Protocol Book

EMS Protocols

Universal

Medical

Trauma

Misc

Page Revised: Jan 2019

Welcome to the EMS Protocols 2019!

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

Basic procedures are assumed for every call.

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

Call for on-line **Medical Direction** at any time for advice on:

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

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

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

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

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

Presume routine things when appropriate, like:

- SpO_2, EKG, $EtCO_2$, glucometer, phlebotomy, etc.
- Regular layperson first aid treatments like splinting and band-aids.
- Note: protocols may also include reminders (like "12-Lead").

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

- Patients 13 y/o and over (13 +) are generally treated as **adults**.
- Children (1-12) and Infants (< 1) are considered **peds**.
- Refer to Appendix A or other approved source for peds dosing.

References are included. This text is not comprehensive.

- Medication names may appear as **brand** or **generic** (or both).
- Always consider child or elder abuse. EMS are mandated reporters.

Please e-mail corrections to: western@vaems.org

Page Revised: Jan 2019 NEMSIS CODE 9914075

EMS Protocols 2019

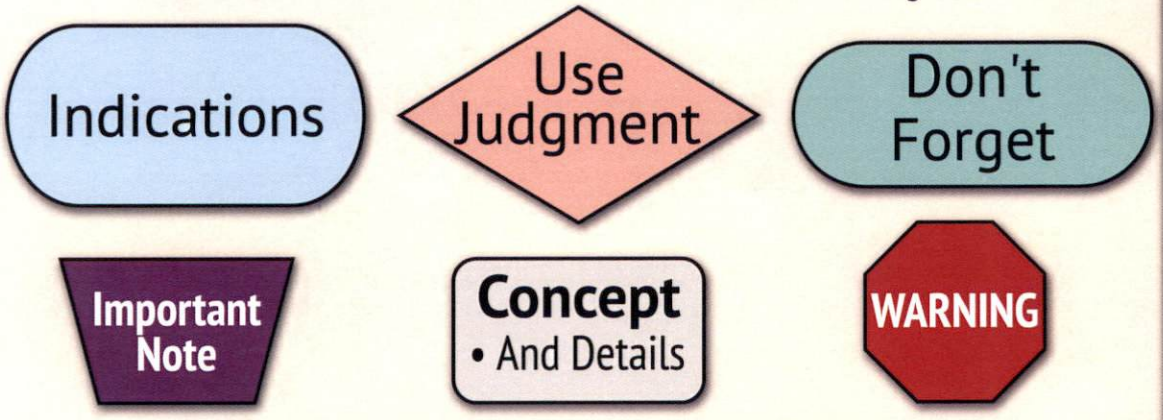
Protocols, Procedures, Policies and Medications
of the Western VA EMS Medical Direction Committee

Editors: Drs. Ekey, LePera, and Stanley

WVEMS Council
1944 Peters Creek Rd.
Roanoke, VA 24017

Phone: 540-562-3482
Web: www.western.vaems.org
Email: western@vaems.org

Protocol Flow and Intervention Symbols



Basic Life Support (**BLS**)

	EMR
E	EMT
A	AEMT

Advanced Life Support (**ALS**)

I	Intermediate
P	Paramedic

Page Revised: Jan 2019 NEMSIS CODE 9914165

Airway 3

Also called: Chocking, Suction, Oral Airway, BIAD, Intubation, Surgical Airway, & Needle Cricothyrotomy

Imperatives

- Maintain the simplest effective airway. **Escalate only as needed.**
- Most common failure of airway adjunct is inappropriate size.
- Use several techniques to confirm airway:
  - -Physical exam: lung sounds, skin color, etc.
  - -Rising SpO2
  - -Appropriate EtCO2: capnography
- Be prepared to escalate airway if signs of **Poor Perfusion.**

Intubation

- **Use video laryngoscope when available.**
- If first attempt is unsuccessful, try something different.
- Consider using BOUGIE on first attempt. **BOUGIE required on second attempt.**
- After a second attempt by a provider have another provider attempt.
- If the third attempt is missed, manage with BLS or move to Surgical Airway.

Needle / Surgical Cricothyorotomy

- Paramedic skill only, there needs to be another ALS provider on scene.

