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WVEMS Protocols 2025

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

Editors: Drs. Ekey, LePera, and Stanley



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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

- 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

- 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

- 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

- 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 it is not absolute.

Severity

- 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

- 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

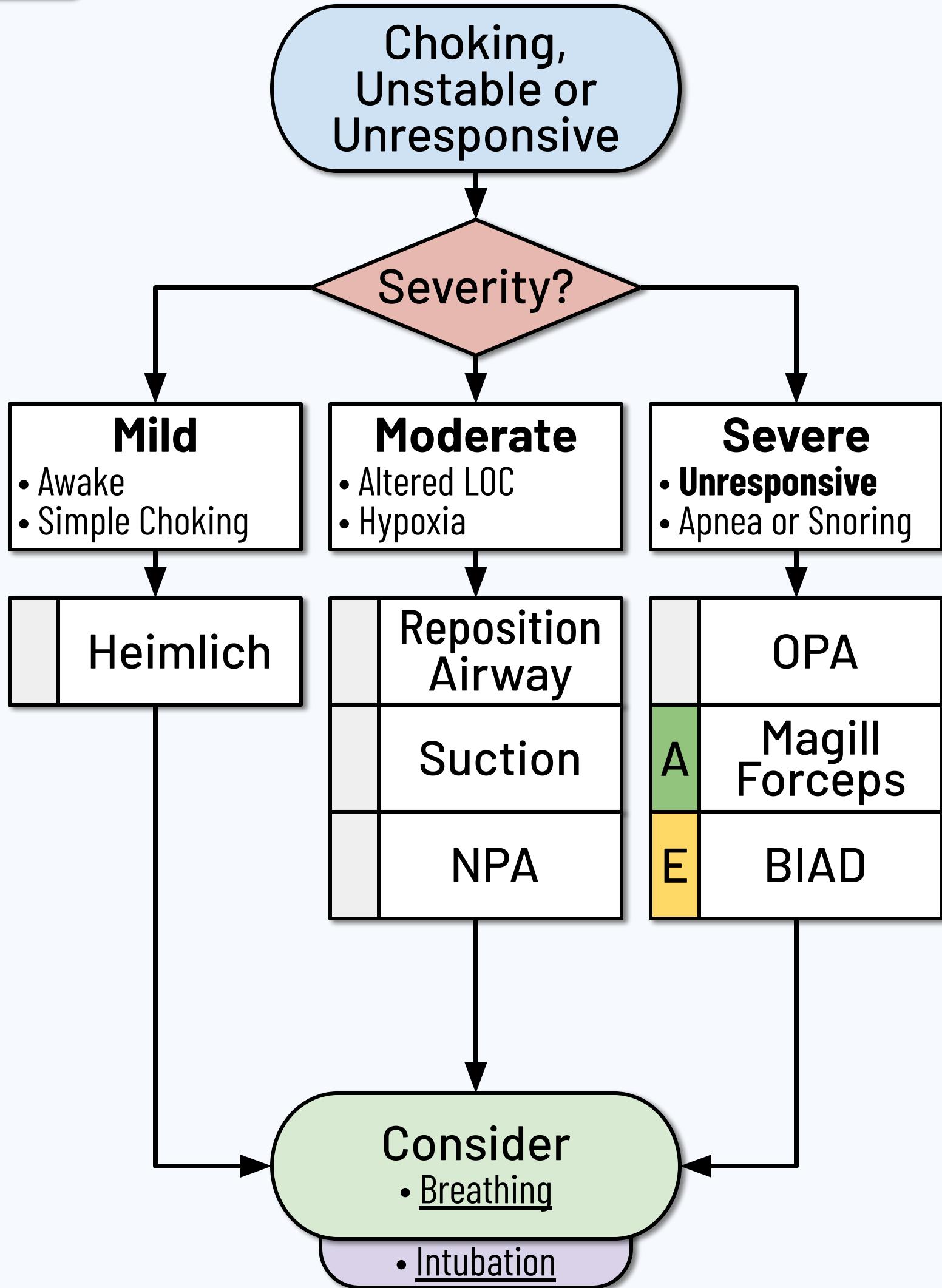
- Pediatric considerations are **included** in every protocol.
- Patients 14 y/o and over (14+) are generally given **adult** therapy.
- Children (1 - 13 y/o) and Infants (<1 y/o) are considered **peds**.
- Use Peds Reference for peds dosing & **adults under 110 lbs** (50 kg).

Critical Care

- 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

- 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.**
 - Consider **elevating the head** of cot to reduce aspiration risk.
- 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, EtCO₂, waveform capnography (gold standard)
- 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 skull fx. or facial trauma.
- Reposition with: Head Tilt / Chin Lift (med) or Jaw Thrust (trauma).
- Endotracheal intubation is **not included** in this protocol.
 - Consider Intubation if indicated and credentialed for CC.

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 Pleural
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.
 - Pleural Decompress for Hypotension or persistent hypoxia.
- BVM: Use two providers and two handed technique if able.
 - **Use EtCO₂** and **target 35-45 mmHg**. Avoid hyperventilation.
 - During CPR: alternate **30 : 2** until BIAD (or ETT) is placed.
- NIPPV: Contraindicated with agitation, vomiting, or hypotension.
 - May use if altered or unresponsive, but **monitor closely**.
 - May place EtCO₂ cannula under NIPPV mask to get waveform.

BVM Rate

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

Notes

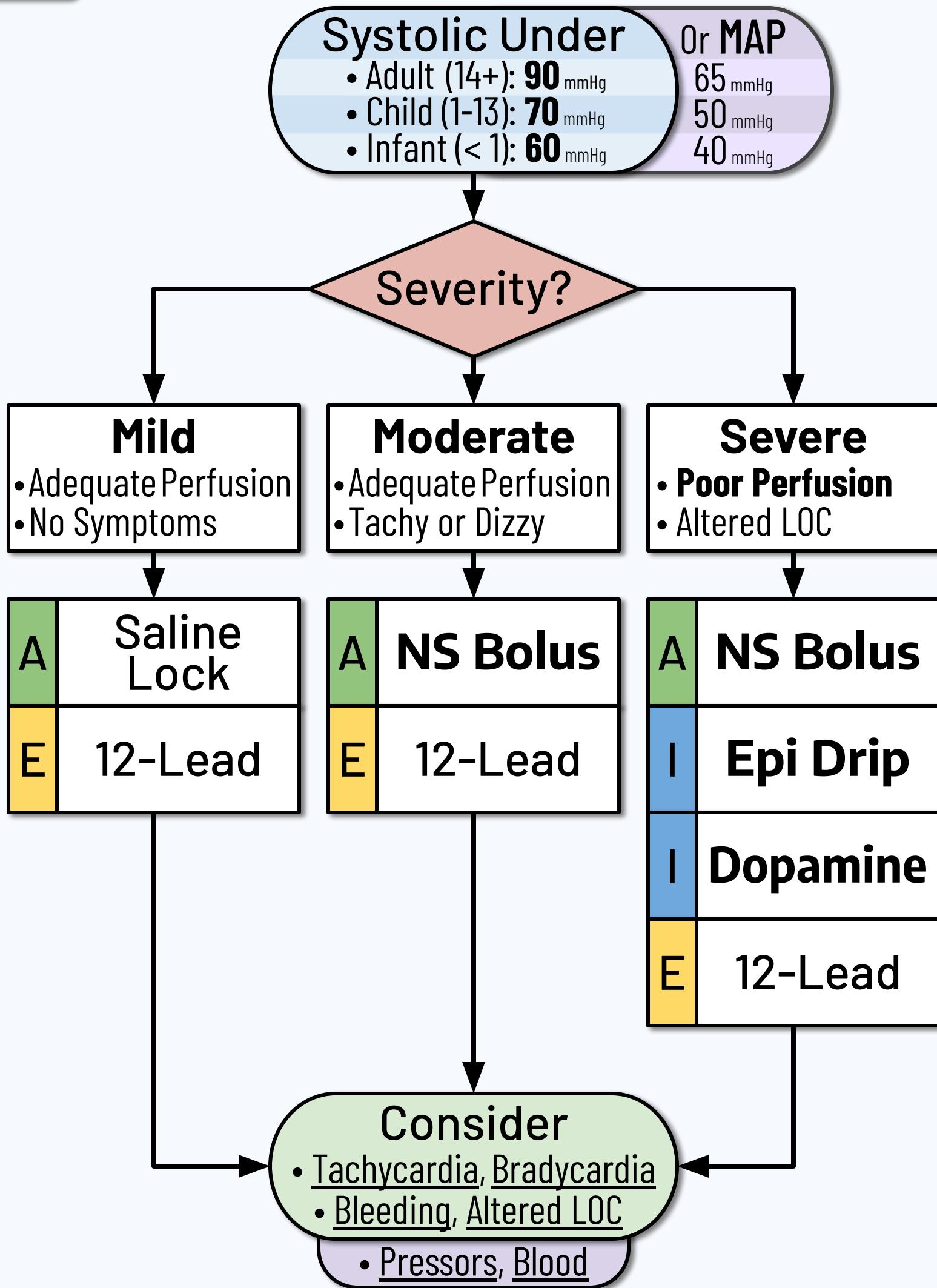
- Provide O₂ at appropriate doses. May decrease if SpO₂ above 98%.
 - Nasal Cannula (NC): **1-6 L/min**; Non-Rebreather (NRB): **10-15 L/min**
 - Hyperoxia can make some conditions worse, **especially COPD**.
 - Target SpO₂ of 88-92% for adults with isolated **COPD**.
- If SpO₂ unavailable or machine fails: use good clinical judgment.
- Drowning (or **SCUBA**) may cause hypoxia, treatment is the same.
- Consider Ventilator if indicated and credentialed for CC.

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: 500 mL	IV/IO x4	Adult Doses
Epi Drip: 1 gtt/s	IV/IO Titrated Drip	
Dopamine: 5 mcg/kg/min	IV/IO Titrated Drip	

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**.
 - Monitor for edema & rales before & after fluid administration.
- **Epi Drip** (Epinephrine): Mix bag of **1 mcg/mL** and use as follows:
 - Add 1 mg **Epi** into 1,000 mL bag -**or**- 0.5 mg in 500 mL bag of **NS**
 - 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

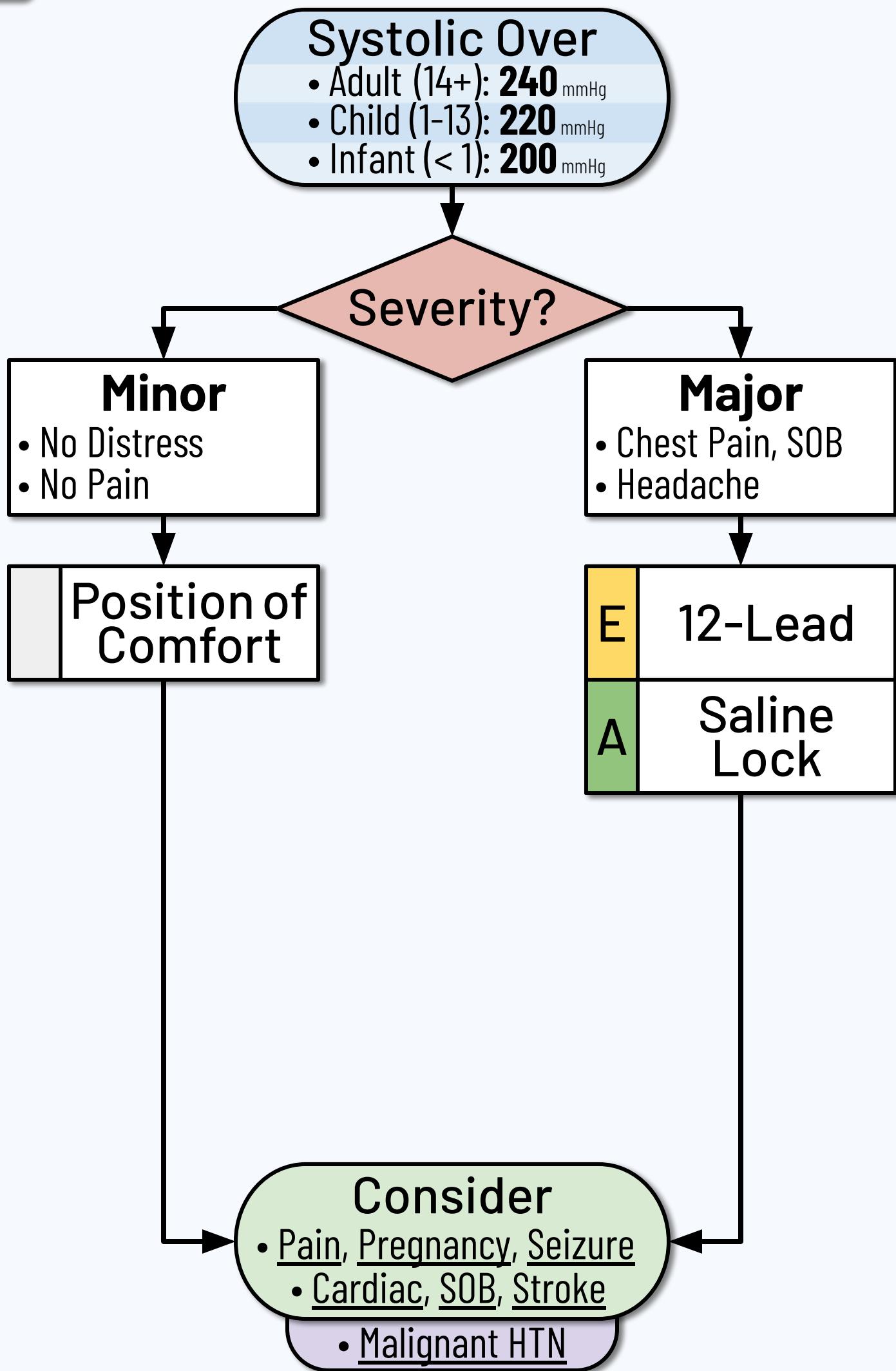
- Use **balanced** resuscitation in trauma. Pressors are a last resort.
- Mean Arterial Pressure (**MAP**) is a better indicator when available.
 - Consider Pressors or Blood if indicated and credentialed for CC.

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 Preeclampsia if indicated and credentialed 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 or rales.
 - Consider OD/Tox if any recent stimulant or illicit drug use.
 - Consider Stroke if any acute focal neurologic deficits.
 - 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 and credentialed for CC.

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 x2

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, Orthostasis
 - Dyspnea, Tachypnea

Medications

- **Atropine**: less effective with: heart transplant, 3° heart block
- **Epi** (Epinephrine): Preferred agent over **Atropine** in peds.

Notes

- Consider placing pacing **pads** on any unstable patient.
- **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 and BVM**.
- 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** Cardiovert**E** 12-Lead**I** Magnesium
If Torsades**A** NS Bolus**I** AdenosineIf QRS \leq 120 ms**I** AmioIf QRS $>$ 120 ms**Consider**

- Circulation, Pain
- Fever, Bleeding

Adult Doses**NS Bolus:** 500 mL IV/10 x4**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

- **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.
 - Give resuscitation dose over 10 min. Do not use under **3 y/o**.

Notes

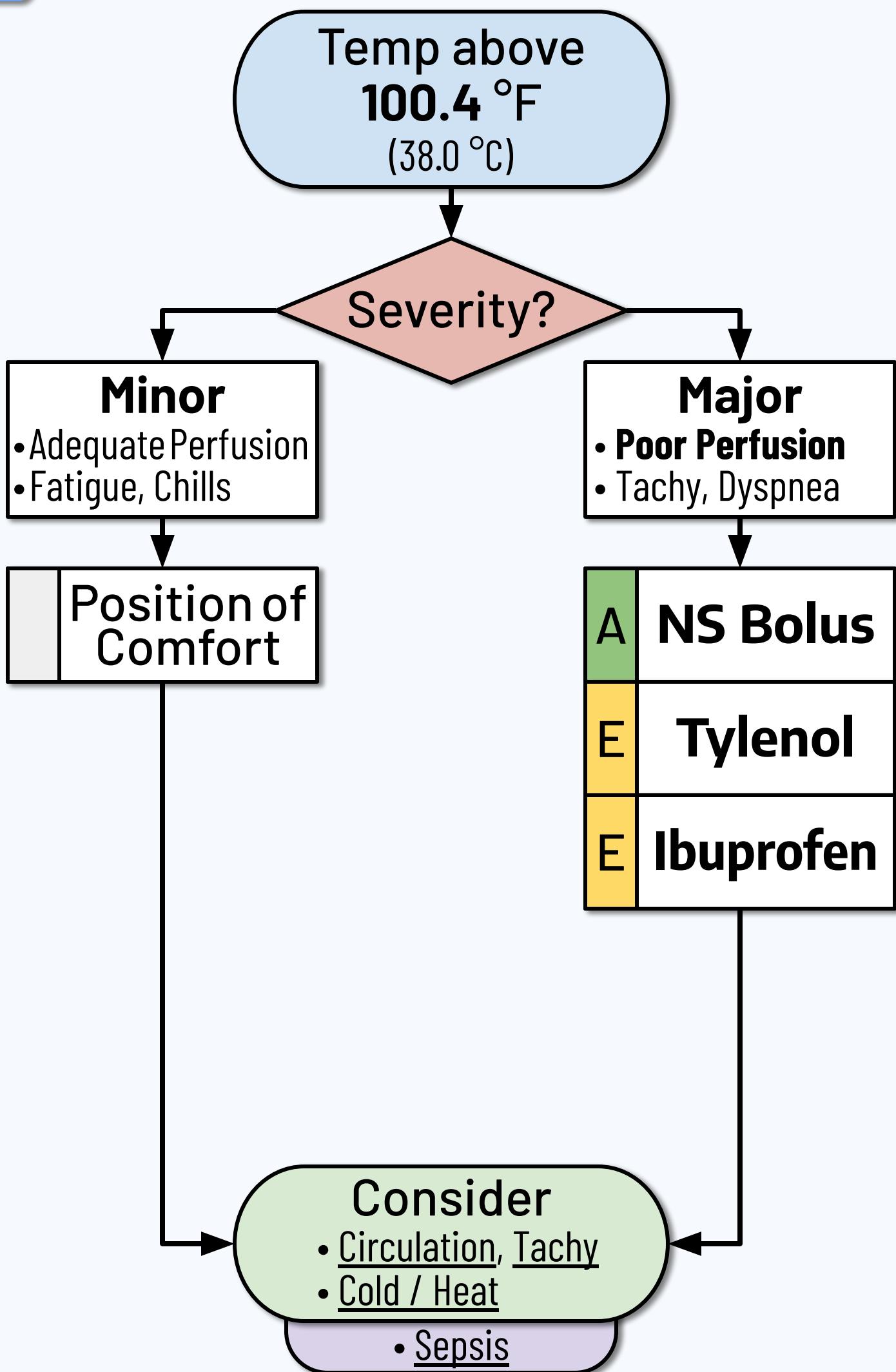
- Consider placing cardioversion **pads** on any unstable patient.
- Cardiovert: Enable **SYNC**. Start at **100 J**. Escalate as needed.
 - Alternative: follow manufacturer's or OMD's dosing guidance.

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: 500 mL	IV/IO	x4	Adult Doses
Tylenol: 1,000 mg	PO, IV/IO	x1	
Ibuprofen: 600 mg	PO	x1	

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 is different.

Medications

- **Tylenol**[®] (Acetaminophen): avoid if end stage liver disease
 - **E** May only give PO - use OTC tabs, caps, powder or liquid
 - **A** May give PO or IV/IO - for IV/IO, **give slowly over 10 min**
- **Ibuprofen** (Advil[®], Motrin[®]): avoid if **active** GI bleeding
- Max daily dose of **Tylenol** is 3,000 mg & **Ibuprofen** is 2,400 mg.

Poor Perfusion

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

Notes

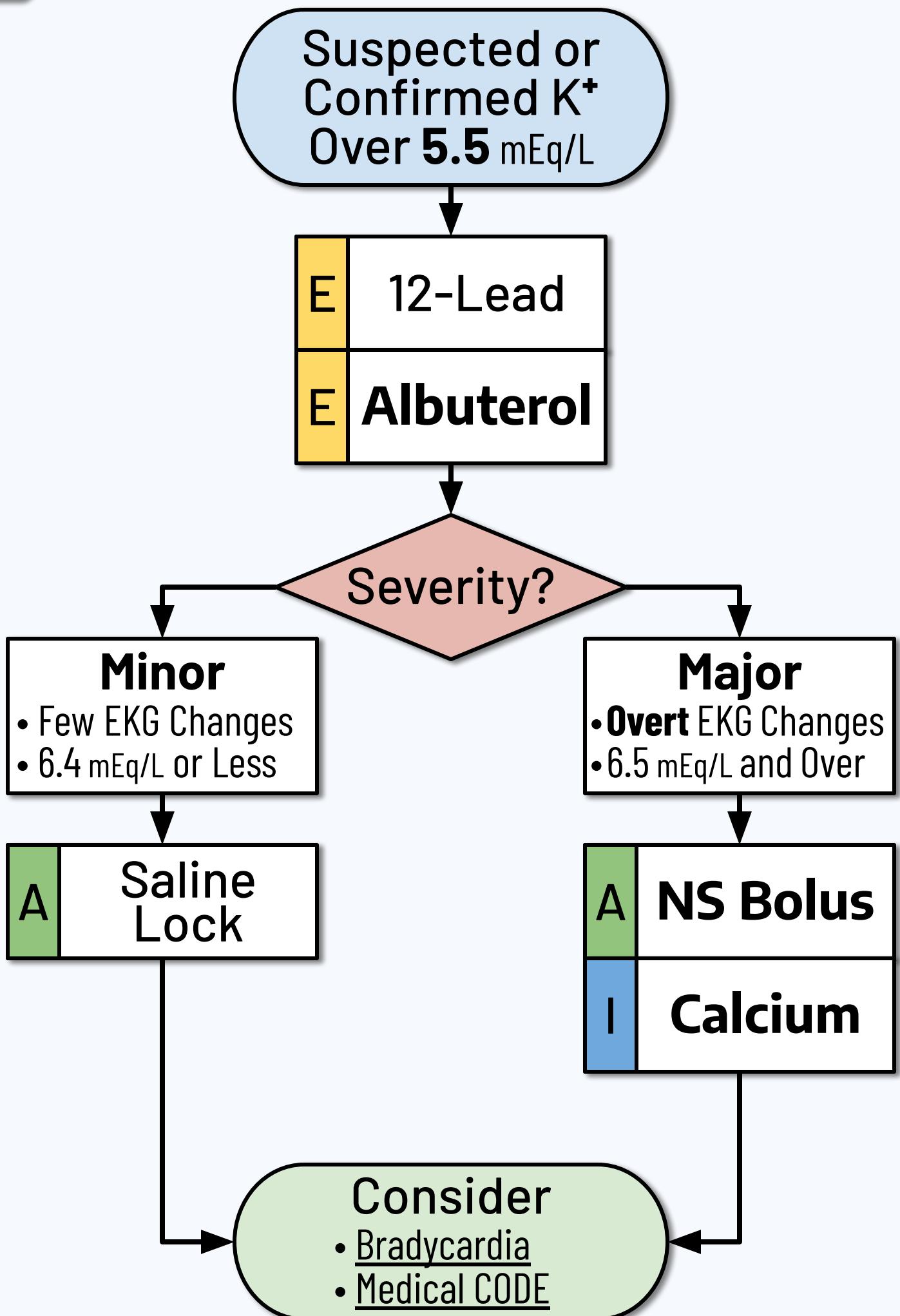
- Temporal thermometers are inaccurate on sweaty skin.
- Consider Sepsis if indicated and credentialed for CC.

