg**Resuscitation****Misc****Defib:** 50 → 85 J

IV Cath: 20 g (pink)

Prefill (1/10) **Epi:** 2 mL

iGel Airway: #2 (gray)

Prefill (2%) **Lido:** 1 → 0.5 mL

Pacing Rate: 90 /min

Common

Cardioversion: 20 → 50 J

NS Bolus: 400 mL

Vent: Vt 120 mL @ 22 /min

Afrin: <do not use>

Less Common

Albuterol: 2.5 mg

Adenosine: 2.1 mg

Ancef: 600 mg

Amiodarone: 100 mg

Atrovent: 0.5 mg

Atropine: 0.4 mg

Benadryl: 20 mg

Bicarbonate: 20 mEq

D10: 100 mL

Calcium: 400 mg

Decadron: 8 mg

Dopamine: drop every 15 s

Epi (allergy): 0.2 mg

Glucagon: 1 mg

Epi (brady/code): 0.2 mg

Haldol: <do not use>

Epi Neb: 5 mg

Lidocaine (I0): 2 mg

Fentanyl: 10 mcg

Magnesium: 1 gram

Glucose: 15 grams

Epi Push: 10 mcg

Ibuprofen: 200 mg

Etomidate: <do not use>

Keppra: <do not use>

Ketamine (RSI): 40 mg

Ketamine (pain): 6 mg

Levophed: 1.0 mcg/min

Narcan: 0.2 mg

Lopressor: 10 mcg/min

Tylenol: 288 mg

Neo Push: 100 mcg

TXA: 500 mg

Rocephin: 1 gram

Versed: 2 mg

Rocuronium: 20 mg

Zofran: 2 mg

Succinylcholine: 40 mg

Normal VitalsP: **70 - 115** /minR: **20 - 24** /minSBP: **82 - 120** mmHg**Resuscitation****Misc****Defib: 50 → 85 J**

IV Cath: 20 g (pink)

Prefill (1/10) **Epi: 2.2 mL**

iGel Airway: #2 (gray)

Prefill (2%) **Lido: 1.2 → 0.6 mL**

Pacing Rate: 90 /min

Common

Cardioversion: 20 → 50 J

NS Bolus: 440 mL

Vent: Vt 130 mL @ 22 /min

Afrin: 1 spray

Less Common

Albuterol: 2.5 mg

Adenosine: 2.1 mg

Ancef: 666 mg

Amiodarone: 110 mg

Atrovent: 0.5 mg

Atropine: 0.45 mg

Benadryl: 20 mg

Bicarbonate: 22 mEq

D10: 100 mL

Calcium: 450 mg

Decadron: 8 mg

Dopamine: drop every 15 s

Epi (allergy): 0.22 mg

Glucagon: 1 mg

Epi (brady/code): 0.22 mg

Haldol: 2.5 mg

Epi Neb: 5 mg

Lidocaine (I0): 4 mg

Fentanyl: 15 mcg

Magnesium: 1.1 grams

Glucose: 15 grams

Epi Push: 10 mcg

Ibuprofen: 220 mg

Etomidate: <do not use>

Keppra: 440 mg

Ketamine (RSI): 45 mg

Ketamine (pain): 6 mg

Levophed: 1.1 mcg/min

Narcan: 0.22 mg

Lopressor: 11 mcg/min

Tylenol: 320 mg

Neo Push: 100 mcg

TXA: 550 mg

Rocephin: 1 gram

Versed: 2 mg

Rocuronium: 22 mg

Zofran: 2.2 mg

Succinylcholine: 44 mg

Normal VitalsP: **70 - 110** /minR: **16 - 22** /minSBP: **84 - 120** mmHg**Resuscitation****Defib:** 50 → 100 JPrefill (1/10) **Epi:** 2.5 mLPrefill (2%) **Lido:** 1.4 → 0.7 mL**Common**

NS Bolus: 500 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 733 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.25 mg

Epi (brady/code): 0.25 mg

Epi Neb: 5 mg

Fentanyl: 15 mcg

Glucose: 15 grams

Ibuprofen: 240 mg

Keppra: 500 mg

Ketamine (pain): 7 mg

Narcan: 0.24 mg

Tylenol: 352 mg

TXA: 600 mg

Versed: 2.5 mg

Zofran: 2.4 mg

Misc

IV Cath: 20 g (pink)

iGel Airway: #2.5 (white)

Pacing Rate: 90 /min

Cardioversion: 30 → 50 J

Vent: Vt 150 mL @ 20 /min

Less Common

Adenosine: 2.4 mg

Amiodarone: 125 mg

Atropine: 0.5 mg

Bicarbonate: 25 mEq

Calcium: 500 mg

Dopamine: drop every 12 s

Glucagon: 1 mg

Haldol: 2.5 mg

Lidocaine (10): 4 mg

Magnesium: 1.25 grams

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 50 mg

Levophed: 1.3 mcg/min

Lopressor: 13 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 25 mg

Succinylcholine: 50 mg

Normal VitalsP: **70 - 110** /minR: **16 - 22** /minSBP: **86 - 120** mmHg**Resuscitation****Defib:** 50 → 100 JPrefill (1/10) **Epi:** 2.7 mLPrefill (2%) **Lido:** 1.4 → 0.7 mL**Common**