Notes

- Consider placing an OG-Tube
- Secure the BIAD, ET Tube with manufactured holding device or tape.

Pediatrics

- Suspect an airway obstruction. Use back blows if indicated.
- Do not use blind finger sweeps.
- Needle Cricothyrotomy is best used for 2-12 years of age

Airway 3

Airway 4

Chocking, Unstable or Unresponsive

Severity?

Mild
- Awake
- Chocking

→ Heimlich

Moderate
- Altered LOC
- Intact Gag Reflex

→ Optimize Positioning and Oxygenation
→ Suction
→ NPA

Severe
- Unresponsive
- No Gag Reflex

→ OPA
→ A: Magill Forceps
→ E: BIAD
→ I: Intubation
→ P: Cricothyrotomy

- **Maintain appropriate EtCO2**
  35-45 for regular patient
  40-50 for ROSC patient
  30-35 for patient with signs of increasing intracranial pressure
- **Do not hyperventilate!**
- **Only paramedics can intubate children under 13 years old**

Consider:
- Breathing

Airway 4

5 Breathing / Hypoxia

Also called: Oxygenation, O_2, Pneumothorax (PTX), PE

Imperatives

- Dyspnea with **penetrating trauma** is a **severe** problem.
  - Apply a chest seal to any penetrating injury to neck or trunk.
  - Do not wait for hypoxia to develop.
- Spontaneous or traumatic **PTX** can be a **severe** problem.
  - Needle Decompress for Hypotension or persistent hypoxia.
- CPAP requires a patient that is awake and compliant.
  - Contraindicated with vomiting, hypotension or altered LOC.
- BVM: Use two providers and two handed technique if able.
  - Maintain $EtCO_2$ 35-45 mmHg. Avoid hyperventilation.
  - During CPR: alternate **30 : 2** until BIAD placed.

BVM Rate

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

Notes

- Provide O_2 at appropriate doses. Titrate for effect.
  - Nasal Cannula (NC): 1 - 6 L/min
  - Non-Rebreather (NRB): 10 - 15 L/min
- Consider **reducing** supplemental O_2 if SpO_2 rises above 98%.
  - Hyperoxia can make some conditions worse.
- If SpO_2 unavailable or machine fails: use good clinical judgment.