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

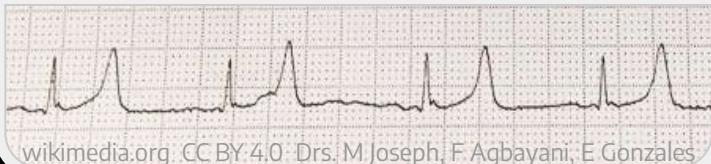


Albuterol: 10 mg	NEB (4 nebs) x1	Adult Doses
NS Bolus: 500 mL	IV/IO x4	
Calcium: 1 gram	IV/IO over 10 min	

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 crushing type extremity injury.

Pediatrics

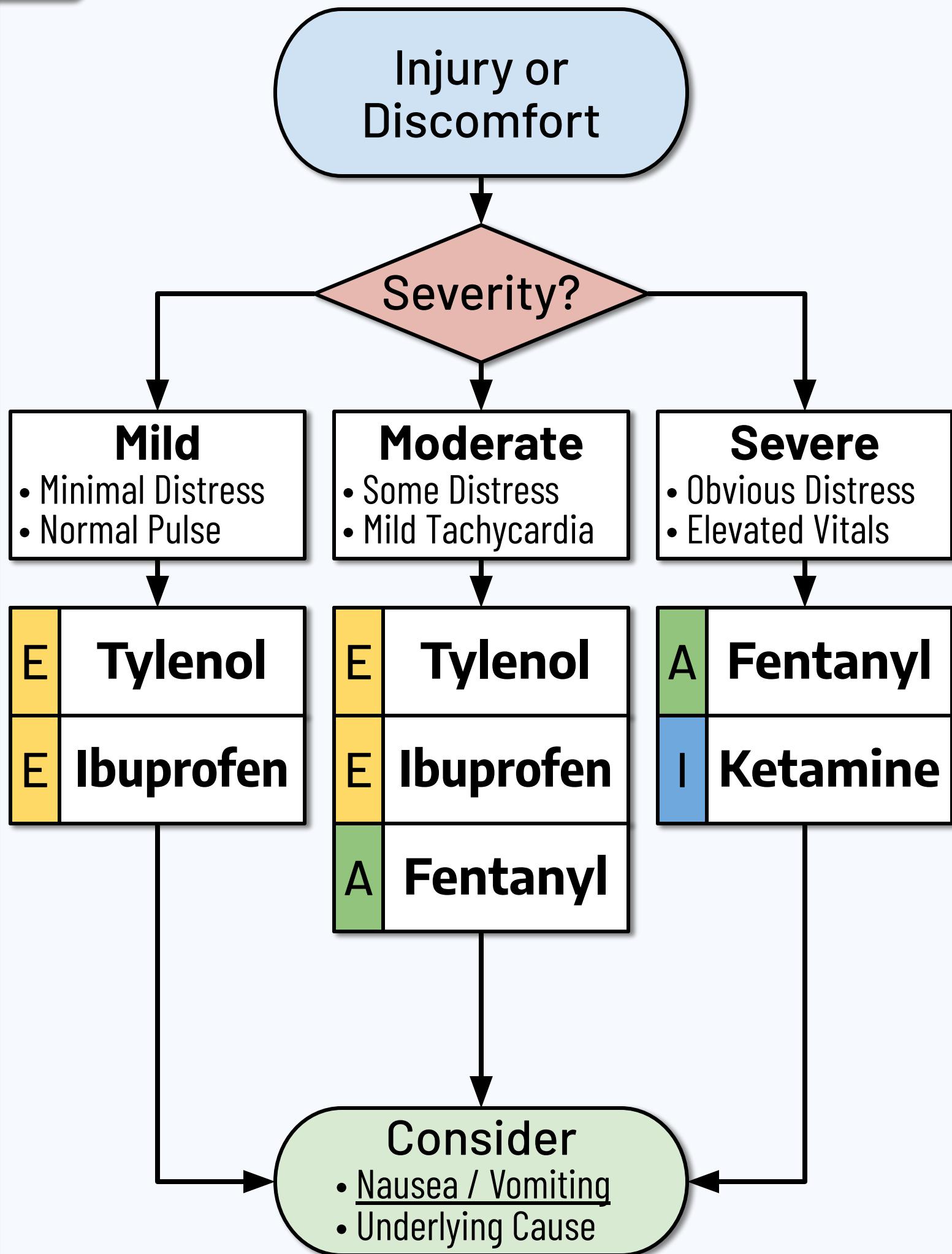
- Use Peds Reference or other approved source for peds dosing.

NEMESIS: 9914089

Reviewed: Dec 2024

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: 1,000 mg	PO, IV/IO	x1	Adult Doses
Ibuprofen: 600 mg	PO	x1	
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 like:
 - **Major trauma**, obvious **fractures**, acute **abdominal** or **chest pain**
- Pain meds (even PO) **are beneficial** despite short transport times.

Medications

- **Tylenol**[®] (Acetaminophen): avoid if end stage liver disease.
 - **E** May only give PO - use OTC tabs, caps, powder or liquid
 - **A** May give PO or IV/IO - for IV/IO, **give slowly over 10 min**
- **Ibuprofen** (Advil[®], Motrin[®]): Avoid if **active** GI bleeding.
- Max daily dose of **Tylenol** is 3,000 mg & **Ibuprofen** is 2,400 mg.
- **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

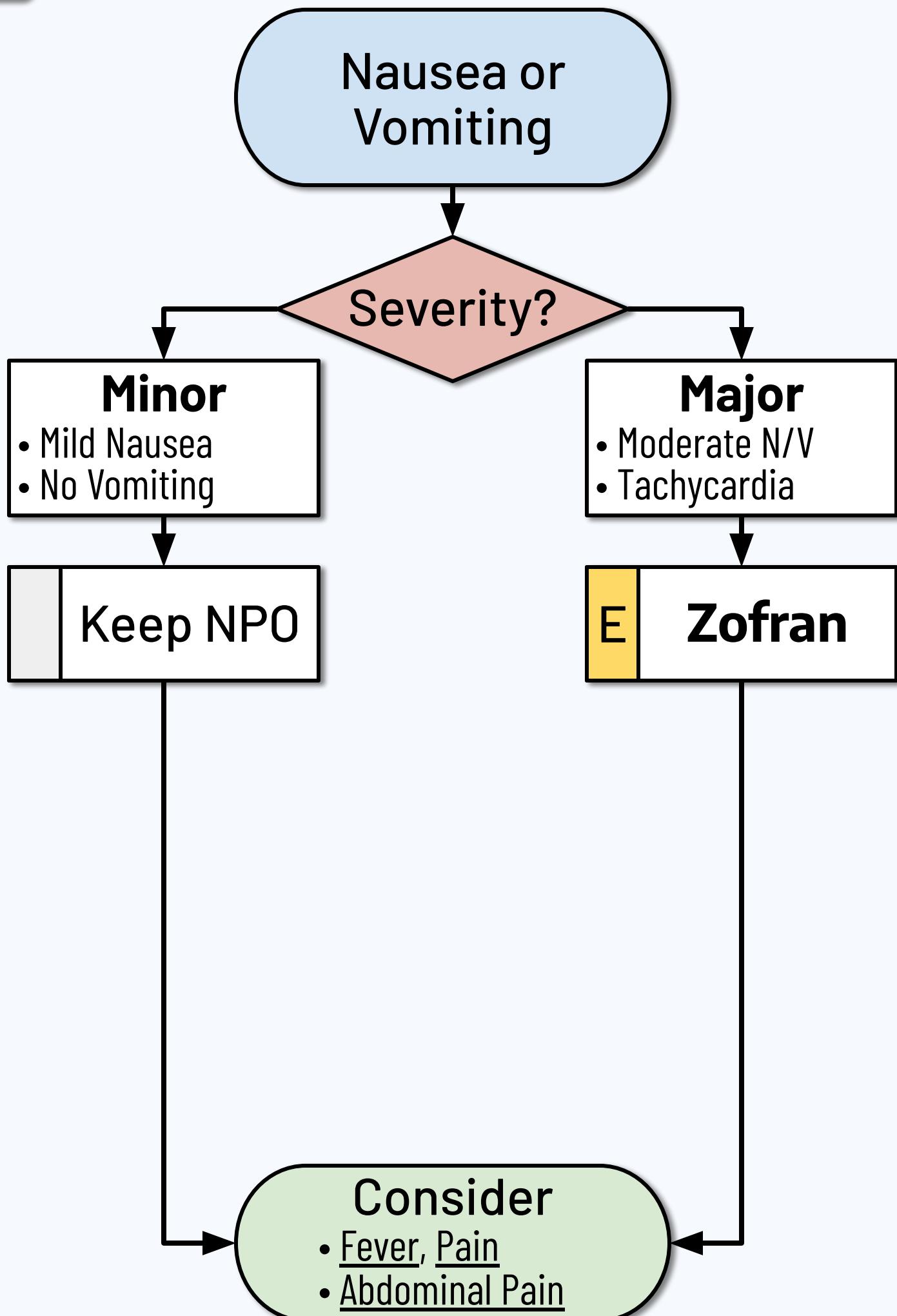
- **Tylenol** and **Ibuprofen** are good for **sub-acute** pain like:
 - Toothache, headache (migraine), sciatica, fibromyalgia, etc.
 - Avoid **Fentanyl** and **Ketamine** for sub-acute pain.
- Pain is subjective. Clinical judgment is required.
 - It is appropriate to try another med if the first is ineffective.
- May give **eye drops** for abrasions or welder's flash (UV keratitis).
 - **E** **Tetracaine** (0.5% Ophthalmic): 1-2 gtt into affected eye

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

- EBG for Prehospital Pain: <https://pubmed.ncbi.nlm.nih.gov/34928760/> [Ver: 1/22]
- Medscape Pain: <https://emedicine.medscape.com/article/310834> [Ver: 7/24]
- 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.
 - Strongly consider **Zofran** with any invasive airway device.
- **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

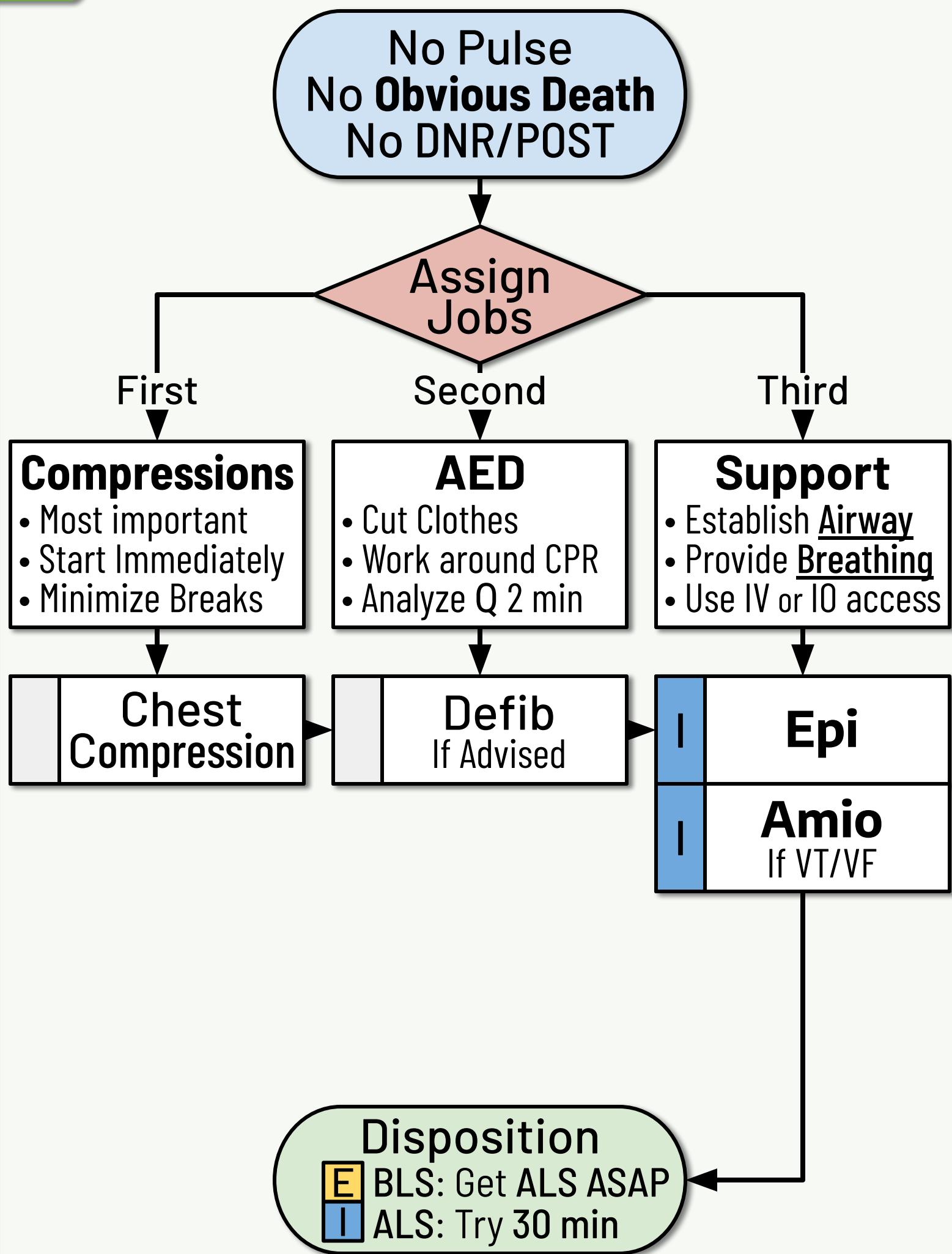
- Consider an atypical Cardiac cause in diabetics and the elderly.
- Sniffing an alcohol prep may also provide minor nausea relief.
- Vomiting is a protective mechanism in overdose (such as EtOH).
 - But intentionally inducing vomiting (i.e. ipecac) is not indicated.
 - May consider **Zofran** for dry heaving after stomach is empty.

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
Amiodarone: 1 st 300 → 2 nd 150 mg	IV/IO Q 5 min x2	
<u>Epi:</u> 0.01 mg/kg	IV/IO Q 5 min	Peds
Amiodarone: 5 mg/kg	IV/IO Q 5 min x3	

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

- **Amiodarone** (Pacerone[®]):
 - For adults, give twice (x2) Q 5 min
 1st **300** mg, → 2nd **150** mg
 - For peds, give **5** mg/kg three times (x3) Q 5 min
 - Consider adjunct meds for pulseless polymorphic VT arrest:
- I** **Magnesium** (Sulfate): Give **2** grams IV/IO x1 for Torsades.

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 & 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** **Amiodarone** (Pacerone[®]): **1 mg/min IV/IO, adult only**

Notes

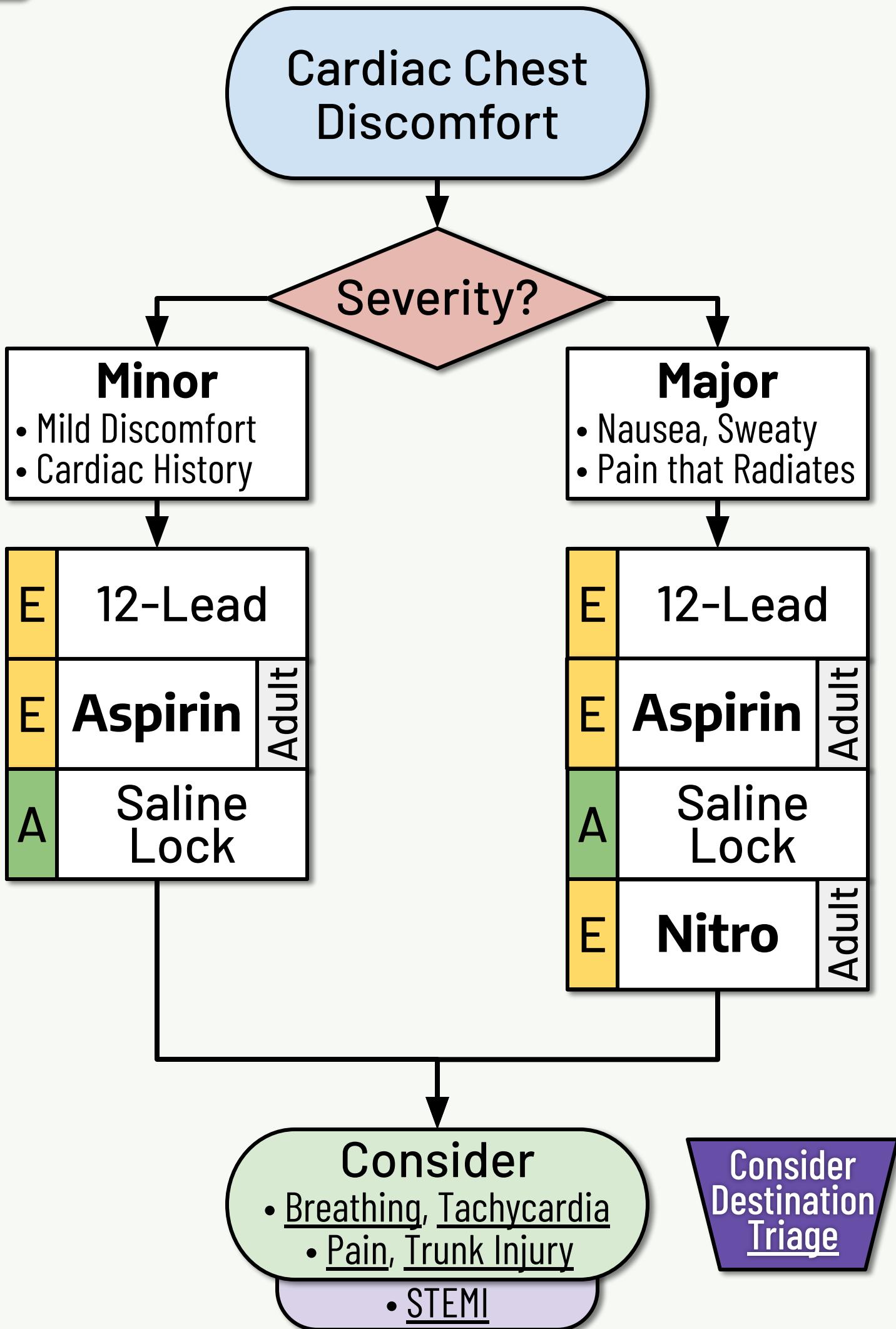
- EtCO₂ can help identify ROSC. Monitor during resuscitation.
- Consider Intubation and/or Vent if indicated & credentialed for CC.
- Therapeutic hypothermia is **not included** in this protocol.
 - Also known as "targeted temperature management".

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 **STEMI Alert**



PDE5 Inhibitors

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

Notes

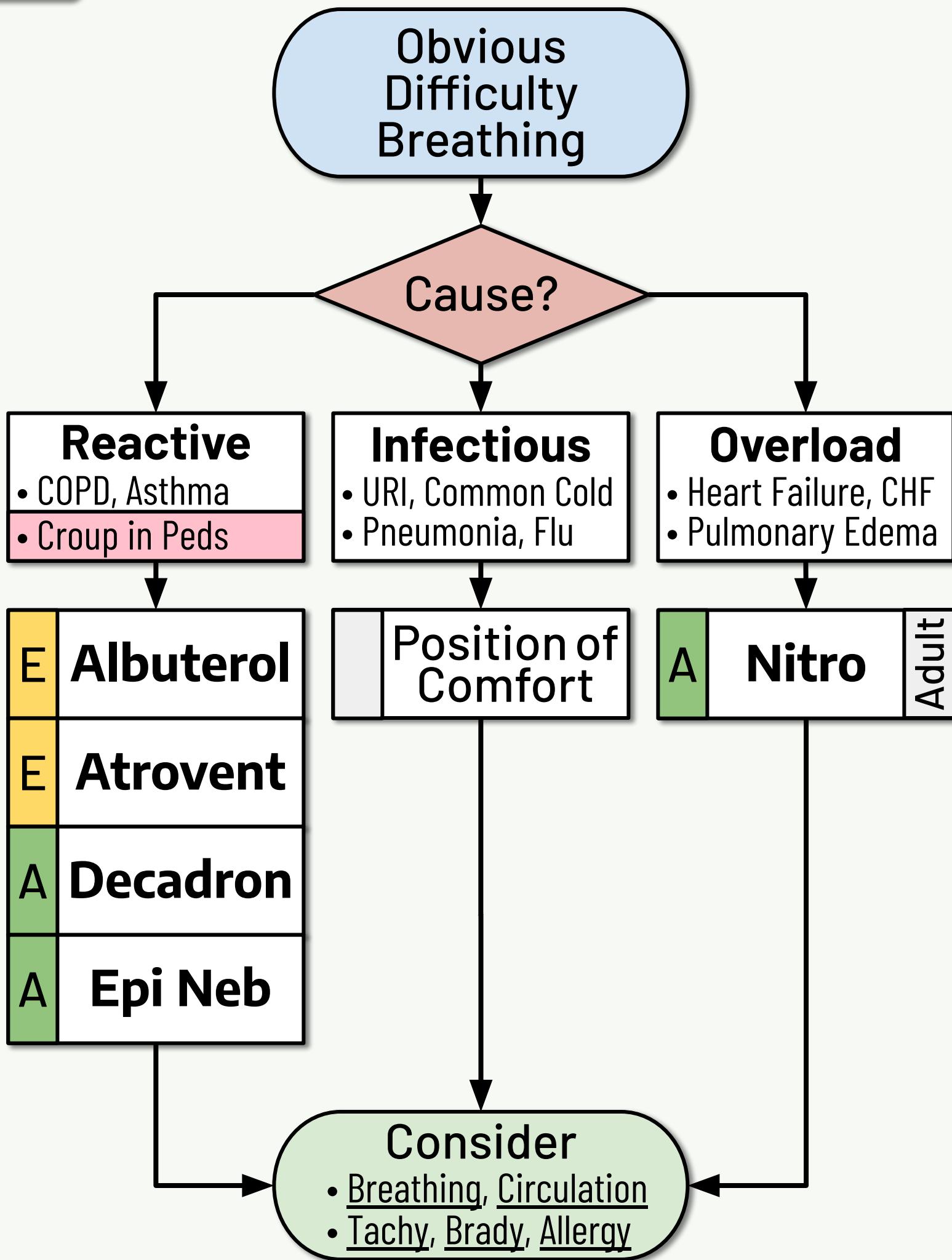
- Consider an atypical cardiac presentation in **diabetics** & **elderly**.
 - Actual chest pain is not always present. Ask about cardiac hx.
 - May have SOB or "discomfort" or nausea or be weak & sweaty.
- Consider advanced STEMI care if indicated & credentialed for CC.