NS Bolus: 540 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 800 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.27 mg

Epi (brady/code): 0.27 mg

Epi Neb: 5 mg

Fentanyl: 15 mcg

Glucose: 15 grams

Ibuprofen: 260 mg

Keppra: 540 mg

Ketamine (pain): 8 mg

Narcan: 0.26 mg

Tylenol: 384 mg

TXA: 650 mg

Versed: 2.5 mg

Zofran: 2.6 mg

Misc

IV Cath: 20 g (pink)

iGel Airway: #2.5 (white)

Pacing Rate: 90 /min

Cardioversion: 30 → 50 J

Vent: Vt 160 mL @ 20 /min

Less Common

Adenosine: 2.7 mg

Amiodarone: 135 mg

Atropine: 0.5 mg

Bicarbonate: 27 mEq

Calcium: 550 mg

Dopamine: drop every 12 s

Glucagon: 1 mg

Haldol: 2.5 mg

Lidocaine (10): 4 mg

Magnesium: 1.35 grams

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 55 mg

Levophed: 1.4 mcg/min

Lopressor: 14 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 27 mg

Succinylcholine: 54 mg

Normal VitalsP: **65 - 105** /minR: **16 - 22** /minSBP: **88 - 120** mmHg**Resuscitation****Defib: 70 → 120 J**Prefill (1/10) **Epi: 3 mL**Prefill (2%) **Lido: 1.6 → 0.8 mL****Common**

NS Bolus: 600 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 866 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.3 mg

Epi (brady/code): 0.3 mg

Epi Neb: 5 mg

Fentanyl: 15 mcg

Glucose: 15 grams

Ibuprofen: 300 mg

Keppra: 600 mg

Ketamine (pain): 9 mg

Narcan: 0.28 mg

Tylenol: 448 mg

TXA: 750 mg

Versed: 2.5 mg

Zofran: 3 mg

Misc

IV Cath: 18 g (green)

iGel Airway: #2.5 (white)

Pacing Rate: 85 /min

Cardioversion: 30 → 70 J

Vent: Vt 180 mL @ 20 /min**Less Common**

Adenosine: 3 mg

Amiodarone: 150 mg

Atropine: 0.5 mg

Bicarbonate: 30 mEq

Calcium: 600 mg

Dopamine: drop every 10 s

Glucagon: 1 mg

Haldol: 3 mg

Lidocaine (10): 4 mg

Magnesium: 1.5 grams

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 60 mg

Levophed: 1.5 mcg/min

Lopressor: 15 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 30 mg

Succinylcholine: 60 mg

Normal Vitals

P: 60 - 100 /min

R: 16 - 22 /min

SBP: 90 - 120 mmHg

Resuscitation**Defib: 70 → 150 J**Prefill (1/10) **Epi: 3.5 mL**Prefill (2%) **Lido: 1.8 → 0.9 mL****Common**

NS Bolus: 700 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 1,000 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.3 mg

Epi (brady/code): 0.35 mg

Epi Neb: 5 mg

Fentanyl: 20 mcg

Glucose: 15 grams

Ibuprofen: 340 mg

Keppra: 700 mg

Ketamine (pain): 10 mg

Narcan: 0.36 mg

Tylenol: 480 mg

TXA: 850 mg

Versed: 2.5 mg

Zofran: 3.4 mg

Misc

IV Cath: 18 g (green)

iGel Airway: #3 (yellow)

Pacing Rate: 80 /min

Cardioversion: 30 → 70 J

Vent: Vt 210 mL @ 20 /min**Less Common**

Adenosine: 3.6 mg

Amiodarone: 150 mg

Atropine: 0.5 mg

Bicarbonate: 35 mEq

Calcium: 700 mg

Dopamine: drop every 9 s

Glucagon: 1 mg

Haldol: 3.5 mg

Lidocaine (10): 6 mg

Magnesium: 1.75 grams

Epi Push: 10 mcg

Etomidate: 10 mg

Ketamine (RSI): 70 mg

Levophed: 1.8 mcg/min

Lopressor: 18 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 35 mg

Succinylcholine: 70 mg

Normal VitalsP: **60 - 100** /minR: **16 - 22** /minSBP: **90 - 120** mmHg**Resuscitation****Defib:** 85 → 150 JPrefill (1/10) **Epi:** 4 mLPrefill (2%) **Lido:** 2 → 1 mL**Common**

NS Bolus: 800 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 1,200 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.3 mg

Epi (brady/code): 0.4 mg

Epi Neb: 5 mg

Fentanyl: 20 mcg

Glucose: 15 grams

Ibuprofen: 400 mg

Keppra: 800 mg

Ketamine (pain): 12 mg

Narcan: 0.4 mg

Tylenol: 480 mg

TXA: 1 gram

Versed: 2.5 mg

Zofran: 4 mg

Misc

IV Cath: 18 g (green)

iGel Airway: #3 (yellow)