Pediatrics

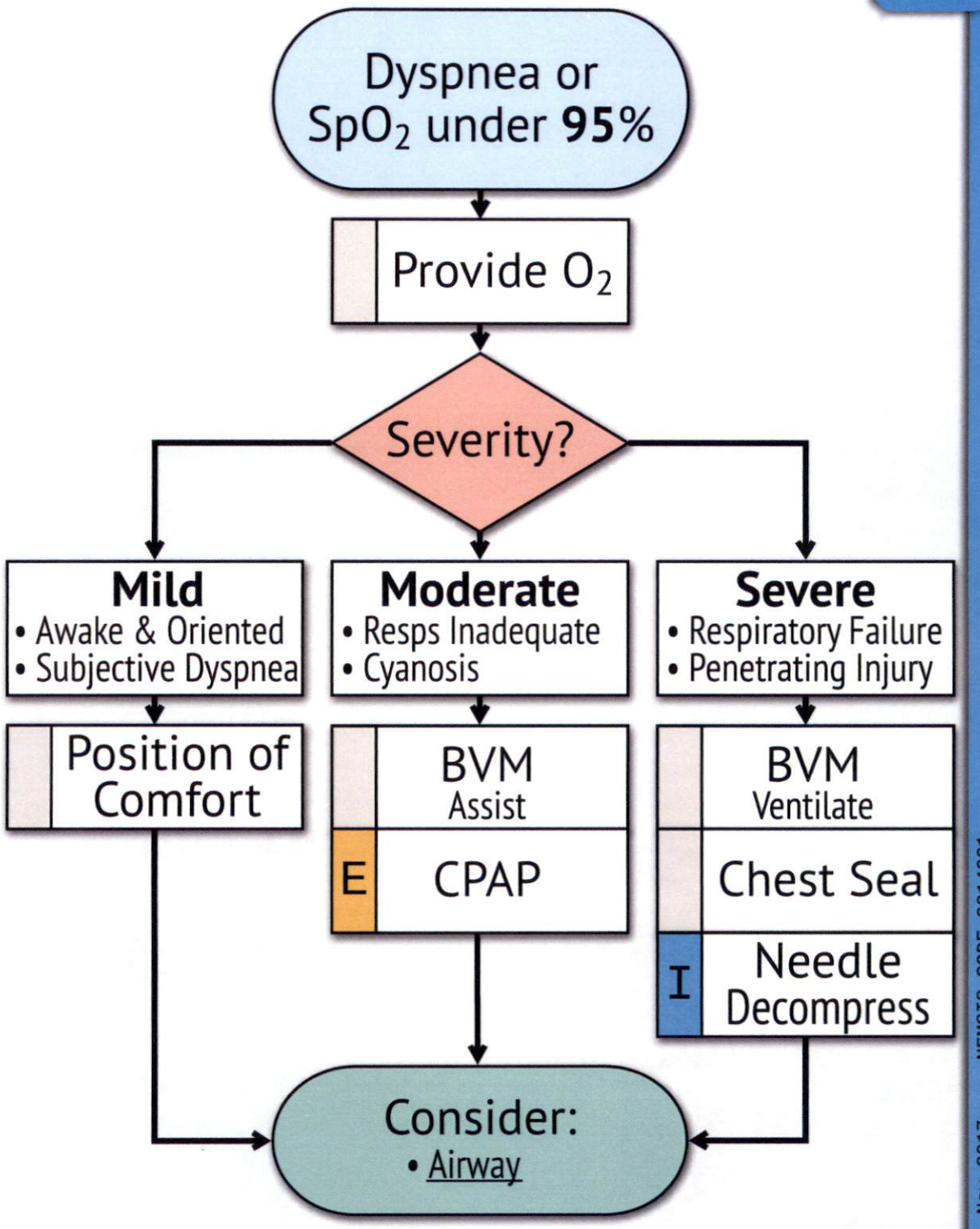
- Refer to Neonate for any peds **under 1 month** (< 31 days) old.
- Use caution to prevent barotrauma from BVM.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Brady Emergency Care 12th Ed: Chapter 9

Page Revised: Jan 2019 NEMSIS CODE 9914001

5 Breathing / Hypoxia



Page Revised: Nov 2017 NEMSIS CODE 9914001

Also called: Hypotension

Imperatives

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

Poor Perfusion

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

Medications

- **NS Bolus** (saline 0.9%): indicated for **poor perfusion**.
  - May call **Medical Control** for more fluids after initial boluses.
- **Epi Drip** (epinephrine): Mix and use as follows:
  - Add 1 mg Epi into a 1,000 mL bag of NS (1 mcg/mL).
  - Adults (13+): Use a macro drip (10 or 15 per mL) set.
  - Peds (0-12): Use a micro drip (60 per mL) set.
  - Start at 1 drop per second and **titrate as needed**.
- **Dopamine**: Most useful for medical causes refractory to Epi.
  - May titrate **up to 4x starting dose** if needed.

Notes

- Give fluids and reassess. Start pressors if poor response.
- Recheck lung sounds before and after fluid administration.