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: 10 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 vial** (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

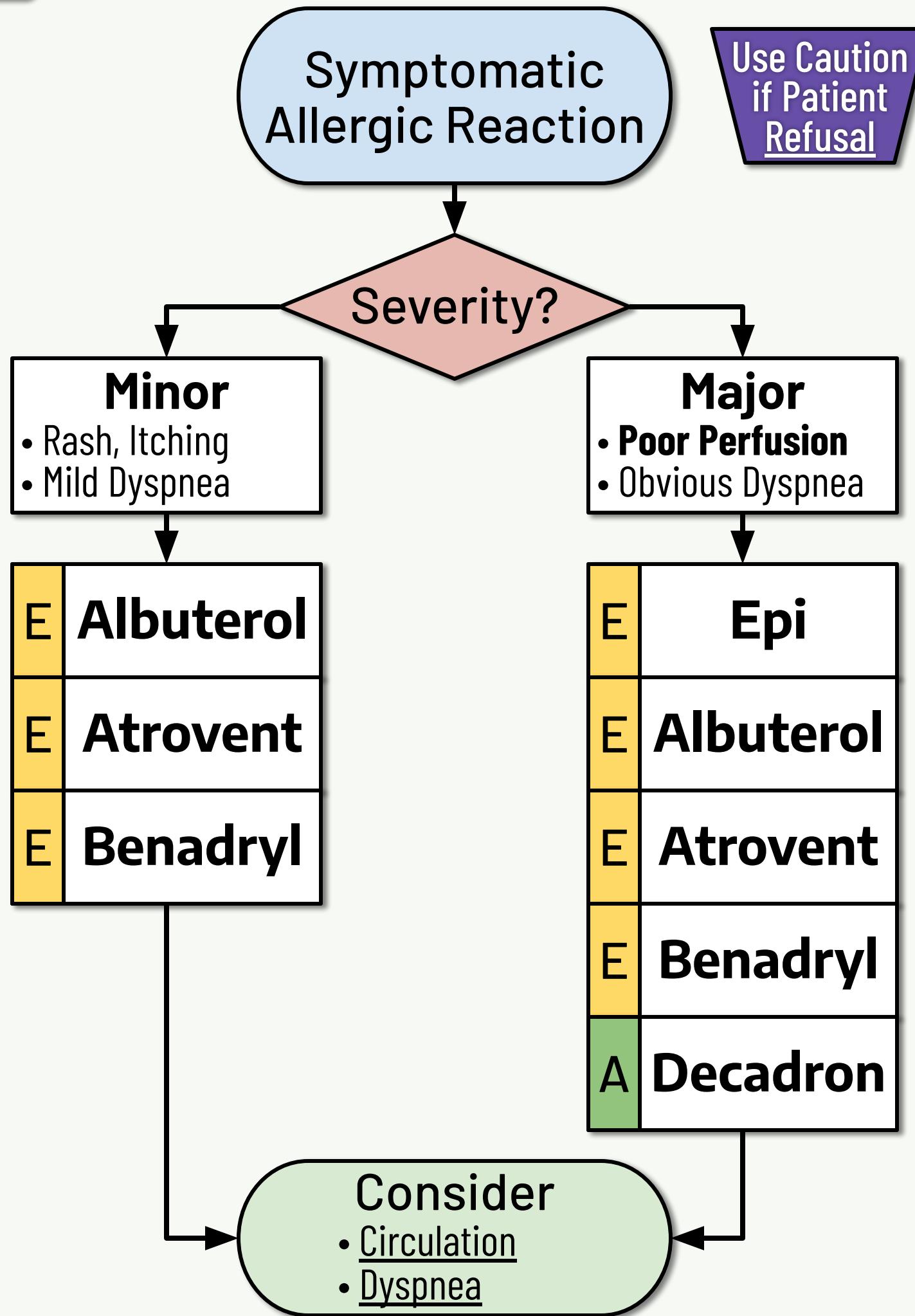
- Consider an atypical Cardiac cause in diabetics and the elderly.
- Anxiety can also cause dyspnea and hyperventilation.
 - Consider simple reassurance for obvious benign anxiety.

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: 10/24]
- Medscape Asthma: <https://emedicine.medscape.com/article/296301> [Ver: 8/24]
- Medscape CHF: <https://emedicine.medscape.com/article/163062> [Ver: 5/24]
- 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
Atrovent: 0.5 mg	NEB	x1
Benadryl: 25 mg	IV/IO, IM, PO	Q 15 min x2
Epi: 0.3 mg	auto, IM	Q 5 min x3
Decadron: 10 mg	IV/IO, IM, PO	x1

Adult
Doses

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.
 - **Be cautious** in patients over 50 y/o or with CAD or chest pain.
 - **EpiPen Jr.**[®]: Use for 3-8 y/o. **EpiPen**[®]: Use for 9+ y/o.
 - **E** May only use auto-injector or color coded admin system.
 - **I** Consider an **Epi Drip** for persistent dyspnea or shock.
- **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 adults **50 mg PO x1**.
 - **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

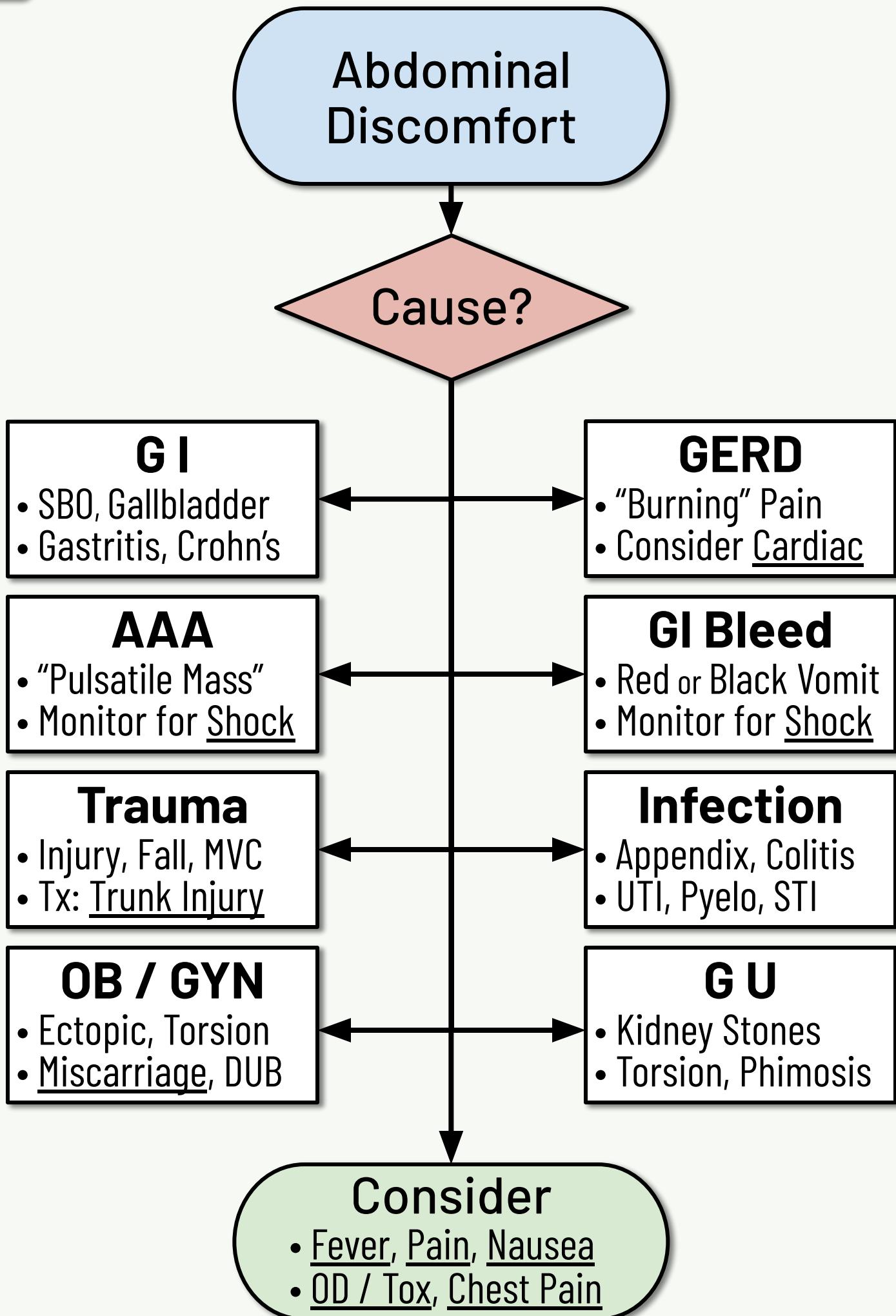
- Rapid onset of symptoms indicates a more severe reaction.
- Severe food allergies may also induce N/V and abdominal pain.

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: 8/24]
- 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.
- 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.
- 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

Pediatrics

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

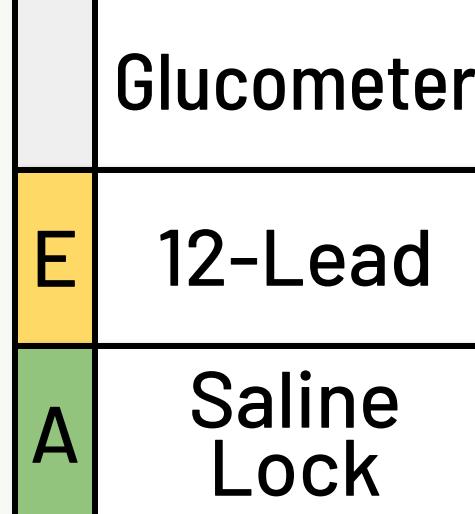
References

- 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 indicated and credentialed for Critical Care.
- Check for **medical jewelry**.
- 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

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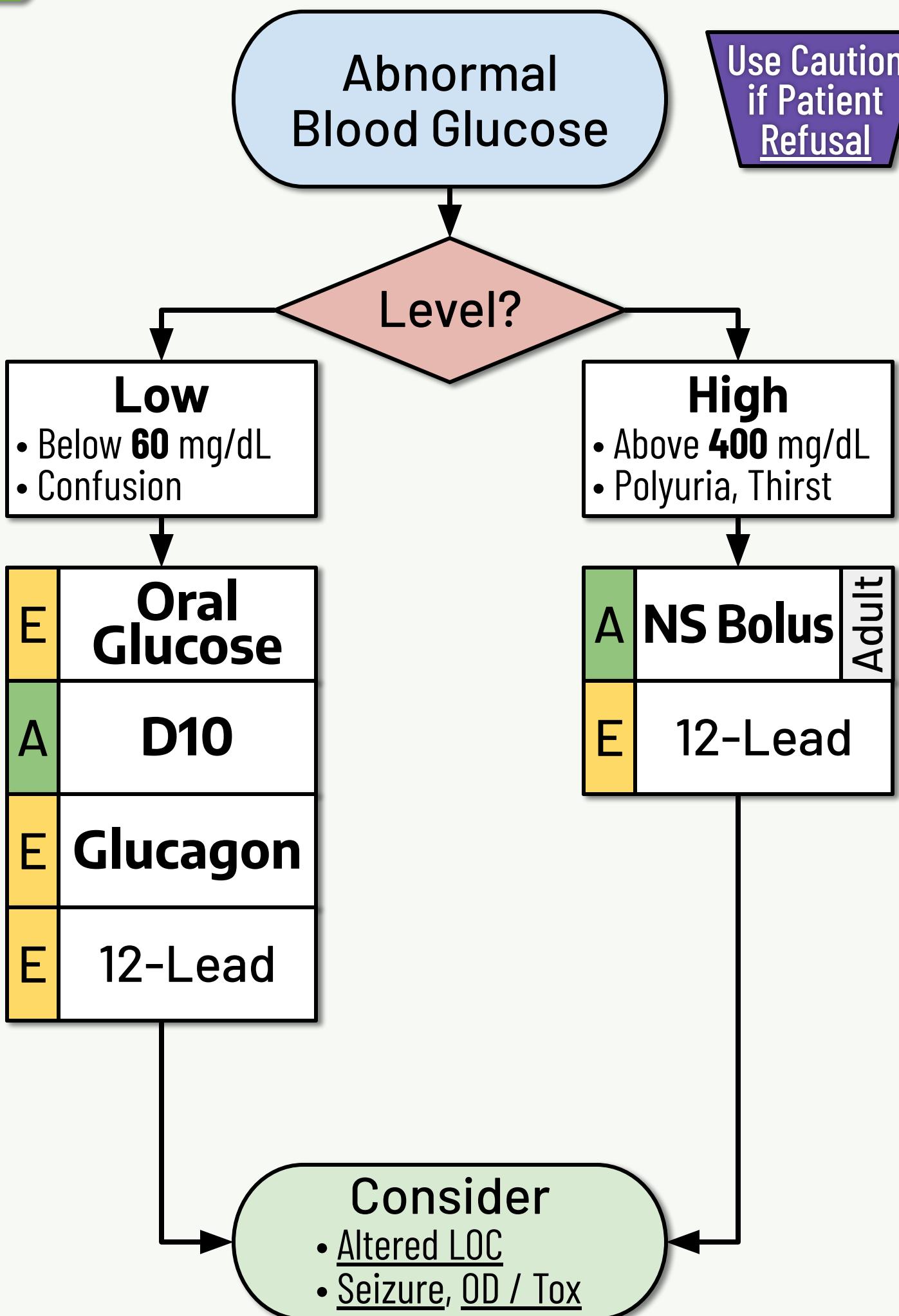
Pediatrics

- 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: 9/24]
- Medscape Delirium: <https://emedicine.medscape.com/article/793247> [Ver: 8/22]
- Medscape Hypoglycemia: <https://emedicine.medscape.com/article/122122> [Ver: 7/24]
- 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> 500 mL	IV/IO	x4	

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.
 - **I Thiamine:** 100 mg IV/IO for alcoholics, **online order only**
- **Glucagon** (Glucagen®): Caution - improvement is temporary!
 - **Must provide additional glucose** or **D10** after admin.
 - **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

- Only use **NS Bolus** for shock. Hypervolemia can **cause harm**.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Hypoglycemia: <https://emedicine.medscape.com/article/122122> [Ver: 7/24]
- Medscape DKA: <https://emedicine.medscape.com/article/118361> [Ver: 3/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22



Symptomatic Toxic Exposure or Overdose

Use Caution if Patient Refusal

Severity?

Minor

- Adequate Perfusion
- Minor Symptoms

A

Saline Lock

Major

- Poor Perfusion
- Toxic Effects

E

Narcan
If hypoxic

A

12-Lead

A

NS Bolus

A

Administer
Antidote



Consider

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

Narcan: up to **4 mg** IV/IO, IM/IN PRN

Adult Doses

NS Bolus: **500 mL** IV/IO x4

Overdose / Tox Imperatives

- Collect a detailed history and **SDS** (Safety Data Sheet) if able:
 - Substance, quantity and time of ingestion or exposure
- Consider an Antidote for critical symptoms from a **known toxin**.
 - Minor exposures with few symptoms do not require an Antidote.
 - Stable patients should be monitored and transported.
 - Supportive care is sufficient for **alcohol** (ethanol) intoxication.
- Monitor Airway closely with all **caustic ingestions**.

Medications

- **Narcan**[®] (Naloxone): Should only be used to treat **Hypoxia**.
 - May try for any substance OD or exposure w/ dyspnea or shock.
 - Call **Medical Control** for any refusal after **Narcan**.
 - May provide premeasured **intranasal** doses only.
 - Titrate dose to resps & SpO₂; May start as low as **0.04 mg**.
- **NS Bolus** (0.9% Saline): Fluids may help dilute toxins.
 - Consider even without Hypotension. Avoid with CHE or dialysis.

Notes

- If poison is known, consider **Poison Control**: 800-222-1222.
- This protocol includes **poisoning** and toxic ingestions.
 - For **chemical burns** and skin exposures, refer to Burns.
 - For **gasses** and smoke inhalation, refer to Inhalation.

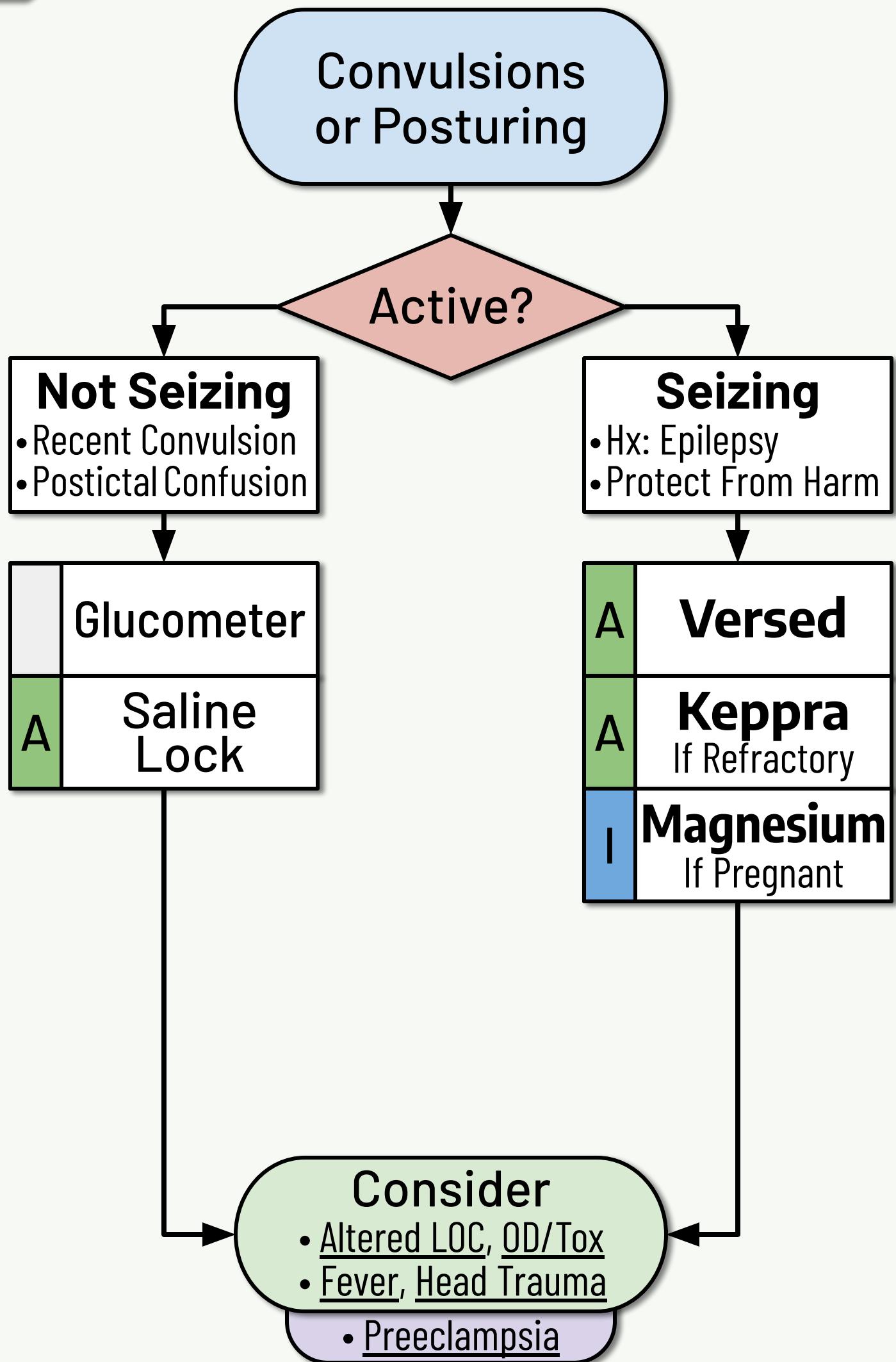
Pediatrics

- 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>
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 25

[Ver: 8/23]



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 Preeclampsia if indicated and credentialed 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.

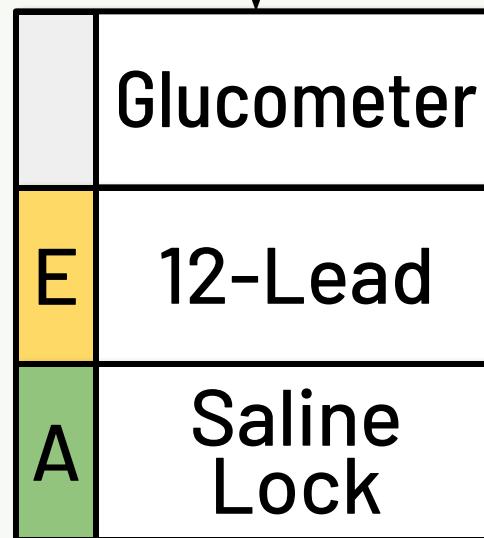
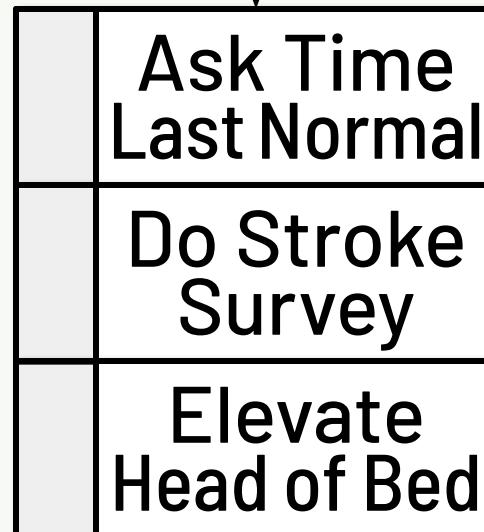
Pediatrics

- 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**

Consider

- Breathing, Shock, Seizure
- Altered LOC, Head Inj.

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

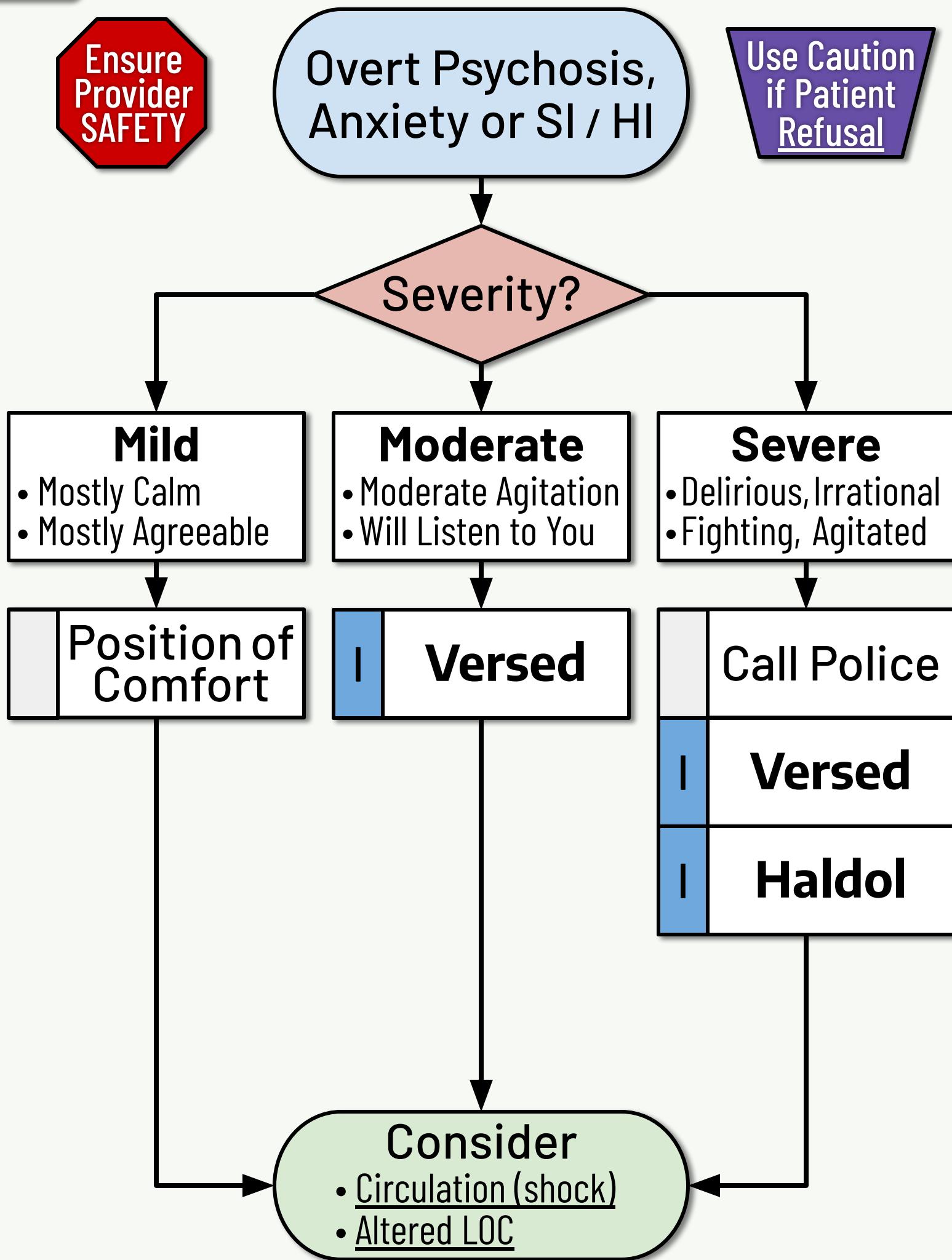
- Systemic thrombolysis (tPA, TNK) must occur **within 3-6 hours**.
 - Vascular neuro-intervention may be possible out to 24 hours.
- Encourage family or guardian to accompany patient.
 - There are important decisions to be made quickly at the ED.
 - Record phone number for family or guardian if possible.