Pacing Rate: 80 /min

Cardioversion: 50 → 85 J

Vent: Vt 240 mL @ 20 /min

Less Common

Adenosine: 3.9 mg

Amiodarone: 150 mg

Atropine: 0.5 mg

Bicarbonate: 40 mEq

Calcium: 800 mg

Dopamine: drop every 8 s

Glucagon: 1 mg

Haldol: 4 mg

Lidocaine (10): 6 mg

Magnesium: 2 grams

Epi Push: 10 mcg

Etomidate: 12 mg

Ketamine (RSI): 80 mg

Levophed: 2.0 mcg/min

Lopressor: 20 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 40 mg

Succinylcholine: 80 mg

Normal Vitals

P: 60 - 100 /min

R: 16 - 22 /min

SBP: 90 - 120 mmHg

Resuscitation**Defib: 100 → 200 J**Prefill (1/10) **Epi: 5 mL**Prefill (2%) **Lido: 2.6 → 1.3 mL****Common**

NS Bolus: 1,000 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 1,466 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.3 mg

Epi (brady/code): 0.5 mg

Epi Neb: 5 mg

Fentanyl: 25 mcg

Glucose: 15 grams

Ibuprofen: 400 mg

Keppra: 1,000 mg

Ketamine (pain): 15 mg

Narcan: 0.4 mg

Tylenol: 480 mg

TXA: 1 gram

Versed: 2.5 mg

Zofran: 4 mg

Misc

IV Cath: 18 g (green)

iGel Airway: #3 (yellow)

Pacing Rate: 80 /min

Cardioversion: 50 → 100 J

Vent: Vt 300 mL @ 20 /min**Less Common**

Adenosine: 5.1 mg

Amiodarone: 150 mg

Atropine: 0.5 mg

Bicarbonate: 50 mEq

Calcium: 1 gram

Dopamine: drop every 6 s

Glucagon: 1 mg

Haldol: 5 mg

Lidocaine (10): 8 mg

Magnesium: 2 grams

Epi Push: 10 mcg

Etomidate: 15 mg

Ketamine (RSI): 100 mg

Levophed: 2.5 mcg/min

Lopressor: 25 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 50 mg

Succinylcholine: 100 mg

Normal VitalsP: **60 - 100** /minR: **16 - 22** /minSBP: **90 - 120** mmHg**Resuscitation****Defib:** 120 → 200 JPrefill (1/10) **Epi:** 6 mLPrefill (2%) **Lido:** 3 → 1.5 mL**Common**

NS Bolus: 1,000 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 1,800 mg

Atrovent: 0.5 mg

Benadryl: 25 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.3 mg

Epi (brady/code): 0.6 mg

Epi Neb: 5 mg

Fentanyl: 30 mcg

Glucose: 15 grams

Ibuprofen: 400 mg

Keppra: 1,200 mg

Ketamine (pain): 18 mg

Narcan: 0.4 mg

Tylenol: 480 mg

TXA: 1 gram

Versed: 2.5 mg

Zofran: 4 mg

Misc

IV Cath: 18 g (green)

iGel Airway: #4 (green)

Pacing Rate: 80 /min

Cardioversion: 50 → 100 J

Vent: Vt 350 mL @ 20 /min

Less Common

Adenosine: 6 mg

Amiodarone: 150 mg

Atropine: 0.5 mg

Bicarbonate: 50 mEq

Calcium: 1 gram

Dopamine: drop every 5 s

Glucagon: 1 mg

Haldol: 5 mg

Lidocaine (10): 10 mg

Magnesium: 2 grams

Epi Push: 10 mcg

Etomidate: 18 mg

Ketamine (RSI): 100 mg

Levophed: 3 mcg/min

Lopressor: 30 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 60 mg

Succinylcholine: 100 mg

#

9's (rule of) in:	
- Burns	72
12-Lead	93
15-Lead in:	
- STEMI	86
A	
A-Fib / A-Flutter in:	
- Tachycardia	14
AAA (Abd Aortic Aneurysm) in:	
- Abdominal Pain	34
Abandonment in:	
- Infant Abandonment	106
Abdominal Pain	34
Abdominal Trauma in:	
- Trunk Injury	64
Abuse and Neglect	106
Acetaminophen see: Tylenol®	134
Acid Reflux in:	
- Abdominal Pain	34
Adenocard® see: Adenosine	115
Adenosine for:	115
- Tachycardia	14
Adrenergic see: Epinephrine	122
Advil® see: Ibuprofen	126
Afrin® for:	115
- Epistaxis	78
Agitated Delirium in:	
- Psychiatric	46
Airway	4
Albuterol for:	116
- Hyperkalemia	18
- Dyspnea	30
- Allergic Reaction	32
- Crush Injury	68
Alcohol Intoxication in:	
- Overdose / Tox	40
Allergic Reaction	32
ALS (Advanced Life Support) in:	
- How To Use	2
Altered LOC / Syncope	36
Amidate® see: Etomidate	123
Amiodarone for:	116
- Tachycardia	14
- Medical CODE	24
- Medical ROSC	26
Amputation in:	
- Extremity Injury	66
Anaphylaxis in:	
- Allergic Reaction	32
Ancef® for:	117
- Major Trauma	56
- Extremity Injury	66
Anectine® see: Succinylcholine	133
Antibiotic see:	
- Ancef®	117
- Rocephin®	132
Antiemetic see: Zofran®	135
Antihistamine see: Benadryl®	119
Antipsychotic see: Haldol®	125
Appendicitis in:	
- Abdominal Pain	34
Arrest in:	
- Medical CODE	24
- Police	110
Arrhythmia in:	
- Bradycardia	12
- Tachycardia	14
Aspirin for:	117
- Chest Pain	28
Asthma in:	
- Dyspnea	30
Asystole in:	
- Medical CODE	24
Atropine for:	118
- Bradycardia	12
- Overdose / Tox	40
Atrovent® for:	118
- Dyspnea	30
- Allergic Reaction	32
Avulsion (teeth) in:	
- Head Injury	62

B	
β-agonist see: Albuterol	116
β-blocker see: Lopressor®	129
β-blocker Overdose in:	
- Overdose / Tox	40
Baby in:	
- Pregnancy / Delivery	48
- Neonate	50
Backache in:	
- Pain	20
Backboard in:	
- Immobilization	60
Behavioral Emergency in:	
- Psychiatric	46
Benadryl® for:	119
- Allergic Reaction	32
- Psychiatric (dystonic)	46
Benzodiazepine see: Versed®	135
BIAD in:	
- Airway	4
- BIAD	98
Bicarbonate for:	119
- Overdose / Tox	40
Bi-level Ventilation see: NIPPV	95
BiPAP see: NIPPV	95
Bite / Sting	76
Blast Injury in:	
- Major Trauma	56
Bleeding	58
Blood Cultures in:	
- Sepsis	90
Blood Glucose / Sugar in:	
- Diabetic	38
- Glucometer	93
Blood Labs see: Saline Lock	93
Blood Tubes see: Saline Lock	93
BLS (Basic Life Support) in:	
- How To Use	2
Bolus see: NS Bolus	131
Bougie Cric (Cricothyrotomy)	103
Bowel Obstruction in:	
- Abdominal Pain	34
Bradycardia	12
Breastfeeding in:	
- Pregnancy Delivery	48
- Deliver Baby	102
Breech Birth in:	
- Pregnancy / Delivery	48
- Deliver Baby	102
- Manage OB Complication	102
Breathing	6
Burns	72
BVM in:	
- Breathing	6
- BVM	95
Bystanders in:	
- On Scene Personnel	107

C	
C-Spine / C-Collar in:	
- Immobilization	60
- C-Collar	100
Ca-blocker Overdose in:	
- Overdose / Tox	40
Calcium for:	120
- Hyperkalemia	18
- Overdose / Tox	40
- Crush Injury	68
Capnometry/Capnography in:	
- Airway	4
- Breathing	6
- Intubation / RSI	80
- Sedation	82
Carbon Dioxide see: End Tidal CO2	
Carbon Monoxide (CO) in:	
- Inhalation	74
Cardiac Arrest in:	
- Medical CODE	24

C (cont.)	
Cardiac Arrhythmia in:	
- Bradycardia	12
- Tachycardia	14
- Medical CODE	24
Cardioversion	101
Caustic Ingestion in:	
- Overdose / Tox	40
Cefazolin see: Ancef®	117
Ceftriaxone see: Rocephin®	132
Charcoal (activated) in:	
- Overdose / Tox	40
Chemical Burn in:	
- Burns	72
Chest Compressions	96
Chest Pain	28
Chest Trauma in:	
- Trunk Injury	64
CHF in:	
- Dyspnea	30
Chest Seal in:	
- Breathing	6
- Major Trauma	56
- Needle Decompress	98
- Wound Care	99
Choking in:	
- Airway	4
- Heimlich	94
Chronic Pain in:	
- Pain	20
Cincinnati Stroke Scale in:	
- Stroke	44
Circulation (Shock)	8
CODE in:	
- Medical CODE	24
- Trauma CODE	52
COPD in:	
- Breathing	6
- Dyspnea	30
Collapse in:	
- Medical CODE	24
- Altered LOC / Syncope	36
Cold in:	
- Cold / Heat	70
Combitube in:	
- Airway	4
- BIAD	98
Compressions in:	
- Medical CODE	24
- Trauma CODE	52
- Chest Compressions	96
Concussion in:	
- Head Injury	62
Contaminated Wound in:	
- Major Trauma	56
Contractions in:	
- Pregnancy / Delivery	48
Convulsion in:	
- Seizure	42
Cooling in:	
- Medical CODE	24
Cough in:	
- Dyspnea	30
CPAP see: NIPPV	95
CPR in:	
- Medical CODE	24
- Trauma CODE	52
- Chest Compressions	96
Cricothyrotomy	103
Croup in:	
- Dyspnea	30
Crush Injury	68
CVA in:	
- Stroke	44
Cyanide Exposure (cyanokit) in:	
- Overdose / Tox	40
Cyanosis in:	
- Dyspnea	30