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
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Adult Doses

Haldol: 5 mg	IM	x1
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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.
 - Never use hobble restraints. Never restrain a patient prone.
- **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

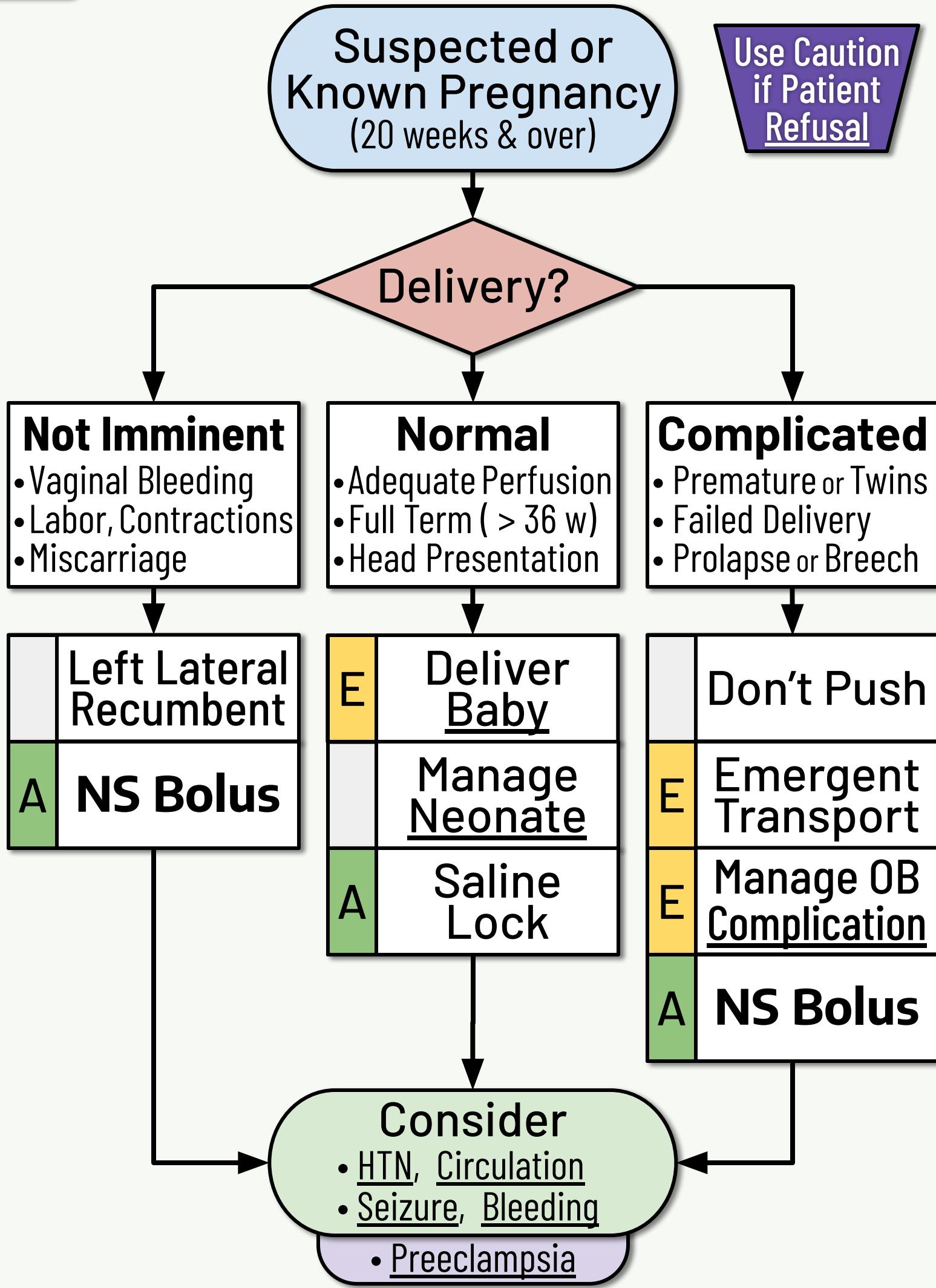
- SI / HI: Suicidal or Homicidal Ideation (any recent thoughts or acts)

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



Use Caution
if Patient
Refusal

NS Bolus: 500 mL

IV/IO

x4

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 if indicated and credentialed 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): **2 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

I
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

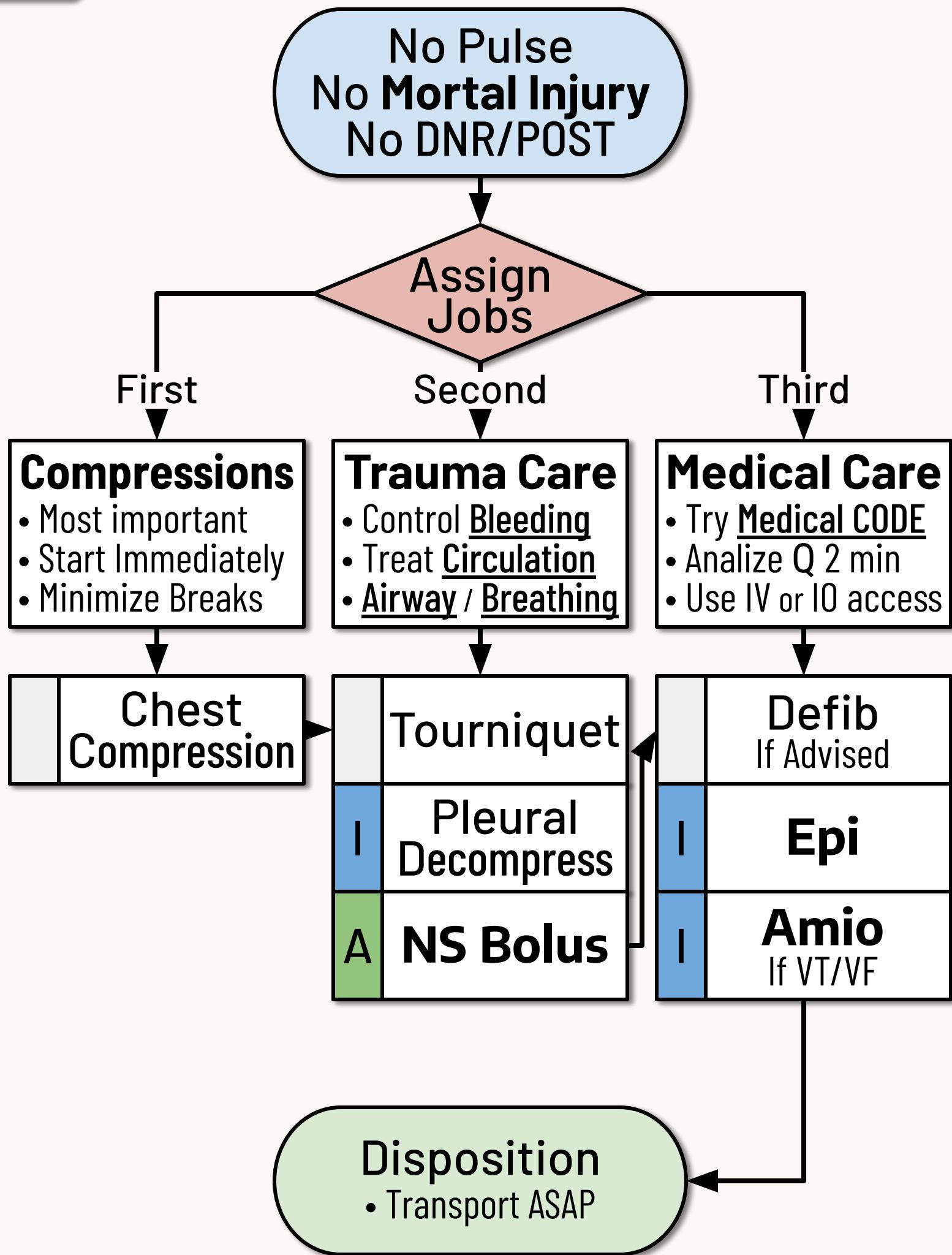
- May place newborn directly on mom's bare chest to **keep warm**.
- Document 1 and 5 minute **APGAR** scores - add up the total points.
- Use mom and baby **ID bands** if available.
- **Meconium suction** is not included in this protocol.
- Avoid high flow oxygen into a newborn's eyes.

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: 10/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 36



NS Bolus: 500 mL	IV/IO x4	Adult Doses
Epi: 1 mg	IV/IO Q 5 min	
Amiodarone: 1st 300 → 2nd 150 mg	IV/IO Q 5 min x2	

CODE Imperatives

- Place **Tourniquets** if needed.
 - Limiting blood loss is critical.
- Try bilateral **Pleural Decompression**.
 - Hidden tension 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**

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): **Target SBP of 90 mmHg**
 - Use **balanced** resuscitation in hemorrhagic shock (except for isolated head/spine injury or pregnancy).
- **Amiodarone**: Adults give twice (x2) Q 5 min **300 mg → 150 mg**
 - For peds, give **5 mg/kg** three times (x3) Q 5 min



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 Pleural 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 Pleural 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

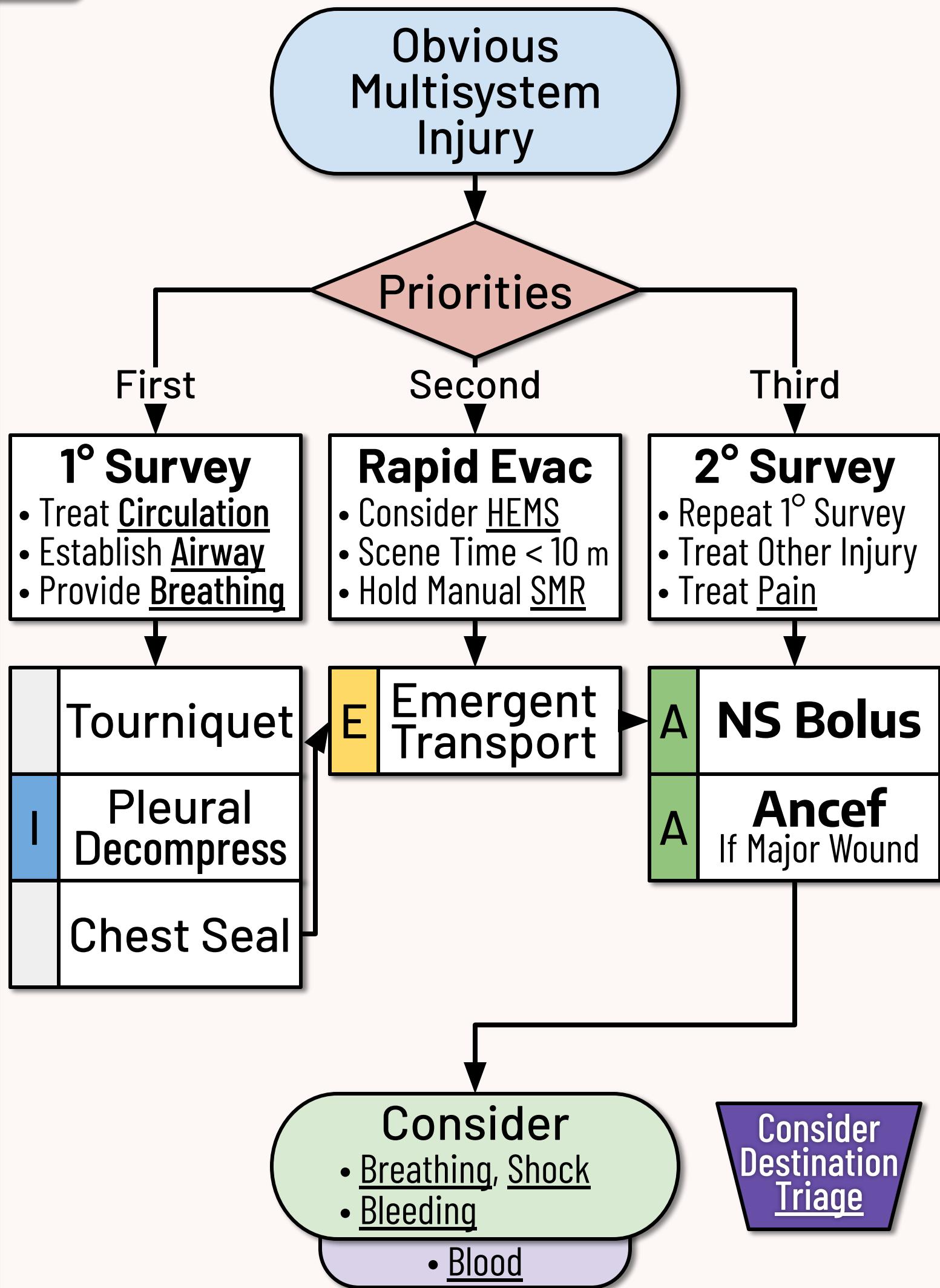
- Keep **normothermic** (hypothermia causes coagulopathy & bleeding)
- Consider Intubation and/or Vent if indicated & credentialed for CC.

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



NS Bolus: 500 mL	IV/IO x4
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Adult Doses

Ancef: 2 grams	IV/IO, IM x1
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Major Trauma Imperatives

- Rapid transport is **critical** for massive life threatening injury.
 - **Get the patient to the hospital.** Definitive care is **in the OR**.
 - 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**

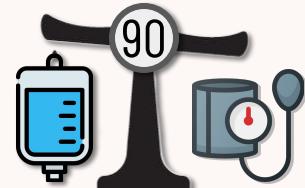


Poor Perfusion

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

Medications

- **NS Bolus** (0.9% Saline): **Target SBP of 90 mmHg**
 - Use **balanced** resuscitation in hemorrhagic shock (except for isolated head/spine injury or pregnancy).
- **Ancef®** (Cefazolin): Provide for any major **open wound**.
 - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
 - Reconstitute powder with normal saline and **shake well** to mix.



Notes

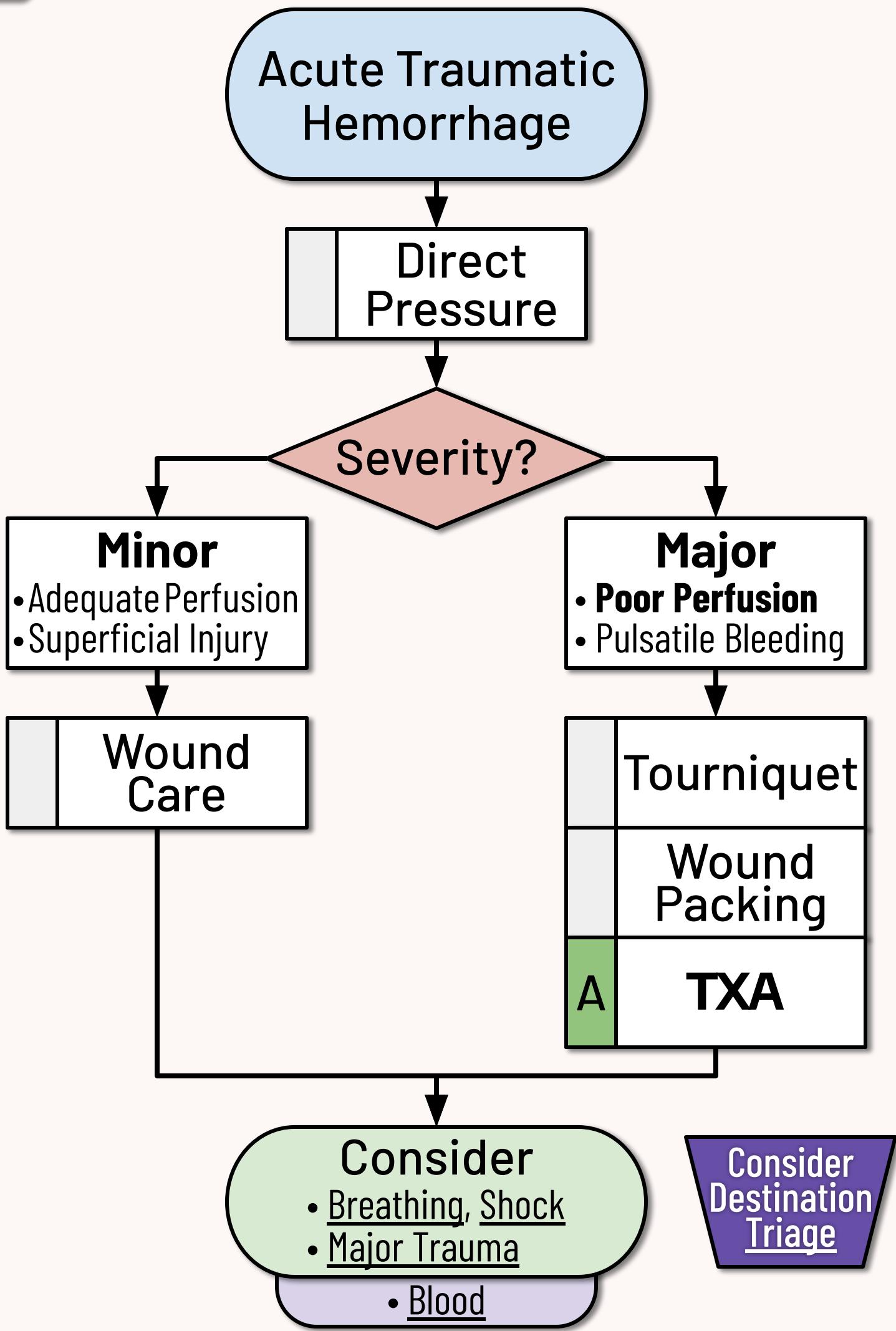
- Consider IV **fluid warmers** and/or **rapid infusers** if available.
- Splint **impaled objects** as found (cut wreckage to free patient).
 - May remove only if interfering with airway or resuscitation.
- Consider **Blood** if indicated and credentialed for Critical Care.

Pediatrics

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

References

- Medscape Polytrauma: <https://emedicine.medscape.com/article/434707> [Ver: 7/22]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34



TXA: 2 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 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-abd/thorax bleed** w/ poor perfusion.
 - May also use for severe **postpartum** (non-traumatic) bleeding.
 - Avoid for other forms of suspected internal or medical bleeding.

Notes

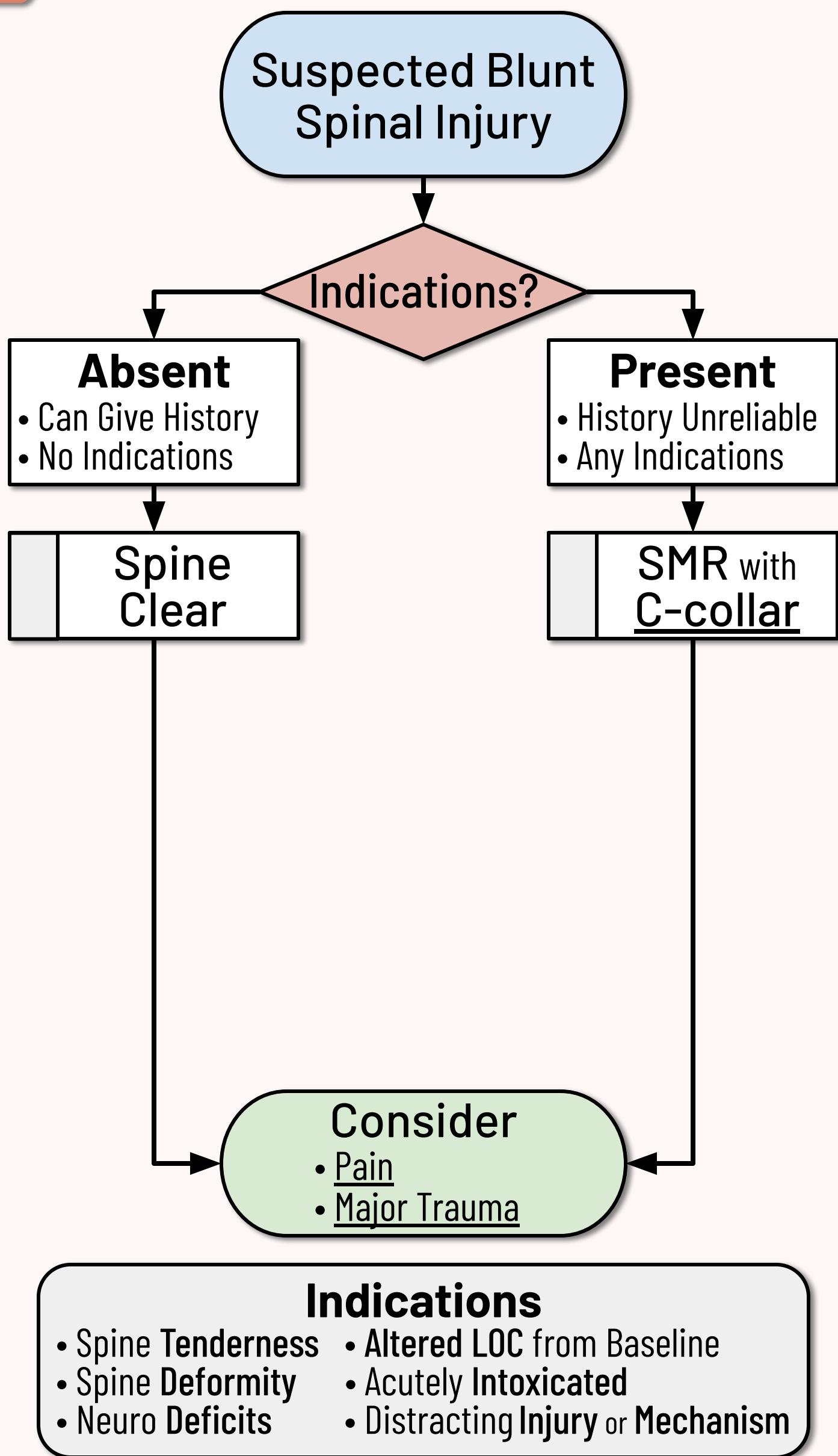
- Anticoagulation meds ("**blood thinners**") increase bleeding risk.
- Consider removing bystander dressings to investigate severity.
- Bandage wounds after bleeding is controlled.
- Consider Blood if indicated and credentialed for Critical Care.