D

D10 for:	120
- Diabetic	38
Death in:	
- Medical CODE	24
- Termination	108
- Deceased Subject	113
Decadron® for:	121
- Dyspnea	30
- Allergic Reaction	32
Deceased Subject	113
Decompression (needle) in:	
- Breathing	6
- Needle Decompress	98
Defibrillation in:	
- Medical CODE	24
- Trauma CODE	52
- Defib	96
Deficits (Neuro) in:	
- HTN	10
- Stroke	44
- Immobilization	60
- Trunk Injury	64
Deformity (reduction) in:	
- Extremity Injury	66
- Reduce Deformity	100
Delirium / Dementia in:	
- Psychiatric	46
Delivery in:	
- Pregnancy / Delivery	48
- Deliver Baby	102
Dental in:	
- Pain	20
- Head Injury	62
Destination Triage	112
Dexamethasone see: Decadron®	121
Dextrose see: D10	120
Diabetic	38
Diabetic Ketoacidosis in:	
- Diabetic	38
Dialysis in:	
- Hyperkalemia	18
- Saline Lock	93
Diaphoresis in:	
- Circulation (Shock)	8
Diphenhydramine see: Benadryl®	119
Diprivan® see: Propofol	132
Direct Pressure in:	
- Bleeding	58
Difficulty Breathing (DIB) in:	
- Breathing	6
- Dyspnea	30
DKA in:	
- Diabetic	38
DNR in:	
- Withhold Resuscitation	108
Dopamine for:	121
- Circulation (Shock)	8
Dosing in:	
- Peds Reference	136
Dressing in:	
- Wound Care	99
Drug Box	105
Drunk in:	
- Overdose / Tox	40
Dyspnea	30
Dystonic Reactions in:	
- Psychiatric	46

E

Ear Trauma in:	
- Head Injury	62
ECG / EKG in:	
- 12-Lead	93
Eclampsia in:	
- Seizure	34
- Pregnancy / Delivery	48
Ectopic Pregnancy in:	
- Abdominal Pain	42
- Pregnancy / Delivery	48
Ejection in:	
- Major Trauma	56
- Immobilization	60
EKG / ECG in:	
- 12-Lead	93

E (cont.)

Electric Burn in:	
- Burns	72
Emesis in:	
- Nausea / Vomiting	22
End Tidal CO₂ (EtCO₂) in:	
- Airway	4
- Breathing	6
- Dyspnea	30
- Intubation / RSI	80
- Sedation	82
Entrapment in:	
- Crush Injury	68
Environmental in:	
- Allergic Reaction	32
- Cold / Heat	70
- Sting / Bite	76
Epilepsy in:	
- Seizure	42
Epiglottitis in:	
- Dyspnea	30
Epinephrine (Epi) for:	122
- Circulation (Shock)	8
- Bradycardia	12
- Medical CODE	24
- Dyspnea	30
- Allergic Reaction	32
- Neonate	50
- Trauma CODE	52
- Vasopressors	84
EpiPen®, EpiPen Jr.® for:	122
- Allergic Reaction	32
Epistaxis	78
EtCO₂ see: End Tidal CO₂	
Etomidate for:	123
- Intubation / RSI	80
Ethanol (EtOH) Intoxication in:	
- Overdose / Tox	40
Evisceration in:	
- Trunk Injury	64
Explosion Injury in:	
- Major Trauma	56
Exposed Bone in:	
- Major Trauma	56
Exposure in:	
- Cold / Heat	70
External Jugular in:	
- Saline Lock	93
Extremity Injury	66
Eye Trauma in:	
- Head Injury	62

F

Facial Trauma in:	
- Head Injury	62
Failed Airway in:	
- Airway	4
- Intubation / RSI	80
Fainting in:	
- Altered LOC / Syncope	36
Fatigue in:	
- Rehab	110
FAST Stroke Scale in:	
- Stroke	44
Febrile Seizure in:	
- Fever	16
- Seizure	42
Fentanyl for:	124
- Pain	20
Fever	16
Fibromyalgia in:	
- Pain	20
Flail Chest Segment in:	
- Trunk Injury	64
Fracture in:	
- Immobilization	60
- Head Injury	62
- Trunk Injury	64
- Extremity Injury	66
Frostbite / Frostnip in:	
- Cold / Heat	70
Flu in:	
- Fever	16

G

Gallbladder in:	
- Abdominal Pain	34
Gas Exposure in:	
- Inhalation	74
Gastric Tube (G-tube)	97
GERD in:	
- Abdominal Pain	34
GI Bleeding in:	
- Abdominal Pain	34
Glucagon for:	124
- Diabetic	38
- Overdose / Tox	40
Glasgow Coma Scale (GCS) in:	
- Altered LOC	36
Glucometer	93
Glucose for:	125
- Diabetic	38
Gunshot Wound (GSW) in:	
- Breathing	6
- Immobilization	60
- Head Injury	62
- Trunk Injury	64
H	
Haldol® for:	125
- Psychiatric	46
Handivey® see: Peds Reference	136
Harness Hang Syndrome in:	
- Crush Injury	68
Head Injury	62
Headache in:	
- Hypertension	10
- Pain	20
Heartburn in:	
- Abdominal Pain	34
Heart Attack in:	
- Chest Pain	28
Heart Block in:	
- Bradycardia	12
Heart Failure in:	
- Dyspnea	30
Heat Exhaustion / Stroke in:	
- Cold / Heat	70
Heimlich	94
Hemorrhage see: Bleeding	58
Hemostatic Packing in:	
- Wound Packing	99
Hives in:	
- Allergic Reaction	32
Heparin for:	126
- STEMI	86
HTN (Hypertension)	10
Hyperemesis in:	
- Nausea / Vomiting	22
Hyperglycemia in:	
- Diabetic	38
Hyperkalemia	18
Hypersalivation (pretreatment) in:	
- Sedation	82
Hyperoxia in:	
- Breathing	6
Hypertension (HTN)	10
Hypertensive Urgency and	
Hypertensive Emergency in:	
- Malignant HTN	88
Hyperthermia in:	
- Fever	16
- Cold / Heat	70
Hypoglycemia in:	
- Diabetic	38
Hypotension in:	
- Circulation (Shock)	8
- Major Trauma	56
- Head Injury	62
- Vasopressors	84
Hypothermia in:	
- Medical CODE	24
- Cold / Heat	70
Hypoxia in:	
- Breathing	6
- Dyspnea	30
- Head Injury	62