Pediatrics

- Hypotension is a late sign of hemorrhagic **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



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

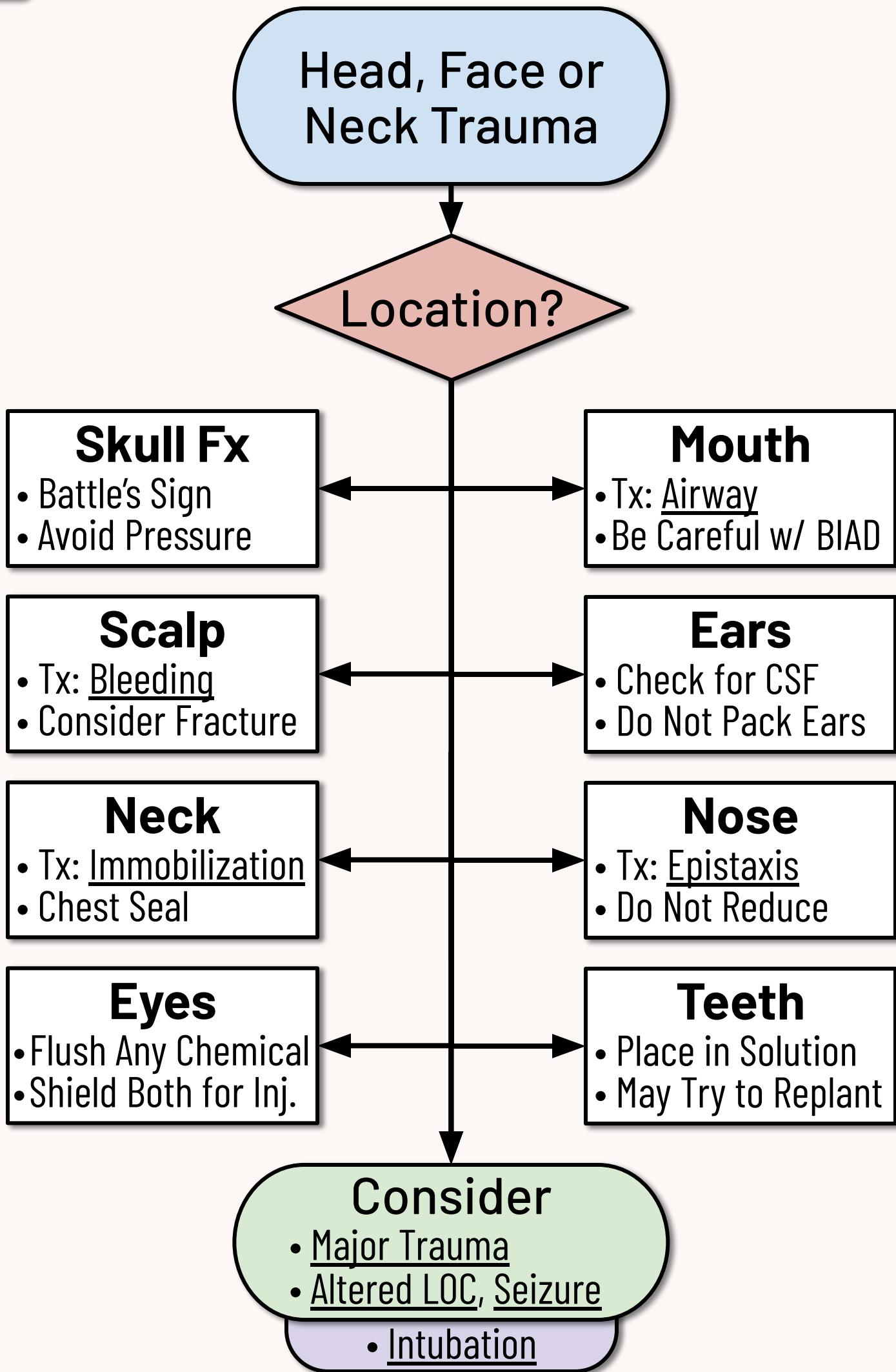
- **Spine Tenderness or Deformity** includes any:
 - Midline neck or back pain, tenderness, crepitus, step off etc.
- **Neuro Deficits** include any new symptoms of neurologic injury:
 - Unconscious greater than 1 min, or seizure
 - Paralysis, weakness, numbness, or vision changes
 - Shooting 'electric' 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:
 - Unstable vitals, airway trauma, blast injury, shallow water diving
 - Fall > 10 ft, flail chest, unstable pelvis, 2° or 3° Burn > 10% BSA
 - Major fracture/bleed, 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.
- Intentional hyperventilation by EMS is not appropriate.
- Anticoagulation meds ("**blood thinners**") increase risk of ICH.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** predicts severity.

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



Notes

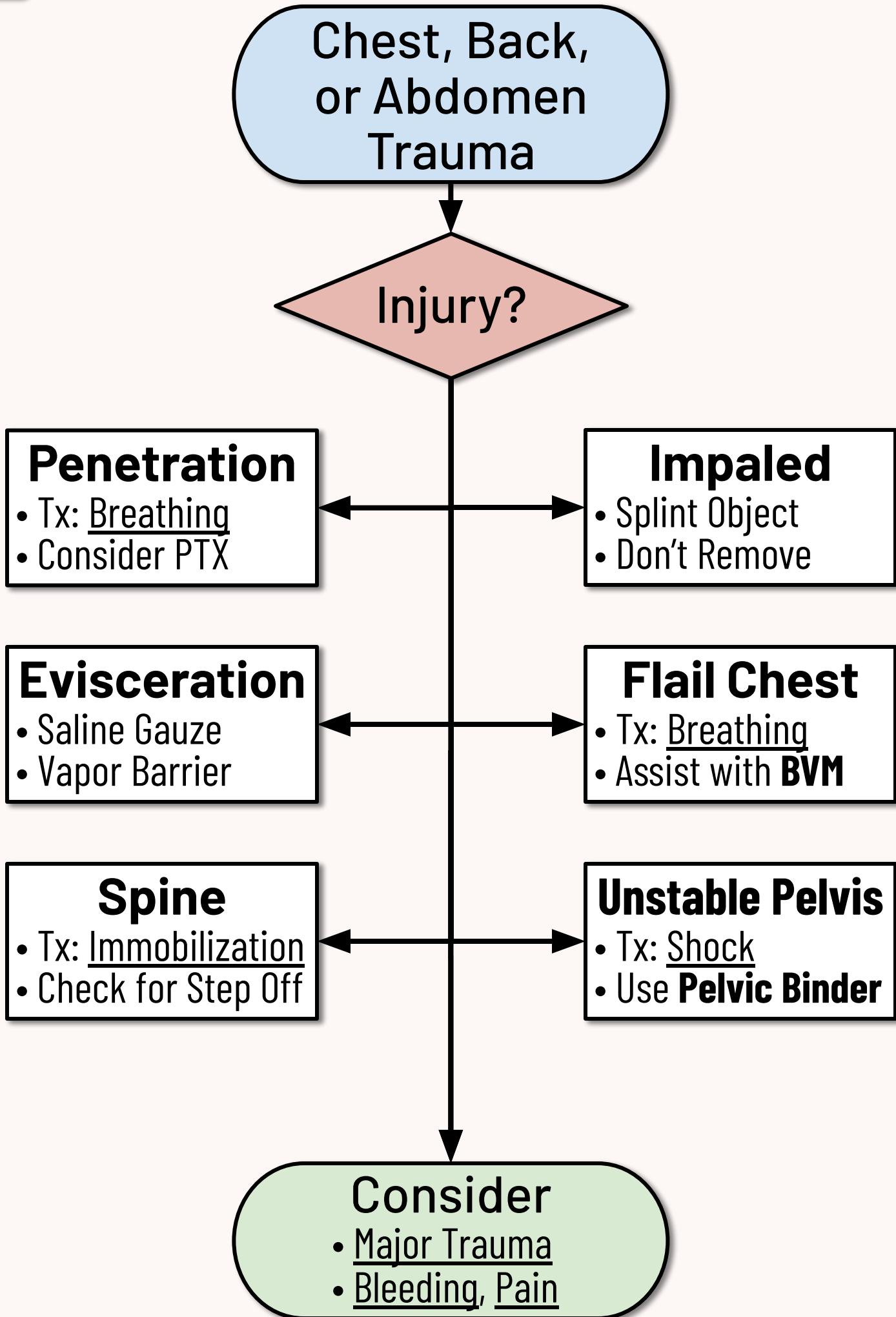
- **Skull Fx:** May cause bruising behind ears or around both eyes.
- **Scalp:** Direct pressure for brisk bleeding (unless skull crepitus/fx).
- **Neck:** All penetrations should have a chest seal.
- **Eye:** Use copious saline or water to flush out any contamination.
 - **E** Tetracaine (0.5% Ophthalmic): 1-2 gtt prior to flushing
 - Do not flush penetrating injury. Place **eye shield** over both eyes.
- **Mouth:** May remove **impaled objects** that compromise Airway.
 - Consider Intubation if indicated & credentialed for Critical Care.
- **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: 12/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 33



Trunk Injury Imperatives

- Splint **impaled objects** as found (cut wreckage to free patient).
 - May remove only if interfering with airway or resuscitation.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** is an important indicator of injury severity.



Notes

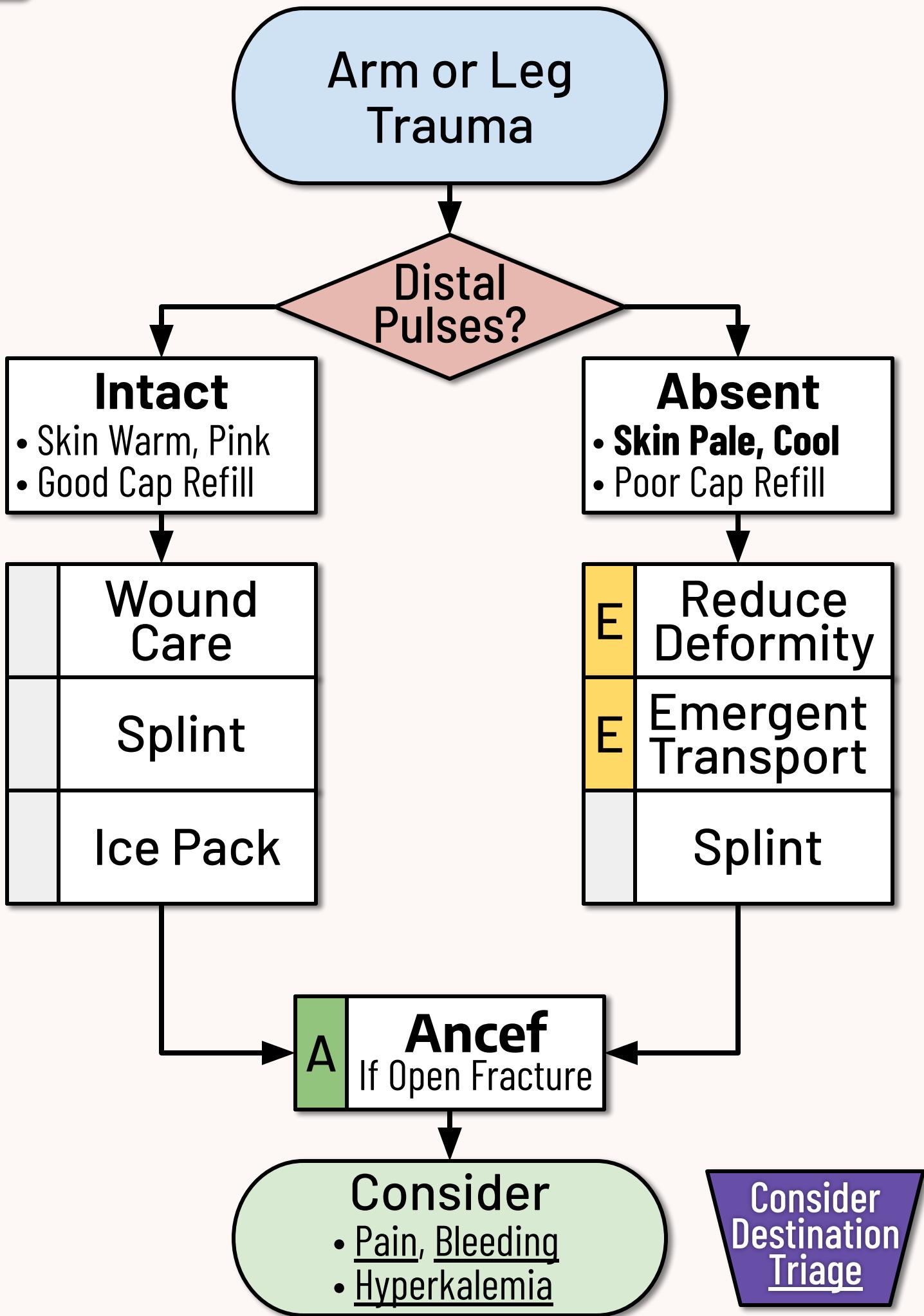
- **Penetration:** All penetrations should have a chest seal.
- **Evisceration:** Cover with saline gauze and vapor barrier.
- **Spine:** Monitor for Neuro Deficits and provide Immobilization.
- **Impaled:** Cut object free of wreckage. Do not remove from patient.
- **Flail Chest:** Monitor for Pneumothorax. Use BVM for Dyspnea.
- **Unstable Pelvis:** Assess **only once** (with gentle compression).
 - Place a **pelvic binder** for any unstable or fractured pelvis.

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

- Advance to a **Tourniquet** rapidly for any major arm / leg bleeding.
 - Write the time of Tourniquet application on the patient.
- **Pulseless extremities** and **amputations** are true emergencies.
 - Record time of injury. Reduce any deformity. Transport ASAP.
 - Wrap amputated parts in saline gauze and place in sealed bag.
 - Place bag on ice if available. Record time placed on ice.
- Beware **Hyperkalemia** in any **limb crush** or **suspension** injury.
 - **Limb crush**: may start tx (if rapidly available) before release.
 - **Harness hang**: immediately extricate & place supine.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** is an important indicator of injury severity.



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

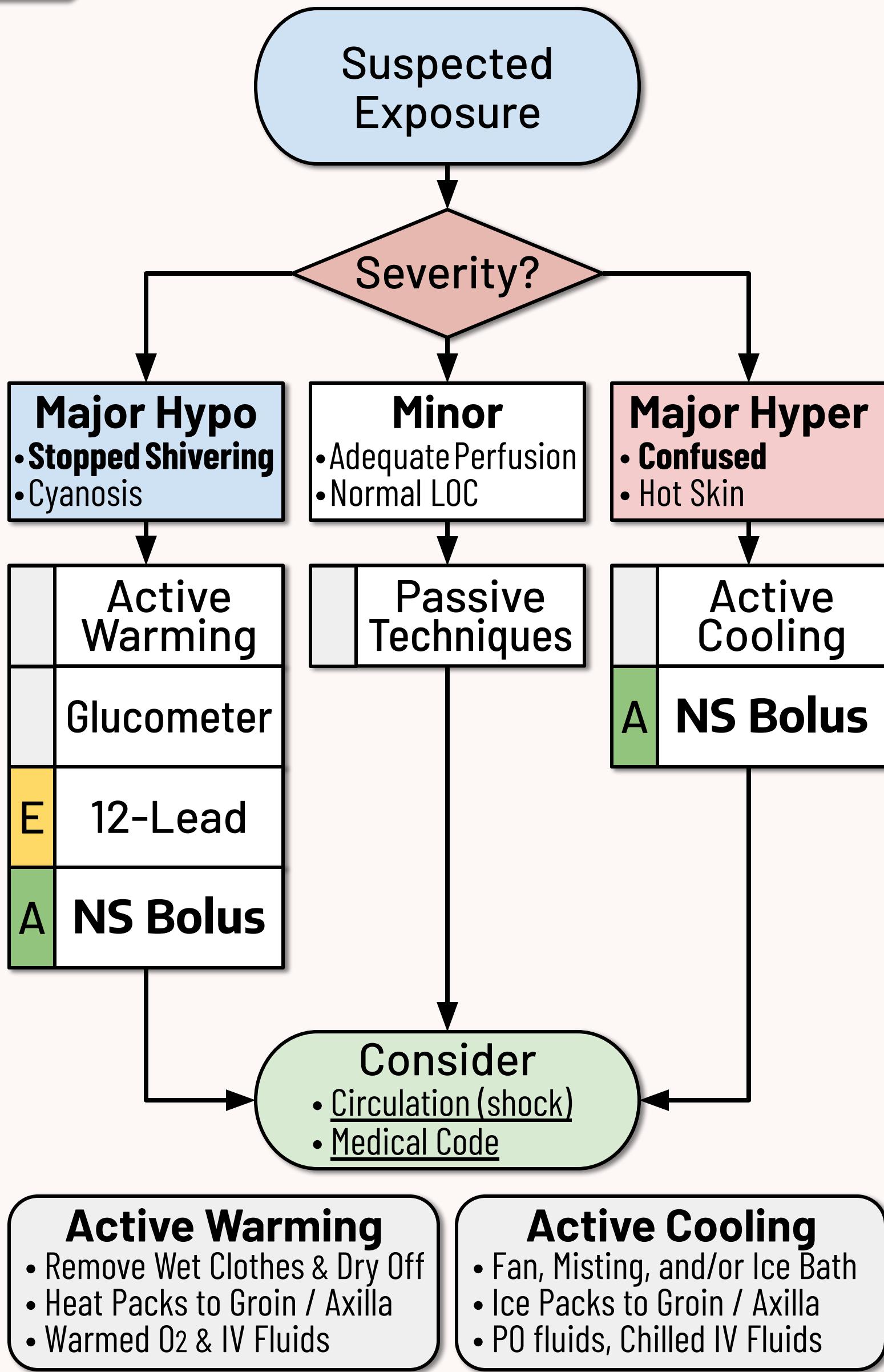
- Remove adjacent and distal jewelry if able.
- High **pressure injections** may cause subtle but devastating injury.
- A traction splint may help pain & bleeding from isolated **femur fx**.

Pediatrics

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

References

- Medscape Fracture Care: <https://emedicine.medscape.com/article/1270717> [Ver: 4/24]
- Medscape Vascular Trauma: <https://emedicine.medscape.com/article/462752> [Ver: 10/23]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 30

NS Bolus: 500 mL

IV/IO x4

Adult

Cold / Heat Imperatives

- **Hyperthermia** is **not** the same as Fever from infection.
 - 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.
- **Pad** heat & ice packs. Do not place directly against the skin.

Notes

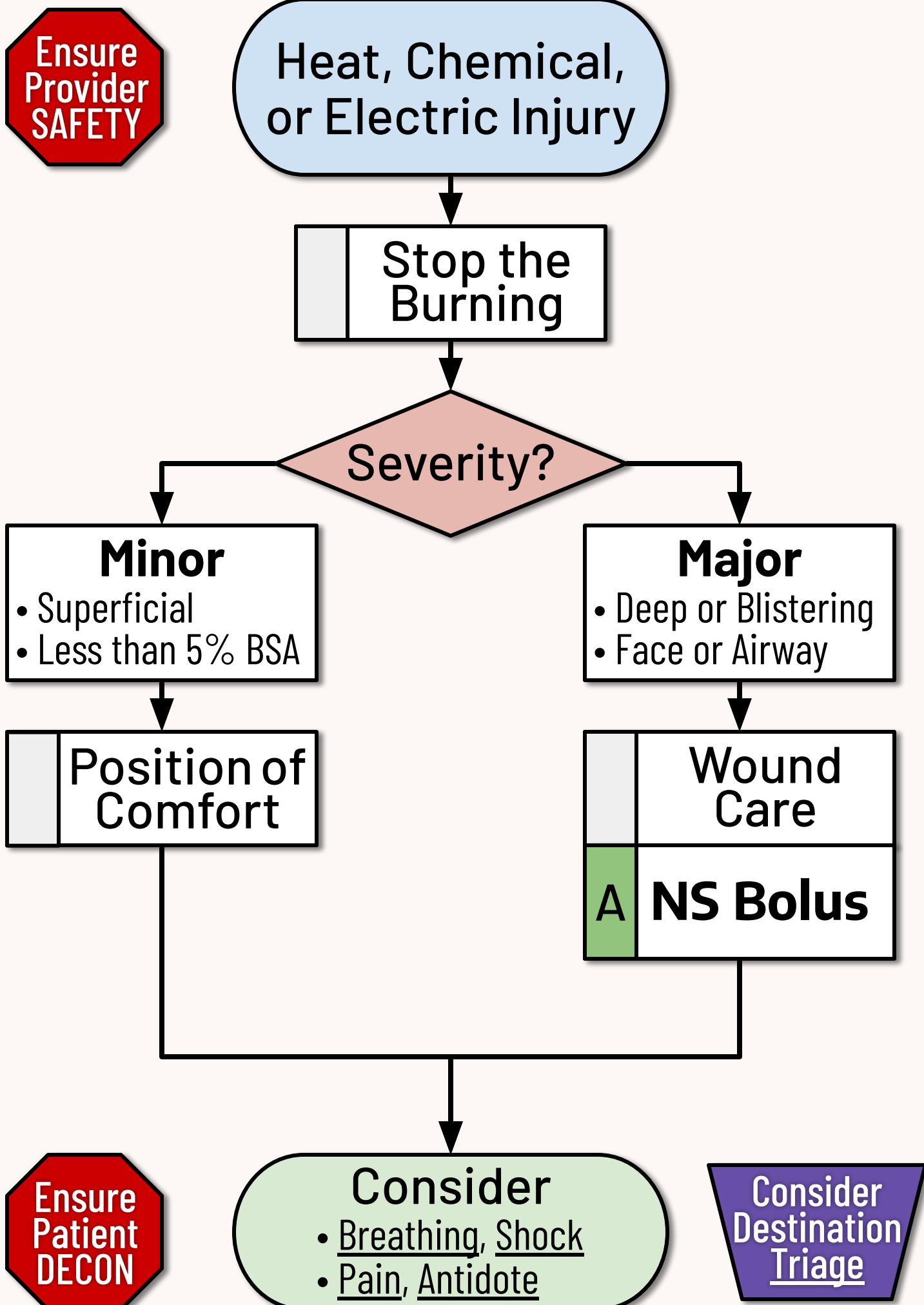
- **Passive techniques** include clothing and environment changes.
- Special thermometers or **core temp** monitors may be helpful.
 - Major **hyperthermia** is likely above: **104°F (40°C)**.
 - Major **hypothermia** is likely below: **86°F (30°C)**.
- Some drugs may also cause **hyperthermia**. Treatment is the same.
- Excessive movement of **hypothermic** patients can cause **V-Fib**.
- Splint any extremity with **frostbite** to limit movement (do not rub).
 - Delay rewarming **frostbite** if there is potential for re-freezing.
 - **E Ibuprofen** (Motrin®): Give **600 mg PO x1** for **frostbite**

Pediatrics

- Small children (and the elderly/frail) will decompensate faster.
- 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

**NS Bolus: 500 mL**

IV/10

per hour

Adult

Burn Imperatives

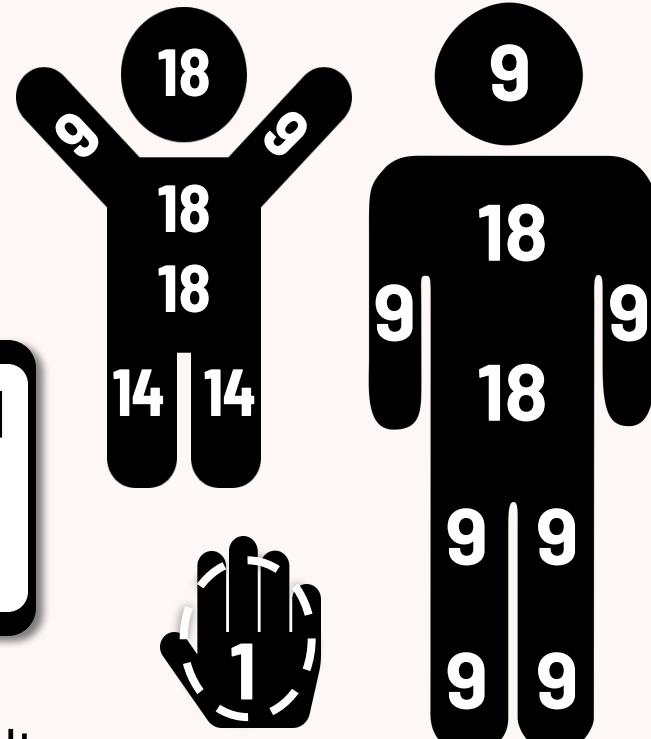
- Use **ABLS rate** (may use LR, but NS is OK). Watch for Hypothermia.
- Monitor Airway closely with any facial, nasal or oral burns.
- Some chemical burns (e.g. **HF acid**) may benefit from an Antidote.
- Monitor EKG for electrical burns > **1,000 v**.
- Remove adjacent and distal jewelry if able.