I

Ibuprofen for:	126
- Fever	16
- Pain	20
Ice in:	
- Extremity Injury	66
- Cold / Heat	70
- Bite / Sting	76
iGel (airway) in:	
- Airway	4
- Intubation / RSI	80
- BIAD	98
- Peds Reference	136
Immobilization (SMR)	60
Impaled Object in:	
- Major Trauma	56
- Head Injury	62
- Trunk Injury	64
Induction see:	
- Intubation / RSI	80
- Etomidate	123
- Ketamine	127
Infant in:	
- Pregnancy / Delivery	48
- Neonate	50
- Abandonment	106
Infection in:	
- Fever	16
- Sepsis	90
Influenza in:	
- Fever	16
Ingestions in:	
- Overdose / Tox	40
Inhalation	74
Insulin Pump in:	
- Diabetic	38
Internal Bleeding in:	
- Bleeding	58
Intraosseous (IO)	96
Intravenous (IV) in:	
- Saline Lock	93
- Peds Reference	136
Intropin® see: Dopamine	121
Intubation / RSI	80
Intoxication in:	
- Overdose / Tox	40
Ipratropium Brom. see Atrovent®	118
iSTAT Labs	103
Itching in:	
- Allergic Reaction	32
J	
Junctional Bleeding in:	
- Bleeding	58
- Wound Packing	99
K	
Kidney Stones in:	
- Abdominal Pain	34
Keppra® for:	127
- Seizure	42
Ketamine for:	127
- Pain	20
- Medical ROSC	26
- Trauma ROSC	54
- Intubation / RSI	80
- Sedation	82
L	
Labs see: Saline Lock	93
Laceration in:	
- Bleeding	58
- Wound Care	99
Lactated Ringer's in:	
- Burns	72
Lactic Acid (Lactate) in:	
- Sepsis	90
Law Enforcement Officer in:	
- Psychiatric	46
- Police Assist	110

L (cont.)

LBBB (Left Bundle) in:	
- STEMI	86
Level of Consciousness (LOC) in:	
- Altered LOC / Syncope	36
Levetiracetam see: Keppra®	127
Levophed® for:	128
- Vasopressors	84
Lidocaine for:	128
- Medical CODE	24
- Medical ROSC	26
- Trauma CODE	52
- Intraosseous (IO)	96
Lightning in:	
- Mass Casualty	113
Lividity in:	
- Medical CODE	24
- Termination	108
Lopressor for:	129
- Malignant HTN	88
Loss of Consciousness in:	
- Altered LOC / Syncope	36
LR (Lactated Ringer's) in:	
- Burns	72
LVAD see: Ventricular Assist Dev.	109

M

Magill Forceps	94
Magnesium for:	129
- Tachycardia	14
- Medical CODE	24
- Seizure	42
- Malignant HTN	88
Magnet (pacemaker) in:	
- Bradycardia	12
Major Trauma	56
Malignant HTN	88
Manage OB Complication	102
Mark-1 Kit (Nerve Agent) in:	
- Overdose / Tox	40
Mass Casualty	113
Mean Arterial Pressure (MAP) in:	
- Circulation (Shock)	8
Medical CODE	24
Medical ROSC	26
Medications in:	
- Drug Box	105
- Drug Reference	114
- Peds Reference	136
Metoprolol® see: Lopressor	129
Midazolam see: Versed®	135
Migraine in:	
- Pain	20
Miscarriage in:	
- Pregnancy / Delivery	48
Monitor (Cardiac) in:	
- 12-Lead	93
Mortal Injury in:	
- Trauma CODE	52
- Deceased Subjects	113
Motrin® see: Ibuprofen	126
Mouth Trauma in:	
- Head Injury	62
Multisystem Trauma in:	
- Major Trauma	56
Myocardial Infarction (MI) in:	
- Chest Pain	28
- STEMI	86

N

Narcan® for:	130
- Overdose / Tox	40
Naloxone see: Narcan®	130
Nasopharyngeal Airway	97
Nausea / Vomiting	22
Nebulizer in:	
- Dyspnea	30
Neck Trauma in:	
- Immobilization	60
- Head injury	62
Needle Cric (cricothyrotomy)	103
Needle Decompression in:	
- Breathing	6
- Needle Decompress	98
Neglect in:	
- Stroke	44
- Abuse and Neglect	106
Neonate	50
Neo (synephrine)® for:	130
- Vasopressors	84

N (cont.)

Neuro Deficits in:	
- HTN	10
- Stroke	44
- Immobilization	60
- Trunk Injury	64
Newborn see: Neonate	50
Nicotine Overdose in:	
- Overdose / Tox	40
NIPPV	95
Nitro for:	131
- Chest Pain	28
- Dyspnea	30
Noninvasive Vent. see: NIPPV	95
Norepinephrine see: Levophed®	128
Nose Bleed in:	
- Head Injury	62
- Epistaxis	78
Novolin R® see: Insulin	126
NPO (Nil Per Os) in:	
- Nausea / Vomiting	22
NS Bolus	131
NSAID see: Ibuprofen	126
O	
Obvious Death in:	
- Medical CODE	24
- Deceased Subjects	113
Occlusive Dressing in:	
- Breathing	6
- Major Trauma	56
- Needle Decompress	98
- Wound Care	99
OG-Tube	97
On Scene Personnel	107
Ondansetron see: Zofran®	135
Open Fracture in:	
- Major Trauma	56
- Extremity Injury	66
Opiate see: Fentanyl	124
Opiate Overdose in:	
- Overdose / Tox	40
Oral Glucose see: Glucose	125
Organophosphate Exposure in:	
- Overdose / Tox	40
Oropharyngeal Airway	97
Orogastric Tube see: OG-Tube	97
Overdose / Tox	40
Oxygen (O2) in:	
- Breathing	6
- Inhalation	74
Oxymetazoline see: Afrin®	115
P	
Pacerone® see: Amiodarone	116
Pacing	101
Pain	20
Palpitations in:	
- Tachycardia	14
Paralytic see:	
- Intubation / RSI	80
- Rocuronium	133
- Succinylcholine	133
Patient in:	
- How To Use	2
- Refusal	111
PCN (Penicillin) Allergy see:	
- Penicillin Allergy	
PEA in:	
- Medical CODE	24
Pediatrics in:	
- How To Use	2
- Peds Reference	136
PEEP see: NIPPV	95
Pelvic Trauma in:	
- Trunk Injury	64
Penetrating Trauma in:	
- Breathing	6
- Immobilization	60
- Head Injury	62
- Trunk Injury	64
Penicillin (PCN) Allergy in:	
- Major Trauma	56
- Sepsis	90
- Ancef®	117
- Rocephin®	132

P (cont.)

Pepper Spray see: Riot Control	74
Phenylephrine see: Neo®	130
Phlebotomy see: Saline Lock	93
Physician Orders	107
PICC lines in:	
- Saline Lock	93
Pleural Decompression in:	
- Needle Decompress	98
Pneumonia in:	
- Dyspnea	30
Pneumothorax in:	
- Breathing	6
- Needle Decompress	98
Poison Control in:	
- Overdose / Tox	40
Police in:	
- Psychiatric	46
- Police Assist	110
POST in:	
- Withhold Resuscitation	108
Postpartum Care / Bleeding in:	
- Pregnancy / Delivery	48
Post-Resuscitation Care in:	
- Medial ROSC	24
- Trauma ROSC	52
Potassium Elevation in:	
- Hyperkalemia	18
Preeclampsia in:	
- HTN	10
- Seizure	42
- Pregnancy / Delivery	48
- Malignant HTN	88
Pregnancy / Delivery	48
Preoxygenation in:	
- Intubation / RSI	80
Pressors in:	
- Circulation (Shock)	8
Prolapsed Cord in:	
- Pregnancy / Delivery	48
Propofol for:	132
- Sedation	82
Pressor see: Vasopressors	84
Pseudoseizure in:	
- Seizure	42
Psychiatric	46
PTX (pneumothorax) in:	
- Breathing	6
- Needle Decompress	98
Pulmonary Edema in:	
- Dyspnea	30
Pulmonary Embolism (PE) in:	
- Breathing	6
Pulseless Electrical Activity in:	
- Medical CODE	24

Q**R**

Rapid Sequence Intubation	80
Rash in:	
- Allergic Reaction	32
Reduce Deformity	100
Refusals	111
Rehab	110
Renal Failure in:	
- Hyperkalemia	18
Restraint in:	
- Psychiatric	46
Resuscitation in:	
- Medical CODE	24
- Trauma CODE	52
Rigor Mortis in:	
- Medical CODE	24
- Termination	108
Ringer's Lactate (LR) in:	
- Burns	72
Riot Control Agents in:	
- Inhalation	74
Rocephin® for:	132
- Sepsis	90
Rocuronium for:	133
- Intubation / RSI	80
ROSC in:	
- Medical ROSC	26
- Trauma ROSC	54
RSI / Intubation	80
Rule of 9's in:	
- Burns	72