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 **chemical burns** and skin exposures.
 - For **gasses** and smoke inhalation, refer to Inhalation.
 - For **poisoning** and toxic ingestions, refer to OD / Tox.
- If chemical is known, consider **CHEMTRAC**: 800-424-9300.
- 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]



Toxic or Anoxic Gas Exposure

Remove from Harm

Assess for:
• Airway, Breathing
• Burns, OD / Tox

Provide O₂

Consider
• Breathing, Shock
• OD / Tox, Antidote
• Intubation



Inhalation Imperatives

- Monitor **Airway** closely with any facial, nasal or oral burns.
 - Check the mouth for **soot** and the nose/face for **singed hairs**.
 - Consider Intubation if indicated and credentialed for CC.
- Provide **100%** oxygen by NRB for carbon monoxide (CO) exposure.
 - SpO₂ may read **false normal**. (CO can fool the SpO₂ monitor.)
 - Symptoms may include: headache, confusion, red skin, N/V.
 - Oxygen is critical for **pregnant females** exposed to CO.
- Some gasses (e.g. **Cyanide**) may benefit from an Antidote.
- Even non-toxic gases can produce Hypoxia & Dyspnea. Give O₂.

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 **gasses** and smoke inhalation.
 - For **chemical burns** and skin exposures, refer to Burns.
 - For **poisoning** and toxic ingestions, refer to OD / Tox.

Pediatrics

- Small children (and the elderly/frail) may exhibit symptoms faster.

References

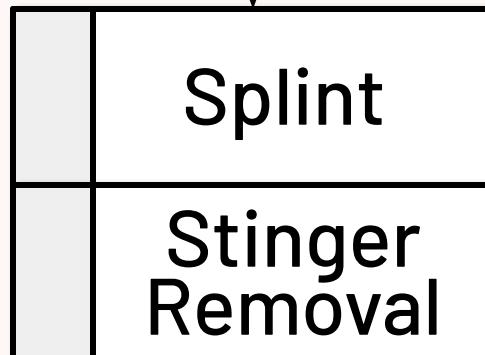
- ACLS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916> [Ver: 2020]
- PALS: <https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901> [Ver: 2020]
- Medscape CO: <https://emedicine.medscape.com/article/2085044> [Ver: 11/19]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter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



Animal or Insect Trauma

Use Caution
if Patient
Refusal

Assess for:
• Allergic Reaction
• Bleeding



Consider
• Pain
• Underlying Injury

Sting / Bite Imperatives

- **Don't bring** animals, snakes or bugs with you to the ED.
 - May photograph from a **safe distance**, but do not try to catch.
 - Law enforcement can assist with animal control if needed.
 - Inquire about the **rabies status** of any domestic animal.
- 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.

Notes

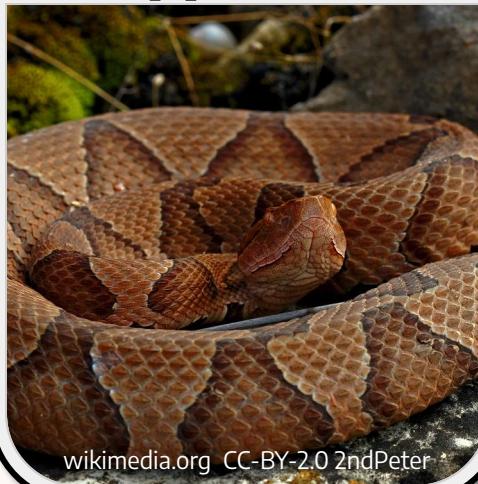
- Consider **ice** for animal bites & insect stings, but avoid for snakes.
- Venomous **bites in VA**: Rattlesnake, Copperhead, and Black Widow
 - May also encounter venomous bites from **exotic pets**.
 - **Tick** bites do not usually require EMS intervention.
 - This protocol does not apply to **marine** 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



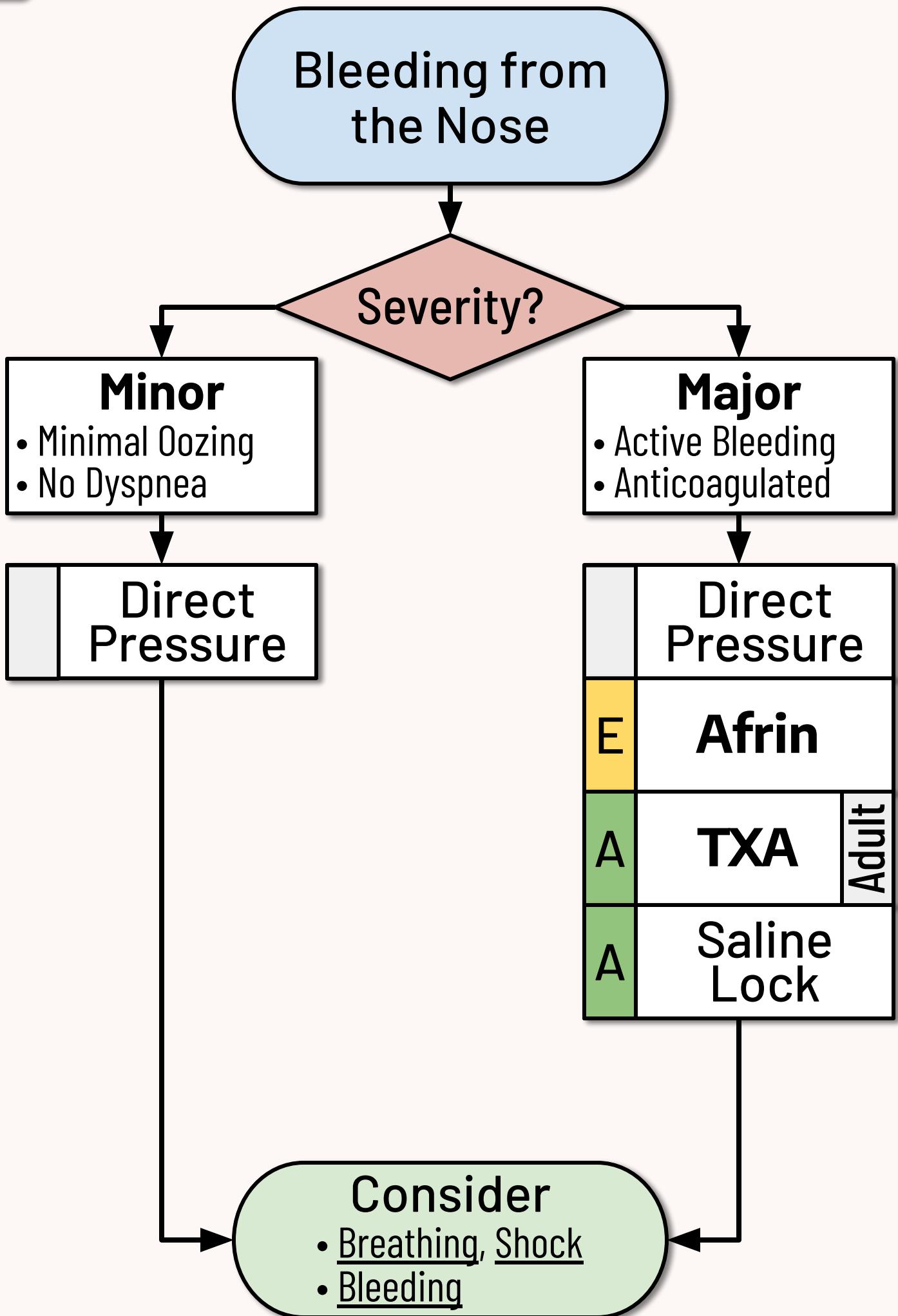
wikimedia.org CC-BY-SA-3.0 Shenrich91

Pediatrics

- Beware Anaphylaxis with any voice changes (i.e. hoarseness).

References

- Medscape Snakebite: <https://emedicine.medscape.com/article/168828> [Ver: 4/21]
- Medscape Spiders: <https://emedicine.medscape.com/article/772196> [Ver:10/21]
- 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): Do not use if any cardiac chest pain.
- **TXA** (Tranexamic Acid): Use **atomizer**. Avoid if known PE or DVT.

Notes

- Not all nose bleeds are traumatic. The treatment is the same.
- Check pharynx for possible **posterior bleeding**.
 - Bleeding may be **significant**.
 - More common in the elderly.
 - Anticoagulants increase risk.
 - Be ready to treat for shock.
- Anticoagulants ("blood thinners") also increase risk in:
 - Major Trauma
 - Bleeding
 - Head Injury

Anticoag Meds

- Aspirin (ASA)
- Coumadin[®] (Warfarin)
- Eliquis[®] (Apixaban)
- Plavix[®] (Clopidogrel)
- Xarelto[®] (Rivaroxaban)
- Effient[®] (Prasugrel)
- Pradaxa[®] (Dabigatran)
- Brilinta[®] (Ticagrelor)
- Lovenox[®] (Enoxaparin)

Pediatrics

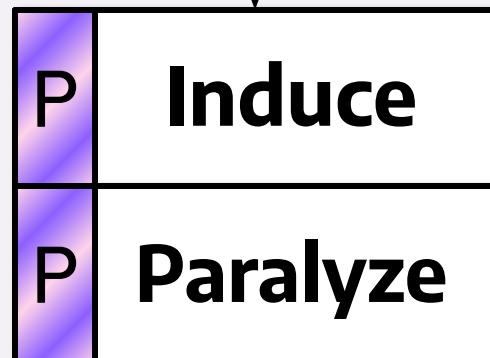
- Nose bleeds are usually from minor trauma (nose picking).
- Use Peds Reference or other approved source for peds dosing.

References

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

Need
TWO RSI
Medics

Can't Oxygenate
Can't Ventilate



Attempt

Primary

- Have suction ready
- Max 3 attempts

Backup

- BIAD may work better after meds

Rescue

- Be prepared for bleeding

P Intubate Adult

P BIAD

P	Bougie Cric	Adult
P	Needle Cric	Peds

Consider
• Airway, Breathing
• Sedation / Vent

Etomidate: 0.3 mg/kg	IV/IO	x1	Adult Doses
Ketamine: 2 mg/kg	IV/IO	x1	
Rocuronium: 1 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) yrs experience as a cleared & **active ALS**.

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 BP, SpO₂ and EtCO₂** with waveform. Try to maintain:
 - SpO₂ **above 90%**, EtCO₂ of **35-45 mmHg**, SBP above 90 **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

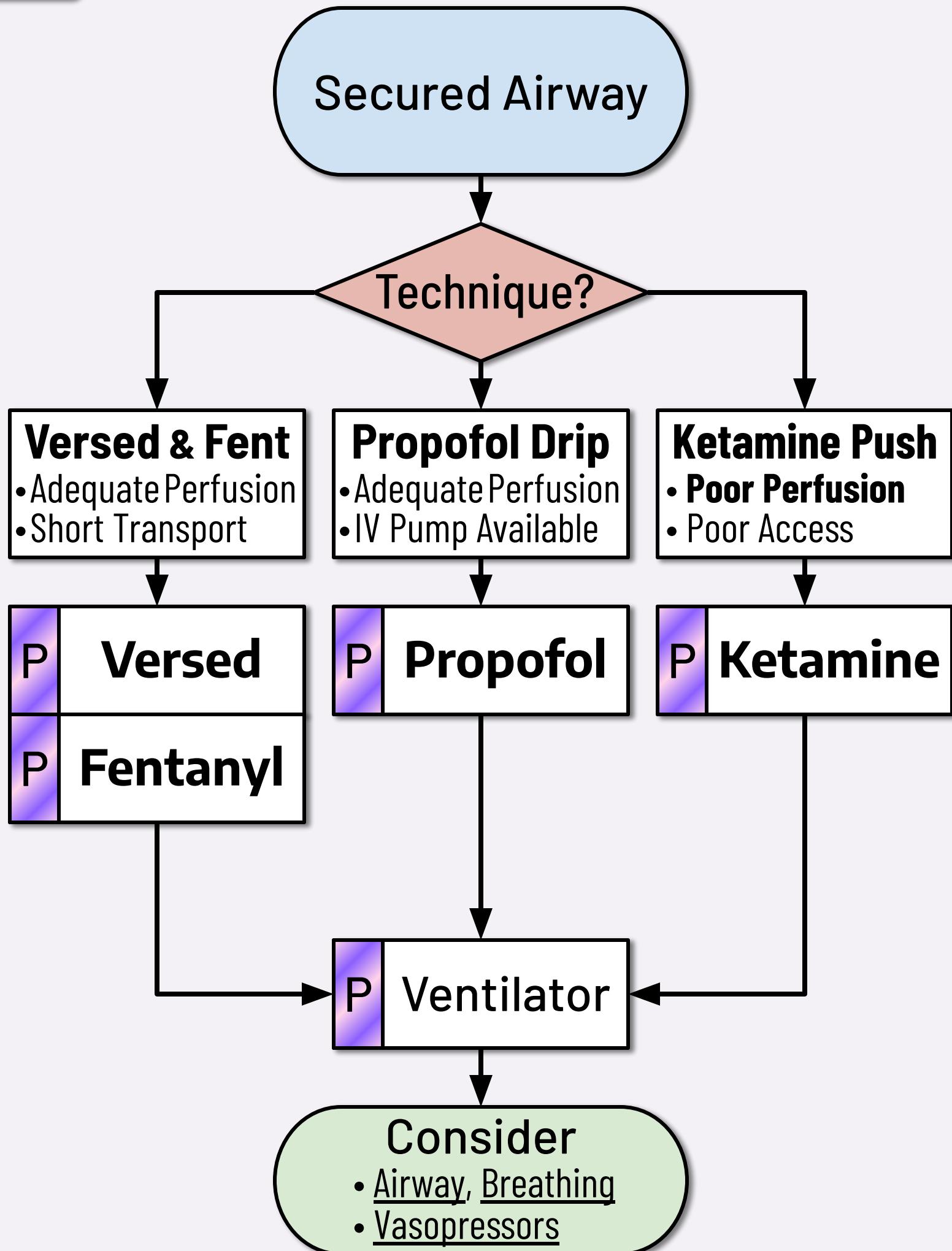
- **Etomidate** (Amidate[®]) or **Ketamine** (Ketalar[®]): Choose one.
 - Beware (uncommon) laryngospasm with **Ketamine**.
 - May give **Ketamine** & then pause for more oxygenation (**DSI**).
 - **Etomidate** is not appropriate for patients under 10 y/o.
- **Rocuronium** (Zemuron[®]): Onset - 1 min; Duration - 30 min
 - Consider a detailed **neuro exam** before paralysis

Pediatrics

- Induction & paralytics w/ a BIAD (**RSA**) is superior to ETI 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]
- NASEMSO Prehospital Airway: <https://nasemso.org/docs.ashx?id=1444270> [Ver: 5/23]
- NAEMSP Compendium: <https://www.tandfonline.com/toc/ipec20/26/sup1> [Ver: 2022]
- 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.
- Elevate **head of bed to 30°** to help ventilation & limit aspiration.
- May **increase I:E ratio** (1:5) for obstructive disease (COPD, Asthma)

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

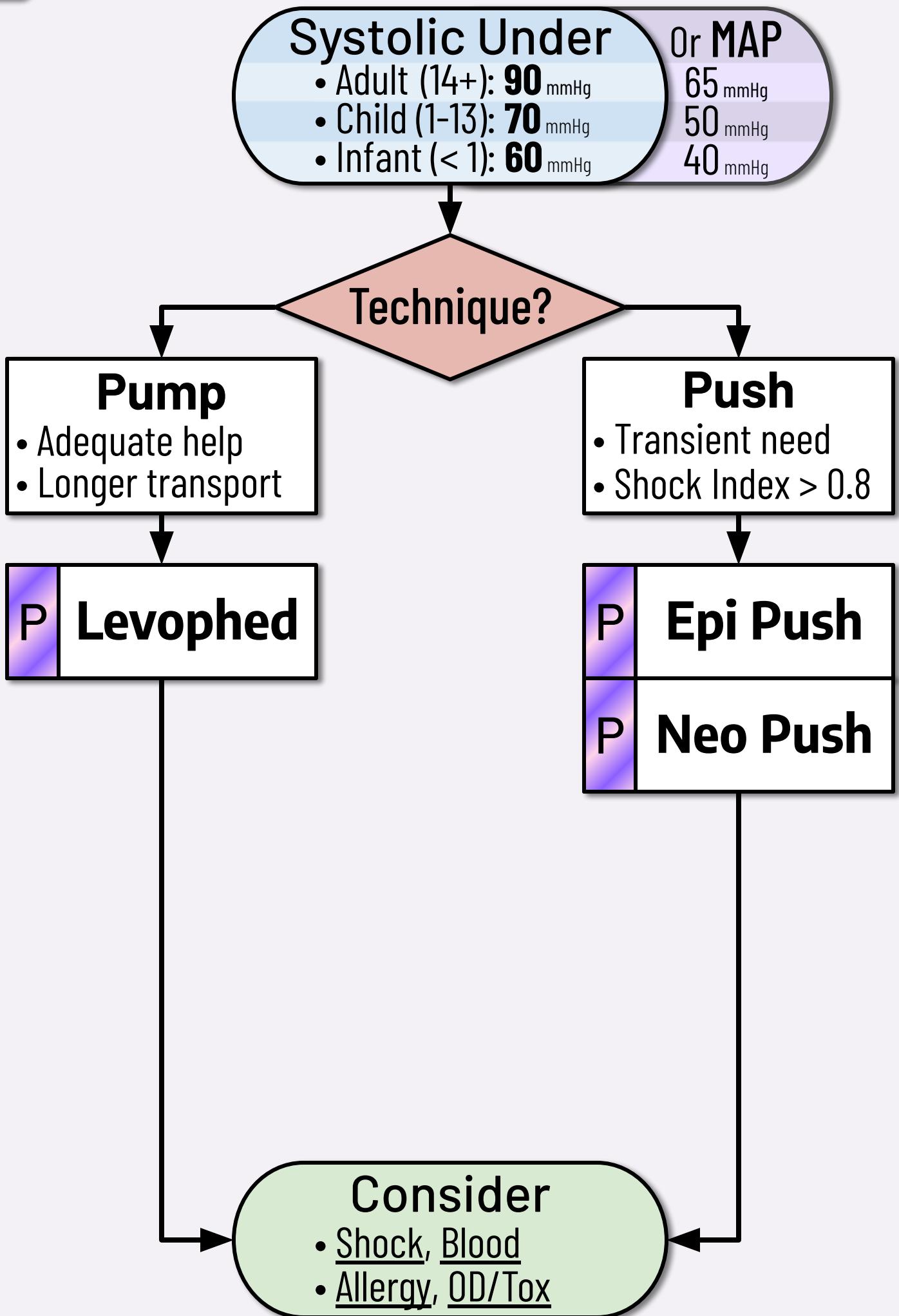
- **Fentanyl** (Sublimaze[®]), **Versed** (Midazolam[®]): Use together.
 - One without the other is unlikely to produce adequate sedation.
- **Ketamine** (Ketalar[®]): Useful for peds and asthmatics.
 - Double dose for IM (watch concentration: max 3 mL per IM inj.)
- **Propofol** (Diprivan[®]): Start 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> [Ver: 10/24]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 27



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

- Anticipate & be ready for **repeat hypotension** if using a push dose.
- 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

Hemorrhagic Shock

Stop the Bleeding

A NS Bolus

Response?

Rapid

- Adequate Perfusion
- Good Hemostasis

Transient

- Labile Perfusion
- Poor Hemostasis

Minimal / None

- Poor Perfusion
- Internal Bleeding

A NS Bolus

P Blood

Consider

- Circulation, Bleeding
- Vasopressors

NS Bolus: 500 mL	IV/IO	PRN	Adult Doses
Blood: 1 unit	IV/IO	PRN	

Blood Mandatory Prerequisites

- In the last twelve (12) mo: pass a critical care in-service training.
- Ensure blood is **stored and maintained** per supplier's instruction.

Imperatives

- **NS vs. Blood** is a clinical decision. There is no perfect answer.
 - **NS Bolus** may be good for easily controlled external bleeding.
 - Switch to blood quickly if perfusion does not respond rapidly.
 - Providers **may start with blood** for critically unstable bleeding.
 - Use for overt massive exsanguination (**trauma**, GI, post-partum).
- **Target SBP of 90 mmHg** regardless of **NS vs Blood**.
 - Use **balanced** resuscitation in hemorrhagic shock (except for isolated head/spine injury or pregnancy).

Medications

- **NS Bolus** (0.9% Saline): May skip **NS** for patients in extremis.
- **Blood** (LTOWB): **Verify** the environmental control tag.
 - Use special tubing & **heater**. Watch for **transfusion reactions**.
 - Stop immediately if any fever, dyspnea or allergic reaction.
 - **Tell the ED** about any blood administered, and any reactions.

Notes

- If possible, ask about any **religious objections** before transfusion.
 - **If altered**: may check for medical jewelry or in patient's wallet.

Pediatrics

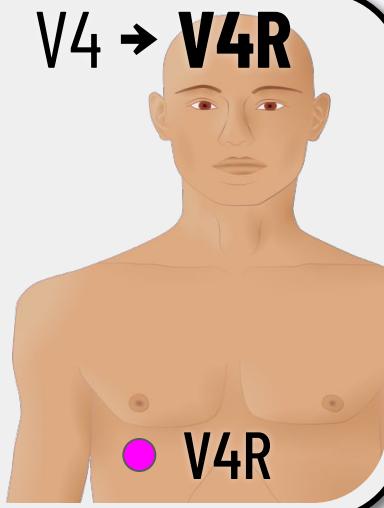
- Provide **Blood** in aliquots of **10 mL/kg**. May repeat PRN.
- Titrate to low end of age-adjusted SBP (listed in Peds Reference).