S

Saline see: NS Bolus	131
Saline Lock	93
SCUBA injury in:	
- Breathing	6
Sedation / Vent	82
Seizure	42
Sepsis	90
Sgarbossa's Criteria in:	
- STEMI	86
Shivering in:	
- Cold / Heat	70
Shock (Circulation)	8
Shock Index in:	
- Vasopressors	84
Shortness of Breath (SOB) in:	
- Dyspnea	30
Smoke Inhalation in:	
- Inhalation	74
SMR (Spinal Motion Restriction) in:	
- Immobilization	60
Sodium Bicarbonate see: Bicarb	119
Spinal Clearance/Precautions in:	
- Immobilization	60
Splint	100
Sprain / Strain in:	
- Extremity Injury	66
- Splint	100
ST Elevation MI (STEMI)	86
Stabbing Injury in:	
- Breathing	6
- Immobilization	60
- Head Injury	62
- Trunk Injury	64
Standby	110
Steroid see: Decadron®	121
Sting / Bite	76
Stinger Removal	100
Stomach Pain in:	
- Abdominal Pain	34
Stridor in:	
- Airway	4
- Dyspnea	30
Stroke	44
Sublimaze® see: Fentanyl	124
Succinylcholine for:	133
- Intubation / RSI	80
Suction	94
Suicidal in:	
- Psychiatric	48
Sulfonylureas in:	
- Diabetic	38
Suspension Injury in:	
- Crush Injury	68
SVT in:	
- Tachycardia	14
Syncope / Altered LOC	36

T

Tachycardia	14
Tear Gas see: Riot Control	74
Teeth in:	
- Pain	20
- Head Injury	62
Tension Pneumothorax in:	
- Breathing	6
- Needle Decompress	98
Termination of Resuscitation	108
Therapeutic Hypothermia in:	
- Medical CODE	24
Thermometer in:	
- Fever	16
- Cold / Heat	70
TIA in:	
- Stroke	44
Toothache in:	
- Pain	20
- Head Injury	62
Torsion in:	
- Abdominal Pain	34
Tourniquets in:	
- Trauma CODE	53
- Major Trauma	56
- Bleeding	58
- Tourniquet	99
Tox / Overdose	40
Tranexamic Acid see: TXA	134

T (cont.)

Transport in:	
- How To Use	2
- Destination Triage	112
Trauma CODE	52
Trauma ROSC	54
Triage in:	
- Mass Casualty	113
- Destination Triage	112
Tricyclic Overdose in:	
- Overdose / Tox	40
Trunk Injury	64
Twins in:	
- Pregnancy / Delivery	48
TXA for:	134
- Pregnancy / Delivery	48
- Bleeding	58
- Epistaxis	78
Tylenol® for:	134
- Fever	16
- Pain	20

U

Umbilical Cord in:	
- Pregnancy / Delivery	48
Unresponsive in:	
- Medical CODE	24
- Altered LOC / Syncope	36
Urinary Tract Infection (UTI) in:	
- Abdominal Pain	34

V

V-Fib in:	
- Medical CODE	24
V-Tach in:	
- Tachycardia	14
- Medical CODE	24
Vagal (Valsalva) Maneuvers in:	
- Tachycardia	14
VAN Stroke Scale in:	
- Stroke	44
Vasopressors	84
Vector Change in:	
- Defib	96
- Pacing/Cardioversion	101
Ventricular Assist Devices	109
Versed® for:	135
- Seizure	42
- Psychiatric	46
- Cold / Heat (shivering)	70
- Sedation	82
- Pacing	101
Ventilator	103
Ventolin® see: Albuterol	116
Vision Changes in:	
- Hypertension	10
- Head Injury	62
Vomiting / Nausea	22

W

Warming in:	
- Cold / Heat	70
Weakness in:	
- Altered LOC / Syncope	36
Wheezing in:	
- Dyspnea	30
- Allergic Reaction	32
Withdrawal in:	
- Overdose / Tox	40
- Seizure	42
Withholding Resuscitation	108
Wound Care	99
Wound Packing	99

X

Xylocaine® see: Lidocaine	128
---------------------------	-----

Y

Zemuron® see: Rocuronium	133
Zofran® for:	

Z

Protocols, Procedures, Policies & Medications of the Western VA EMS Medical Direction Committee

Editors: Drs. Ekey, LePera, and Stanley

Adapted From

- WVEMS Protocols 2023
- VA OEMS Scope of Practice 2022
- VA (NEMSIS) VPHIB 3.5.0.2 2023
- Advanced Trauma Life Support 10th ed.
- Christiansburg EMS 2023 • Salem FD 2022
- Carilion Clinic 2022 • Radford FD 2022

Physician Review

- Dr. K Armentrout
- Dr. C Bernier
- Dr. D DeBroekert
- Dr. B Ekey
- Dr. M Green
- Dr. C Lane
- Dr. A LePera
- Dr. J Mark
- Dr. M Mitchell
- Dr. J Patterson
- Dr. N Rader
- Dr. E Stanley

Special Thanks

- Click & Pledge[®]
- MayJuun, LLC

EMS Review

- Brian Alderson
- Adam Amburgey
- Elliot Carhart
- Chris Christensen
- Gene Dalton
- Diana Foley
- Mike Garnett
- Laura Hungerford
- Steve LePera
- Jane Lindsay
- Drew Mitchell
- Daryll Perry
- Steve Simon
- Kari Whitney
- Brandon Winesett

WVEMS Council

1944 Peters Creek Rd.
Roanoke, VA 24017

Phone: 540-562-3482

Web: <https://wvems.org>

Email: western@vaems.org