References

- PHTLS®: <https://www.naemt.org/education/trauma-education/phtls> [Ver: 10th]
- 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

**Suspected ACS
with pathologic
EKG Changes**

V4 → V4R

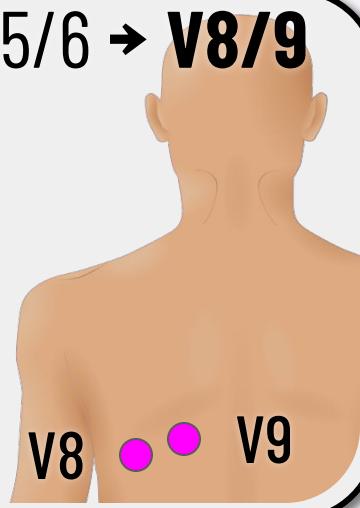


**Treat for
Chest Pain**

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

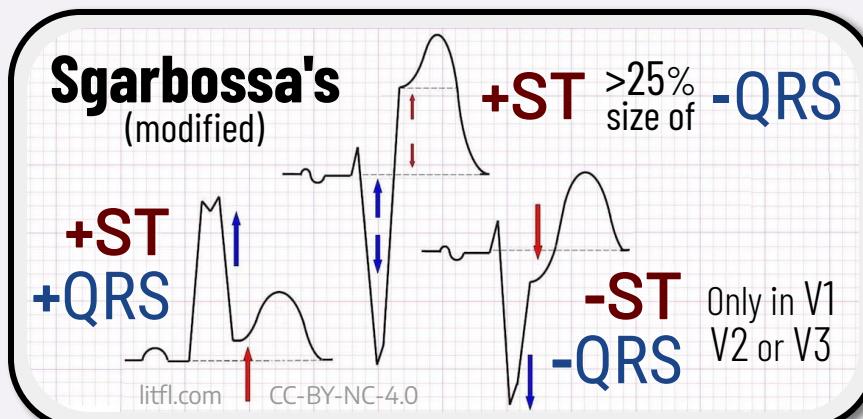
STEMI Mandatory Prerequisites

- 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 **STEMI Alert**



Medications

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

Notes

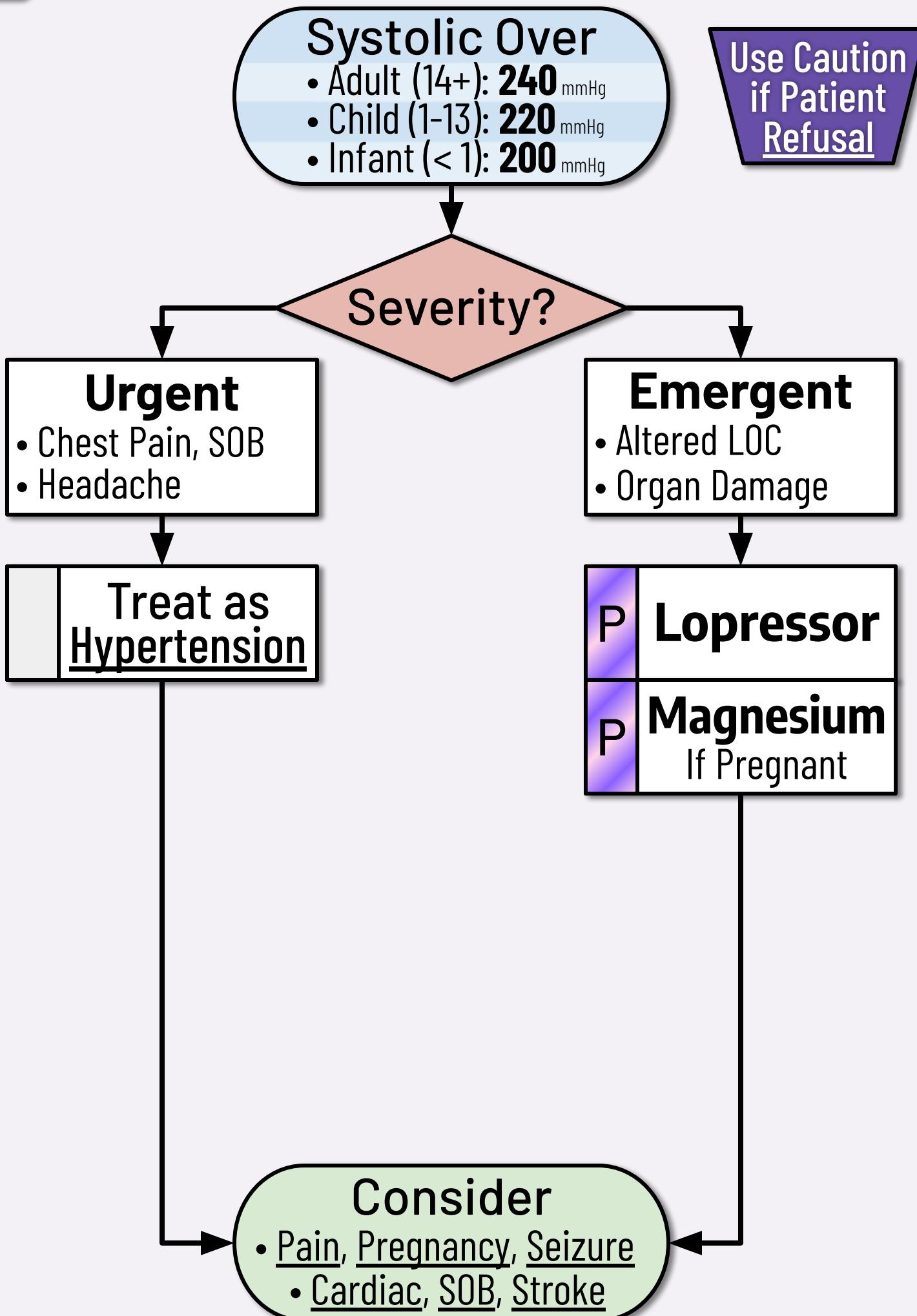
- Notify ED **ASAP**. Prepare to **go straight to cath lab** if time allows:
 - **Shave** from belt to knees, place **defib pads**, change into a **gown**

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



Use Caution
if Patient
Refusal

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

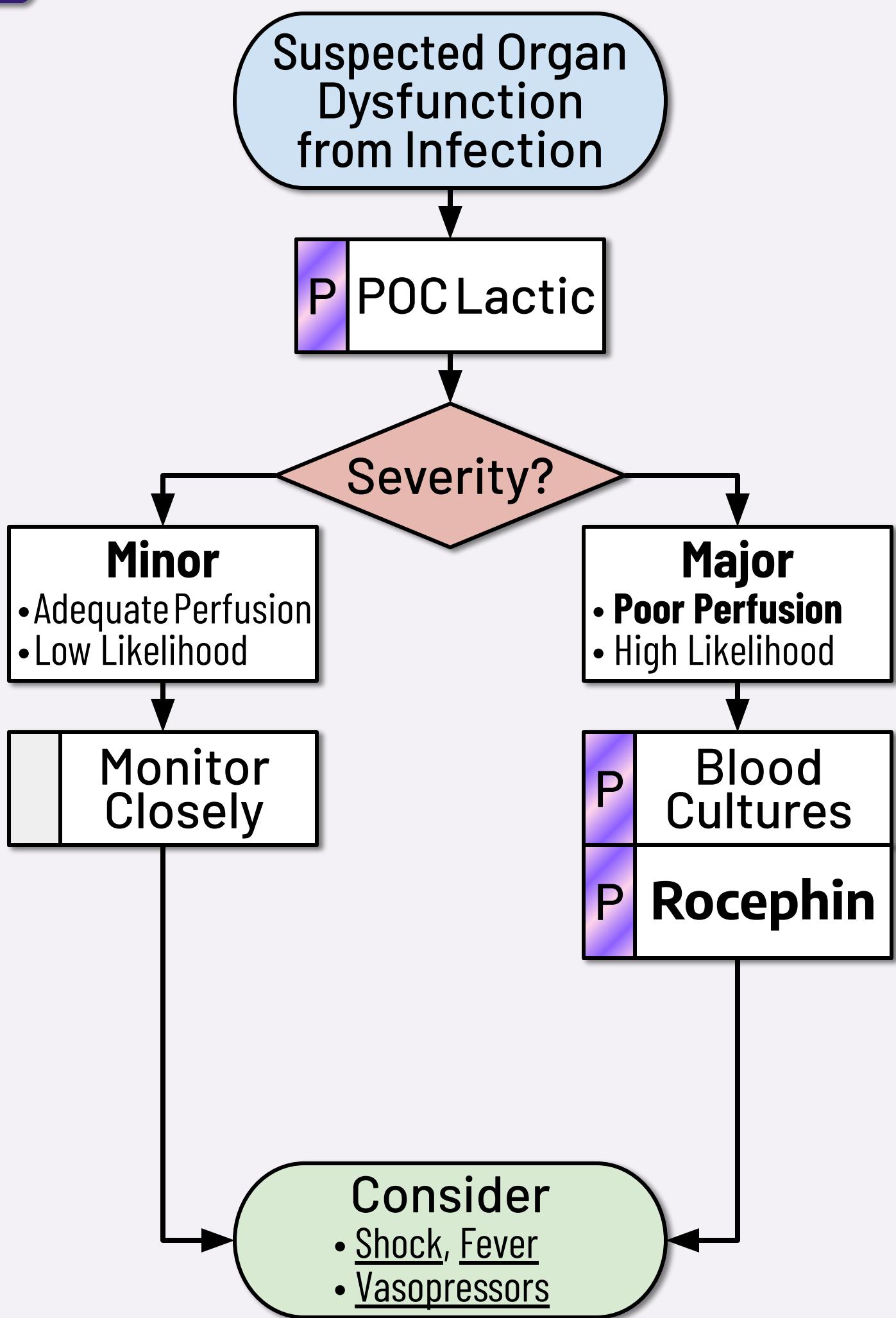
- Signs of **organ damage** from HTN may include:
 - Obvious global weakness, paralysis, seizure, encephalopathy
 - Severe headache and vomiting, mental status changes
 - Vision **loss** or blurred (not simple flashes or double vision)

Pediatrics

- Malignant HTN is unlikely in peds. Treat underlying causes of HTN.

References

- Medscape Malignant HTN: <https://emedicine.medscape.com/article/241640> [Ver: 8/24]
- 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]

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--	---------------------

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Glucometer

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.

E

12-Lead

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 May read machine Interpretation.

I May interpret directly.

A

Saline Lock

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 proximal 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**). But EMS may consider using established lines during a CODE.

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

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.

Heimlich

1. Awake pts may suction themselves.

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.

Suction

1. Confirm patient is unresponsive.

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.

A

Magill Forceps

1. Prepare appropriately sized BVM.
 - Connect to high-flow **oxygen**.
 - Extend O₂ reservoir if equipped.

BVM

2. Maintain adequate mask seal. **Dual rescuers is preferred.**
 - **Single:** Use E-C clamp; **Dual:** Use two handed technique.
 - **Dentures** may improve seal, but remove if causing obstruction.
3. Ventilate with slow deliberate squeezing of bag.
 - Assist natural rate and provide additional breaths as needed.

1. Measure appropriate OPA / NPA size:
 - OPA: Corner of mouth to angle of jaw
 - NPA: Tip of nose to angle of jaw (or diameter of nostril or pinky)
- 2a. **OPA:** Insert into mouth slowly. May use tongue blade to assist.
 - Insert with **tip to nose** for adults and **tip to toes** for peds.
 - Rotate into place. Remove promptly if any gagging.
- 2b. **NPA:** Insert into nare with slanted hole (bevel) toward septum.
 - Lube tube and start on larger nare. Minor bleeding is common.
 - If resistance is felt: rotate gently, try smaller NPA or other nare.
 - **Use caution** if obvious facial trauma or basilar skull fracture.

NPA / OPA

1. Provide **strong** patient encouragement.
 - 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 and tighten straps.
 - Ensure **adequate seal** by adjusting placement and strap tension.
4. May use on semi-conscious patients, but must **monitor closely**.
 - **Remove promptly if any vomiting** or hypotension.
5. **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. Prepare appropriately sized device:
- Average adults use **iGel #4 (green)**.
2. Follow **manufacturer's guidelines**. Apply appropriate **lube**.
- Open mouth and pull jaw & tongue forward (or use jaw thrust).
3. Insert BIAD into pharynx. Follow curve of the palate and tongue.
- Stop when resistance is felt and teeth are near the **depth line**.
- May rotate to facilitate insertion. Rock gently to seat in airway.
4. Confirm placement. Secure well with tape or other device.
- Use auscultation, capnometry, EtCO₂ and SpO₂ if available.
5. If BIAD fails, **try again with a different size**.
- Most common failure of a BIAD is inappropriate size.

E

BIAD

1. Measure appropriate tube depth:
- Tip of nose to the stomach
2. Only place a prehospital OG-tube with an **appropriate airway**.
- Lube the OG-tube and insert into airway device as designed.
- Advance the tube gently until the appropriate depth is reached.
3. Confirm placement: inject air & listen for bubbles in the stomach
4. Secure tube and **attempt to aspirate** gastric contents.
- Use low suction or manually aspirate with large tip syringe.

A

OG-Tube

1. Identify side and clean best site:
- Peds: 2nd intercostal midclavicular
- Adults: **4th or 5th intercostal anterior to midaxillary line**
- Consider Finger Thoracostomy if indicated & cleared for CC.
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. Apply a **chest seal**.
5. Vent chest seal or **repeat decompression** if dyspnea returns.

I

Pleural Decompress

	Chest Compression
--	----------------------

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.
 - Make sure to allow full **chest recoil** between compressions.
4. **Minimize interruption.** Switch providers every 2-5 min as needed.
NOTE: May switch to a **mechanical CPR device** after the first 2 min.

	Defib
--	-------

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.

A	IO
---	----

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.

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

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

1. Apply **direct pressure** for bleeding.
- Consider tourniquet or packing.

Wound Care

2. If bleeding is easily controlled, irrigate contaminated wounds.
- Maximize **flushing** gross contamination out of large wounds.
- Consider pre-treatment of Pain before significant **flushing**.
3. Cover wounds with sterile gauze and apply appropriate dressing.
- Monitor and **document distal pulse**, movement and sensation.
- Cover **burns** with non-adherent gauze and sterile burn dressing.
- Apply a **chest seal** (occlusive) to any neck or trunk penetration.

1. Apply **direct pressure** for bleeding.
- May remove ineffective bystander TQs.

Tourniquet

2. Apply tourniquet proximal to bleed per manufacturer instruction.
- May consider purpose made device (e.g. **junctional** TQ, ITclamp)
3. **Tighten** until bleeding is controlled. **Secure windlass** in place.
- Consider placing second tourniquet if bleeding continues.
- Consider treatment of Pain. Do not place over bony joints.
4. **Record time** on tourniquet or directly on the patient's skin.

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.

Wound Packing

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 agents (e.g. QuikClot®, XSTAT®)
4. Re-apply **direct pressure** on top of packing.
- Consider treatment of Pain.

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.

1. Provide manual immobilization.

2. Expose area: remove or cut clothes.

3. Check and **document distal pulse**, movement and sensation.

4. May gently return to **near anatomic** alignment & secure splint.

- Splint in position found if any significant pain or resistance.

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.

1. Confirm **no pulse distal to injury**.

2. Consider pre-treating for Pain if able.

3. Manually reduce injury and splint in anatomic neutral position.

4. Recheck and **document distal pulse**, movement and sensation.

E

Reduce
Deformity

1. Inspect wound for stinger.

2. If visualized, scrape stinger away.

- Use tool with firm edge, like a credit card. Do not use tweezers.

Stinger
Removal

- Some toxins have unique antidotes.
 - Only **major symptoms** need treatment.
- Don't forget the basics: **Oxygen** for smoke, CO, & inhaled gasses
 - **Narcan** for any hypoxia from suspected OD
- Indications **in bold** are typical standing orders.
- All others: **online order only** from poison control
 - Must speak to the toxicologist, or call ED/OMD

**Administer
Antidote**



Typical Adult Antidote Doses

I	Atropine	1 mg IV	Bradycardia , Cholinergics
I	Benadryl	25 mg IV	Dystonia , Neuroleptics
I	Bicarb	50 mEq IV	Wide QRS, ASA, TCA, SSRI
I	Calcium	1 g IV	Hyper K⁺ , Ca-Blockers, HF Acid
	Charcoal	25 g PO	PO Toxins (not caustics or metals)
A	CyanoKit	5 g IV	Cyanide (ingested or inhaled)
A	D10	100 mL	Hypoglycemia , Sulfonylureas
	DuoDote	1 autoinj.	Nerve Gas MCI , Organophos.
A	Glucagon	1 mg IM	β & Ca-Blockers
I	Magnesium	1 g IV	Torsades , Prolonged QTc
	Narcan	max 4 mg IV	Dyspnea , Opiates
I	Thiamine	100 mg IV	Alcoholic (especially after glucose)
A	Versed	2.5 mg IV	Seizures , Anticholinergics

References

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- Medscape ASA: <https://emedicine.medscape.com/article/1009987> [Ver: 5/24]
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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

Cardiovert

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): **2 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



RSI Prep Checklist

1. Consider a standardized checklist.
- E.g: https://bit.ly/NRVEMS_CCAirway
2. **Preoxygenate:** Give 100% FiO₂ with adjuncts, prep for apneic O₂
3. **Resuscitate Before Intubate:** IV, O₂, monitor, EtCO₂, BP, pressors
4. **Plan & Predict:** Why not BIAD? LEMON eval, brief the team
5. **Prepare:** ETT, rigid stylet, 10 cc syringe, video scope, suction
6. **Position:** Record monitor & medic, maybe cric pressure
7. **Push Meds:** Syringes labeled, doses double checked
8. **Place Tube:** Watch ETT through cords, secure w/ tape or device
9. **Prove It:** Confirm two ways, use waveform capnography
10. **Post-Intubation Care:** Sedation & vent, OGT to suction, document



Ventilator

1. Attach appropriate **patient circuit**.
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

6. Use a standard **troubleshooting** guide:
 - Investigate any **warnings** promptly while monitoring pt closely.
 - Immediately remove vent and **use BVM** for any critical **alarms**.
7. Think **dislodgement, obstruction** or **PTX** if poor BVM response.
8. **Titrate vent** settings to patient response.
 - **Hypoxia:** increase FiO₂, and/or PEEP (and/or minute volume)
 - **Hypotension:** decrease PEEP (and/or tidal volume)
 - **Breath Stacking** (e.g. COPD, asthma): increase I:E (1:4 or 1:5)

P

Cric

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

Finger Thoracostomy

1. Confirm **pulseless and apneic**.

- **Clean skin** if time allows.

2. **Locate the rib** at the nipple (or just above).

3. Cut along the rib, all the way down to bone.

- From the anterior to mid-axillary line.

4. Press **kelly clamp** firmly through the cut.

- Go just **above the rib**, pop into pleura.

5. Spread the clamp to make a bigger hole.

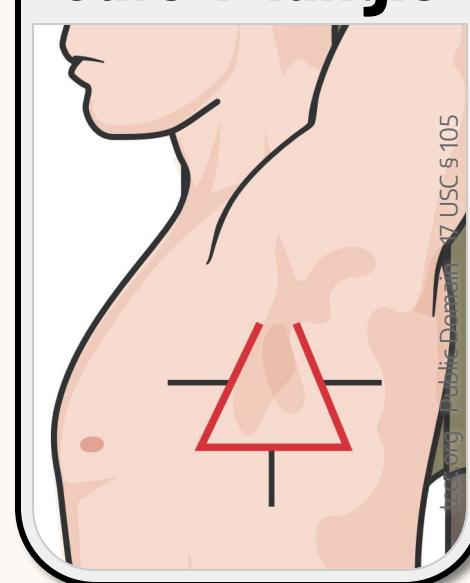
6. Remove the clamp and insert your finger.

- Listen for air, feel for lung, check pulse.

7. Place vented chest seal. Give **Ancef** 2 g IV.

- Place suction in hole if massive bleeding.

Safe Triangle



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- Infant Abandonment

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- Verification of On Scene Personnel
- Physician Orders

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- Withholding Resuscitation
- Termination Resuscitation

Page 109 - Cardiac Devices

- IABP, TVP, ZOLL LifeVest
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Page 110 - Standbys, Police

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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 EMS team and patient 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 **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.
 - For **children** contact Child Protective Services at 800-552-7096.

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 knowledge/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 verbal 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.
- **I** ALS should resuscitate on scene for non-special cases. Call **Medical Control** if no ROSC **within 30 min.**
- **E** BLS should try to turn over care to ALS (or a 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. Prioritize **transport if witnessed by EMS or if any shock is ever advised regardless of time** to the hospital. Call **Medical Control** if not witnessed by EMS, and not shocked, and no ALS after 15 min.

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**

Advanced Cardiac Devices

- EMS providers may occasionally encounter exotic devices such as:
 - Wearable defibrillator (e.g. **ZOLL® LifeVest**)
 - Intra-Aortic Balloon Pump (**IABP**)
 - Transvenous Pacemaker (**TVP**)
 - Left Ventricular Assist Device (**LVAD**)
- **Bring all device supplies** and paperwork to the ED with you.
 - **Bring all batteries**, cords, documentation and wallet cards.
 - Consider destination triage in consultation with **Medical Control**.
- Diagnosing device problems is complex.
 - **Do not unplug or remove anything.**
 - When in doubt, follow regular protocols.
 - Call **Medical Control** with any questions.
 - Consider the advice of the patient and any trained bystanders.
 - Some devices may provide **voice prompts** for troubleshooting.
- Routine management of these devices is **outside the scope** of EMS.
 - The patient's life literally depends on these complex devices.

Consider
Destination
Triage

Left Ventricular Assist Devices (LVADs)

- All **LVAD** patients will have an assigned "**LVAD center**".
 - The patient should have the emergency contact phone number.
 - EMS may try to **contact the LVAD center** with any problems.
 - Call **Medical Control** to verify any recommendations.
- LVAD patients may be alive and well **without 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.
- An LVAD can make **diagnosis of arrest** very 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.

EMS Standbys

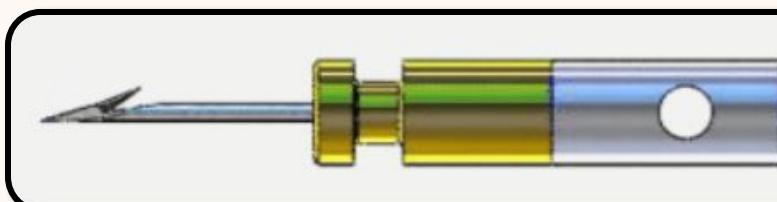
- EMS may be utilized to standby at a scene without a specific pt.
- EMS should complete a full report for any patients or treatments.
 - Consider simple interventions such as PO pain meds and ice.
 - Document a refusal if any patient declines transport.

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.
- I ALS**: May consider STE > 1 mm in 2 or more contiguous leads.
- P CC**: May consider advanced criteria (Sgarbossa's, posterior, etc).
- 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** & LG **Salem** & Sovah **Danville** / **Martinsville**

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 remove lines, tubes, etc if the body is released.
 - EMS may offer courtesy transport to a funeral home.
 - 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**.
 - **I** 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 SALT and START.
- 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)	Charcoal (Activated)
121	CyanoKit® (Hydroxocobalamin)	D10 (Dextrose 10%)
122	Decadron® (Dexamethasone)	Dopamine (Intropin®)
123	DuoDote® (Atropine & 2PAM)	Epi, Epi Neb (Epinephrine)
124	Epi Drip, Push (Epinephrine)	Etomidate (Amidate®)
125	Fentanyl (Sublimaze®)	Glucagon (Glucagen®)
126	Glucose (Glutose 15™)	Haldol® (Haloperidol)
127	Heparin (Sodium)	Ibuprofen (Motrin®)
128	Keppra® (Levetiracetam)	Ketamine (Ketalar®)
129	Levophed® (Norepinephrine)	Lidocaine (Xylocaine®)
130	Lopressor® (Metoprolol)	Magnesium (Sulfate)
131	Narcan® (Naloxone)	Neo Push (Phenylephrine)
132	Nitro (Nitroglycerin)	NS Bolus (0.9% Saline)
133	Propofol (Diprivan®)	Rocephin® (Ceftriaxone)
134	Rocuronium (Zemuron®)	Succinylcholine (Anectine®)
135	Tetracaine (Ophthalmic)	Thiamine (Vitamin B1)
136	TXA (Tranexamic Acid)	Tylenol® (Acetaminophen)
137	Versed® (Midazolam)	Zofran® (Ondansetron)

Substitutes & Options

- WVEMS maintains a **formulary list** of recommended medications, but some agencies may elect not to stock every drug. Please review the formulary for recommended options and substitutes.



- 2025 Formulary:

Western VA EMS Council
Recommended Formulary

2025

Medication	Size	Min	Type	\$
Acetaminophen PO	500 mg/tab	2	tab	\$
Adenosine	12 mg/ 4 mL	2	vial	\$\$
Albuterol	2.5 mg/ 3 mL	4	neb	\$
Amiodarone	150 mg/ 3 mL	3	vial	\$\$
Aspirin	81 mg/tab	4	tab	\$
Atropine	1 mg/mL	2	vial	\$\$
Calcium Chloride	1 g/ 10 mL	1	vial	\$\$
Cefazolin	1 g/ 3 mL	2	vial	\$\$
D10	250 mL	1*	bag	\$\$
Dexamethasone	10 mg/mL	1*	vial	\$\$
Diphenhydramine	50 mg/mL	1	vial	\$
Diphenhydramine PO	25 mg/tab	2	tab	\$
Epinephrine *	200 mg/ 10 mL	1	vial	\$\$\$
Epinephrine *	1 mg/ 10 mL	2*	prefill	\$\$
Fentanyl	100 mcg/ 2 mL	2*	vial	\$\$
Glucose	15 g	1	tube	\$
Haloperidol	5 mg/mL	1	vial	\$\$
Ibuprofen PO	200 mg/tab	3	tabs	\$
Ipratropium	0.5 mg/ 2.5 mL	1	neb	\$
Ketamine	200 mg/ 20 mL	1	vial	\$\$
Levetiracetam	500 mg/ 5 mL	6	vial	\$\$
Magnesium	1 g/ 2 mL	4	vial	\$\$
Midazolam	5 mg/ 5 mL	2	vial	\$\$
Naloxone IV [†]	2 mg/ 2 mL	2	vial	\$\$\$
Nitroglycerin	0.4 mg/tab	6	tab	\$
Normal Saline (0.9%)	1,000 mL	2	bag	\$\$
Normal Saline (0.9%)	50 mL	2	bag	\$\$
Ondansetron	4 mg/ 2 mL	2	vial	\$\$
Ondansetron ODT	4 mg/tab	2	tab	\$
Oxymetazoline	0.05%	1	bottle	\$\$
Sodium Bicarbonate	50 mEq/ 50 mL	1	vial	\$\$
Tranexamic Acid	1 g/ 10 mL	2*	vial	\$\$

v250211

Approved by WVEMS Protocol Workgroup 10 Feb 2025

* **Epi Notes**

- Epi Neb uses 5 mL of 1 mg/mL
- Peds CODE Epi uses 1mg/ 10 mL
- May use CertaDose (requires 1mg/mL)
- May also carry auto-injectors

† **Naloxone**

- NOTE: May stock min 1x IV vial(2 mg) if also stocking IN

New Min

- D10
- Dexamethasone
- Epinephrine
- Fentanyl
- Tranexamic Acid

Now Optional

- Dopamine
- Glucagon
- Lidocaine
- Metoprolol

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
- 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, Q 5 min x3
- 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, Med CODE/ROSC, Trauma CODE
- 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: Major Wounds, 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

Notes

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

Baby ASA

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](#), [Administer Antidote](#)
- 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, Antidote
- 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: Administer Antidote
- 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, Administer Antidote
- Dilute in NS and **give over 10 min if non-emergent**
- Electrolyte: cofactor - Onset: minutes - Duration: hours
- <https://reference.medscape.com/drug/344432>



Charcoal

Activated

Use

- Tx: Poisoning, Overdose
- Adults: **25 grams** PO
- Peds: 1 gram/kg
- May give over ice to improve taste

Caution

- May cause: vomiting, black stools
- May cause: diarrhea (w/ sorbitol)
- Do not use: caustic ingestions
- **Preg N/A:** not categorized

Notes

- Protocols: Administer Antidote
- Antidote: physical binder, not metabolized
- <https://reference.medscape.com/drug/343714>



CyanoKit®**Hydroxocobalamin****Use**

- Tx: Cyanide Poisoning / Exposure
- Adults: **5 grams** IV/I0 over 10 min
- Peds: 70 mg/kg

Caution

- May cause: HA, flushing, HTN
- PMH: CKD, renal failure
- **Preg C:** safety not established

Notes

- Protocols: Administer Antidote
- Follow kit instructions and **give over 10 min**
- Antidote: Protein binding to cyanide - Half life: 30 hrs
- <https://reference.medscape.com/drug/343734>



Doc James

D10**Dextrose 10%****Use**

- Tx: Hypoglycemia
- Adults: **100 mL** IV/I0
- Peds: 5 mL/kg

Caution

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

Notes

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



Decadron®**Dexamethasone****Use**

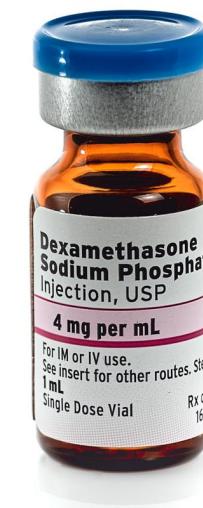
- Tx: Inflammation
- Adults: **10 mg** IV/IO, IM, PO
- Peds: 0.5 mg/kg
- (Alternate adult dosing: 8 mg IV/IO, IM, PO)

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>



Duodote®

Atropine & Pralidoxime

Use

- Tx: Organophosphate poisoning
- Adults: **auto-inj** IM (2.1 mg/ 600 mg)
- Peds: safety not established ≤ 40 kg

Caution

- May require **multiple doses**
- PMH: chronic renal or liver disease
- Do not mix: **Glucagon**
- May cause: vision changes, HTN
- **Preg C:** safety not established

Notes

- Protocols: [Administer Antidote](#)
- Antidote: anticholinergic, reactivates esterase, peak: 30 m
- [https://reference.medscape.com/drug/343745](#)

**Epi, Epi Neb**

Epinephrine, EpiPen®

Use

- Tx: Brady, CODE, Dyspnea, Allergy
- Adults: **1 mg** IV/IO (CODE)
- Peds: 0.01 mg/kg (Brady, CODE)
- Epi Neb: 0.5 mg/kg, max 5 mg (SOB)

Caution

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

**Notes**

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



Etomidate

Amidate®

Use

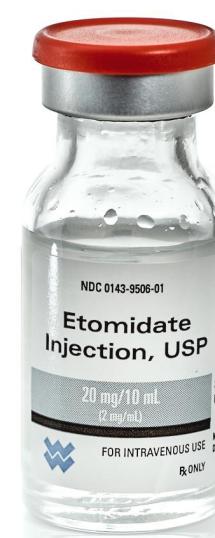
- Tx: RSI/RSA Induction
- Adults: **0.3 mg/kg** IV/IO
- Peds: 0.3 mg/kg (10+ y/o only)
- 0-9 y/o safety not established

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

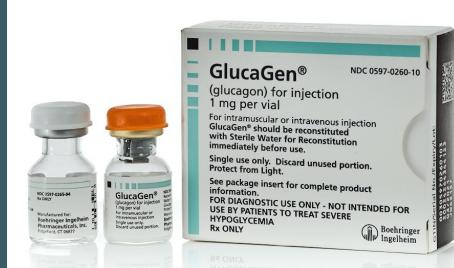
- Tx: Hypoglycemia, β -blocker OD
- Adults: **1 mg** IM
- Peds: 0.5 mg if < 6 y/o (< 20 kg)

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, Administer Antidote
- 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: **600 mg PO**
- Peds: 10 mg/kg

Caution

- PMH: CKD, recent CABG
- Do not use: if **active GI bleeding**
- May cause: epigastric pain
- May cause: N/V, dizzy
- **Preg D:** known risks

Notes

- Protocols: [Fever, Pain, Cold / Heat](#)
- 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: pain after IO (or V-Tach / V-Fib)
- Adult pain after IO: 10 mg IO
- (CODE 1st dose: 1 - 1.5 mg/kg IV/IO)
- (CODE 2nd dose: 0.5-0.75 mg/kg IV/IO)

Caution

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

Notes

- Protocols: 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: 0.5 mcg/kg/min infusion

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: Tachy, Med CODE, Seizure, Antidote, 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](#), [Administer Antidote](#)
- 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: **500 mL** IV/IO
- Peds: 20 mL/kg

Caution

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

**Notes**

- Protocols: Shock, Tachy, Fever, HyperK⁺, Diabetic, Preg Major Trauma / CODE, Cold/Heat, Burn
- Isotonic crystalloid - 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>



Tetracaine

0.5% Ophthalmic

Use

- Tx: Eye pain (non-penetrating)
- Adults: **1-2 gtt** into affected eye
- Peds: **1-2 gtt** into affected eye

Caution

- **Will sting** for 3-5 seconds (normal)
- **Use caution** after admin
 - Do not let pts rub or scratch eye
- **Preg N/A:** not categorized

**Notes**

- Protocols: Pain, Head Injury
- Topical anesthetic - Onset: seconds - Duration: 20 min
- <https://reference.medscape.com/drug/343373>

Thiamine

Vitamin B1

Use

- Tx: Hypoglycemic chronic alcoholics
- Adults: **100 mg** IV/IO
- Peds: <do not use>

Caution

- Required: **online physician order**
- PMH: CKD, renal failure
- Minimal utility in non-alcoholics
- **Preg A:** demonstrated safe

**Notes**

- Protocols: Diabetic, Administer Antidote
- Essential coenzyme in carbohydrate metabolism
- <https://reference.medscape.com/drug/344428>

TXA

Tranexamic Acid

Use

- Tx: Bleeding, Epistaxis
- Adults: **2 grams 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, IV/IO**
- Peds: 15 mg/kg
- For IV admin: **give over 10 min**

Caution

- PMH: end stage liver disease
- **Preg B:** likely safe
- **Do not use:** for premature babies

Notes

- Protocols: Fever, Pain
- Analgesic: antiprostaglandin - Onset: 1 hr - Duration: 4 hrs
- PO: <https://reference.medscape.com/drug/343346>
- IV: <https://reference.medscape.com/drug/999610>



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, Antidote
- 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.
- Use same route & frequency as adult.
 - **Limit NS Bolus to x3** (60 mL/kg).

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
 - **Tetracaine** (Ophth): all ages
 - **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 give OTC doses of **Benadryl**, **Ibuprofen**, and **Tylenol**
 - **Follow the directions** on the OTC box for age and/or weight
 - May not give doses labeled as "ask (or directed by) a physician"

139	Premie
140	0-3 mo
141	4-5 mo
142	6-11 mo
143	1 year
144	2 years
145	3 years
146	4 years
147	5 years
148	6 years
149	7 years
150	8 years
151	9 years
152	10 years
153	11 years
154	12 years
155	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 JPrefill (1/10) **Epi:** 0.2 mL
(50 mg/mL) **Amio:** 0.2 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: < do not use >

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

Cardiovert: 2 → 4 J

Vent: < do not use >

Less Common

Adenosine: 0.3 mg

Atropine: 0.1 mg

Bicarbonate: 1 mEq

Calcium: 40 mg

Charcoal: 2 grams

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**Defib:** 8 → 15 JPrefill (1/10) **Epi:** 0.4 mL
(50 mg/mL) **Amio:** 0.4 mL**Common**

NS Bolus: 80 mL

Afrin: < do not use >

Albuterol: 0.83 mg

Ancef: < do not use >

Atrovent: 0.25 mg

Benadryl: < do not use >

D10: 20 mL

Decadron: 2.4 mg

Epi (allergy): 0.04 mg

Epi (brady/code): 0.04 mg

Epi Neb: 2 mg

Fentanyl: 5 mcg

Glucose: < do not use >

Ibuprofen: < do not use >

Keppra: < do not use >

Ketamine (pain): < do not use >

Narcan: 0.04 mg

Tylenol: 64 mg

TXA: 100 mg

Versed: < do not use >

Zofran: < do not use >

Misc

IV Cath: 24 g (yellow)

iGel Airway: #1 (pink)

Pacing Rate: 130 /min

Cardiovert: 4 → 8 J

Vent: < do not use >

Less Common

Adenosine: 0.3 mg

Atropine: 0.1 mg

Bicarbonate: 2 mEq

Calcium: 80 mg

Charcoal: 4 grams

Dopamine: drop every 60 s

Glucagon: 0.5 mg

Haldol: < do not use >

Lidocaine (10): < do not use >

Magnesium: 200 mg

Epi Push: 2 mcg

Etomidate: < do not use >

Ketamine (RSI): < do not use >

Levophed: 0.2 mcg/min

Lopressor: 2 mcg/min

Neo Push: 20 mcg

Rocephin: 200 mg

Rocuronium: < do not use >

Succinylcholine: 8 mg

Normal Vitals

P: 105 - 160 /min

R: 30 - 60 /min

SBP: 70 - 100 mmHg

Resuscitation

Defib: 10 → 20 J
 Prefill (1/10) **Epi:** 0.6 mL
 (50 mg/mL) **Amio:** 0.6 mL

Common

NS Bolus: 120 mL
 Afrin: < do not use >
 Albuterol: 1.25 mg
 Ancef: 166 mg
 Atrovent: 0.25 mg
 Benadryl: < do not use >
 D10: 30 mL
 Decadron: 3.6 mg
 Epi (allergy): 0.06 mg
 Epi (brady/code): 0.06 mg
 Epi Neb: 3 mg
 Fentanyl: 5 mcg
 Glucose: < do not use >
 Ibuprofen: < do not use >
 Keppra: < do not use >
 Ketamine (pain): 2 mg
 Narcan: 0.06 mg
 Tylenol: 80 mg
 TXA: 150 mg
 Versed: 0.5 mg
 Zofran: < do not use >

Misc

IV Cath: 24 g (yellow)
 iGel Airway: #1.5 (blue)
 Pacing Rate: 130 /min
 Cardiovert: 6 → 10 J

Vent: < do not use >

Less Common

Adenosine: 0.6 mg
 Atropine: 0.12 mg
 Bicarbonate: 3 mEq
 Calcium: 120 mg
 Charcoal: 6 grams
 Dopamine: drop every 60 s
 Glucagon: 0.5 mg
 Haldol: < do not use >
 Lidocaine (10): < do not use >
 Magnesium: 300 mg
 Epi Push: 4 mcg
 Etomidate: < do not use >
 Ketamine (RSI): 12 mg
 Levophed: 0.3 mcg/min
 Lopressor: 3 mcg/min
 Neo Push: 40 mcg
 Rocephin: 300 mg
 Rocuronium: 6 mg
 Succinylcholine: 12 mg

Normal VitalsP: **110 - 160** /minR: **24 - 38** /minSBP: **70 - 100** mmHg**Resuscitation**

Defib: 15 → 30 J
 Prefill (1/10) **Epi:** 0.8 mL
 (50 mg/mL) **Amio:** 0.8 mL

Common

NS Bolus: 160 mL
 Afrin: <do not use>
 Albuterol: 1.25 mg
 Ancef: 200 mg
 Atrovent: 0.25 mg
 Benadryl: 5 mg
 D10: 40 mL
 Decadron: 4.8 mg
 Epi (allergy): 0.08 mg
 Epi (brady/code): 0.08 mg
 Epi Neb: 4 mg
 Fentanyl: 5 mcg
 Glucose: <do not use>
 Ibuprofen: 80 mg
 Keppra: <do not use>
 Ketamine (pain): 2 mg
 Narcan: 0.08 mg
 Tylenol: 112 mg
 TXA: 200 mg
 Versed: 0.5 mg
 Zofran: 0.8 mg

Misc

IV Cath: 24 g (yellow)
 iGel Airway: #1.5 (blue)
 Pacing Rate: 135 /min
 Cardiovert: 8 → 15 J
Vent: Vt 50 mL @ 30 /min

Less Common

Adenosine: 0.9 mg
 Atropine: 0.16 mg
 Bicarbonate: 4 mEq
 Calcium: 160 mg
 Charcoal: 8 grams
 Dopamine: drop every 30 s
 Glucagon: 0.5 mg
 Haldol: <do not use>
 Lidocaine (10): <do not use>
 Magnesium: 400 mg
Epi Push: 4 mcg
 Etomidate: <do not use>
 Ketamine (RSI): 16 mg
 Levophed: 0.4 mcg/min
 Lopressor: 4 mcg/min
 Neo Push: 40 mcg
 Rocephin: 400 mg
 Rocuronium: 8 mg
 Succinylcholine: 16 mg

Normal Vitals

P: 90 - 150 /min

R: 22 - 30 /min

SBP: 72 - 105 mmHg

Resuscitation**Defib:** 20 → 50 JPrefill (1/10) **Epi:** 1 mL
(50 mg/mL) **Amio:** 1 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

Cardiovert: 10 → 20 J

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

Adenosine: 0.9 mg

Atropine: 0.2 mg

Bicarbonate: 10 mEq

Calcium: 200 mg

Charcoal: 10 grams

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 Vitals P: 85 - 140 /min

R: 22 - 30 /min

SBP: 74 - 110 mmHg

Resuscitation**Defib:** 20 → 50 JPrefill (1/10) **Epi:** 1.2 mL
(50 mg/mL) **Amio:** 1.2 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

Cardiovert: 10 → 20 J

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

Adenosine: 1.2 mg

Atropine: 0.24 mg

Bicarbonate: 12 mEq

Calcium: 240 mg

Charcoal: 12 grams

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 Vitals

P: 85 - 140 /min

R: 22 - 30 /min

SBP: 76 - 115 mmHg

Resuscitation**Defib:** 30 → 70 JPrefill (1/10) **Epi:** 1.5 mL
(50 mg/mL) **Amio:** 1.5 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

Cardiovert: 15 → 30 J

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

Adenosine: 1.5 mg

Atropine: 0.3 mg

Bicarbonate: 15 mEq

Calcium: 300 mg

Charcoal: 15 grams

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****Defib:** 30 → 70 JPrefill (1/10) **Epi:** 1.7 mL
(50 mg/mL) **Amio:** 1.7 mL**Common**

NS Bolus: 350 mL

Afrin: <do not use>

Albuterol: 2.5 mg

Ancef: 466 mg

Atrovent: 0.25 mg

Benadryl: 15 mg

D10: 85 mL

Decadron: 8 mg

Epi (allergy): 0.17 mg

Epi (brady/code): 0.17 mg

Epi Neb: 5 mg

Fentanyl: 10 mcg

Glucose: 15 grams

Ibuprofen: 160 mg

Keppra: <do not use>

Ketamine (pain): 5 mg

Narcan: 0.16 mg

Tylenol: 256 mg

TXA: 400 mg

Versed: 1.5 mg

Zofran: 2 mg

Misc

IV Cath: 22 g (blue)

iGel Airway: #2 (gray)

Pacing Rate: 95 /min

Cardiovert: 15 → 30 J

Vent: Vt 100 mL @ 24 /min**Less Common**

Adenosine: 1.8 mg

Atropine: 0.35 mg

Bicarbonate: 17 mEq

Calcium: 350 mg

Charcoal: 17 grams

Dopamine: drop every 20 s

Glucagon: 0.5 mg

Haldol: <do not use>

Lidocaine (10): 2 mg

Magnesium: 850 mg

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 35 mg

Levophed: 0.9 mcg/min

Lopressor: 9 mcg/min

Neo Push: 100 mcg

Rocephin: 833 mg

Rocuronium: 17 mg

Succinylcholine: 34 mg

Normal VitalsP: **70 - 115** /minR: **20 - 24** /minSBP: **80 - 115** mmHg**Resuscitation****Defib:** 50 → 85 JPrefill (1/10) **Epi:** 2 mL
(50 mg/mL) **Amio:** 2 mL**Common**

NS Bolus: 400 mL

Afrin: <do not use>

Albuterol: 2.5 mg

Ancef: 600 mg

Atrovent: 0.5 mg

Benadryl: 20 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.2 mg

Epi (brady/code): 0.2 mg

Epi Neb: 5 mg

Fentanyl: 10 mcg

Glucose: 15 grams

Ibuprofen: 200 mg

Keppra: <do not use>

Ketamine (pain): 6 mg

Narcan: 0.2 mg

Tylenol: 288 mg

TXA: 500 mg

Versed: 2 mg

Zofran: 2 mg

Misc

IV Cath: 20 g (pink)

iGel Airway: #2 (gray)

Pacing Rate: 90 /min

Cardiovert: 20 → 50 J

Vent: Vt 120 mL @ 22 /min**Less Common**

Adenosine: 2.1 mg

Atropine: 0.4 mg

Bicarbonate: 20 mEq

Calcium: 400 mg

Charcoal: 20 grams

Dopamine: drop every 15 s

Glucagon: 1 mg

Haldol: <do not use>

Lidocaine (10): 2 mg

Magnesium: 1 gram

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 40 mg

Levophed: 1.0 mcg/min

Lopressor: 10 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 20 mg

Succinylcholine: 40 mg

Normal Vitals

P: 70 - 115 /min

R: 20 - 24 /min

SBP: 82 - 120 mmHg

Resuscitation**Defib:** 50 → 85 JPrefill (1/10) **Epi:** 2.2 mL
(50 mg/mL) **Amio:** 2.2 mL**Common**

NS Bolus: 440 mL

Afrin: 1 spray

Albuterol: 2.5 mg

Ancef: 666 mg

Atrovent: 0.5 mg

Benadryl: 20 mg

D10: 100 mL

Decadron: 8 mg

Epi (allergy): 0.22 mg

Epi (brady/code): 0.22 mg

Epi Neb: 5 mg

Fentanyl: 15 mcg

Glucose: 15 grams

Ibuprofen: 220 mg

Keppra: 440 mg

Ketamine (pain): 6 mg

Narcan: 0.22 mg

Tylenol: 320 mg

TXA: 550 mg

Versed: 2 mg

Zofran: 2.2 mg

Misc

IV Cath: 20 g (pink)

iGel Airway: #2 (gray)

Pacing Rate: 90 /min

Cardiovert: 20 → 50 J

Vent: Vt 130 mL @ 22 /min**Less Common**

Adenosine: 2.1 mg

Atropine: 0.45 mg

Bicarbonate: 22 mEq

Calcium: 450 mg

Charcoal: 22 grams

Dopamine: drop every 15 s

Glucagon: 1 mg

Haldol: 2.5 mg

Lidocaine (10): 4 mg

Magnesium: 1.1 grams

Epi Push: 10 mcg

Etomidate: <do not use>

Ketamine (RSI): 45 mg

Levophed: 1.1 mcg/min

Lopressor: 11 mcg/min

Neo Push: 100 mcg

Rocephin: 1 gram

Rocuronium: 22 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 mL
(50 mg/mL) **Amio:** 2.5 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

Cardiovert: 30 → 50 J

Vent: Vt 150 mL @ 20 /min

Less Common

Adenosine: 2.4 mg

Atropine: 0.5 mg

Bicarbonate: 25 mEq

Calcium: 500 mg

Charcoal: 25 grams

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 mL
(50 mg/mL) **Amio:** 2.7 mL**Common**

NS Bolus: 500 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

Cardiovert: 30 → 50 J

Vent: Vt 160 mL @ 20 /min

Less Common

Adenosine: 2.7 mg

Atropine: 0.5 mg

Bicarbonate: 27 mEq

Calcium: 550 mg

Charcoal: 25 grams

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**
(50 mg/mL) **Amio:** **3 mL****Common**

NS Bolus: 500 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

Cardiovert: 30 → 70 J

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

Adenosine: 3 mg

Atropine: 0.5 mg

Bicarbonate: 30 mEq

Calcium: 600 mg

Charcoal: 25 grams

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 VitalsP: **60 - 100** /minR: **16 - 22** /minSBP: **90 - 120** mmHg**Resuscitation****Defib: 70 → 150 J**Prefill (1/10) **Epi: 3.5 mL**
(50 mg/mL) **Amio: 3 mL****Common**

NS Bolus: 500 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

Cardiovert: 30 → 70 J

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

Adenosine: 3.6 mg

Atropine: 0.5 mg

Bicarbonate: 35 mEq

Calcium: 700 mg

Charcoal: 25 grams

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 J**Prefill (1/10) **Epi: 4 mL**
(50 mg/mL) **Amio: 3 mL****Common**

NS Bolus: 500 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

Cardiovert: 50 → 85 J

Vent: Vt 240 mL @ 20 /min**Less Common**

Adenosine: 3.9 mg

Atropine: 0.5 mg

Bicarbonate: 40 mEq

Calcium: 800 mg

Charcoal: 25 grams

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**
(50 mg/mL) **Amio: 3 mL****Common**

NS Bolus: 500 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

Cardiovert: 50 → 100 J

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

Adenosine: 5.1 mg

Atropine: 0.5 mg

Bicarbonate: 50 mEq

Calcium: 1 gram

Charcoal: 25 grams

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 mL
(50 mg/mL) **Amio:** 3 mL**Common**

NS Bolus: 500 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

Cardiovert: 50 → 100 J

Vent: Vt 350 mL @ 20 /min**Less Common**

Adenosine: 6 mg

Atropine: 0.5 mg

Bicarbonate: 50 mEq

Calcium: 1 gram

Charcoal: 25 grams

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

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