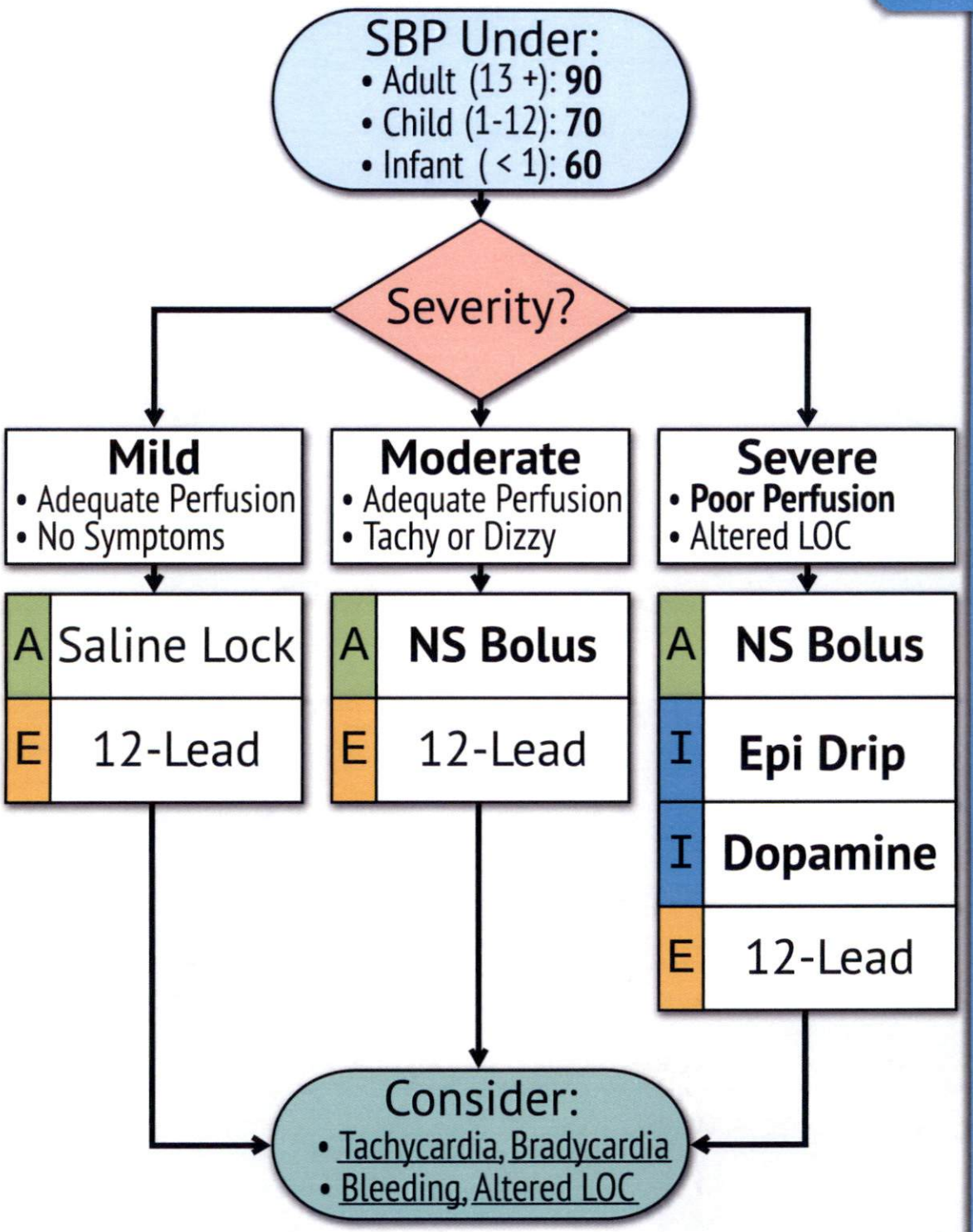
Pediatrics

- The majority of peds decompensation is airway related.
- Fluids are important for hypotension. Pressors are a last resort.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vitals: emedicine.medscape.com/article/2172054
  - Brady Emergency Care 12th Ed: Chapters 18, 20, 27

Page Revised: Apr 2019 NEMSIS CODE 9914127



NS Bolus: 1,000 mL	IV/IO x2	**Adult Doses**
Epi Drip: 1 gtt/s	IV/IO Titrated Drip	
Dopamine: 5 mcg/kg/min	IV/IO Titrated Drip	

Page Revised: Apr 2019 NEMSIS CODE 9914127

9 Hypertension

Also called: HTN, Elevated BP, Malignant Hypertension

Imperatives

- Confirm elevated SBP with two reliable blood pressures.
- HTN is a frequent reaction to Pain and acute stress.
  - Investigate and **treat pain** and underlying causes first.
  - **Inappropriate** use of anti-HTN meds can **cause harm**.

Medications

- **Labetalol**: Aim for 20% reduction in SBP. Do not exceed 25%.
  - Contraindicated if SBP under 190 mmHg.
  - Call **Medical Control** if SBP remains elevated after two doses.
  - Try lower dose first, then double if second dose needed.

Notes

- **Severe neurologic changes** include:
  - Obvious weakness, paralysis, seizure, etc.
  - Severe headache and vomiting
  - Vision **loss** (not simple flashes or double vision)

Pediatrics

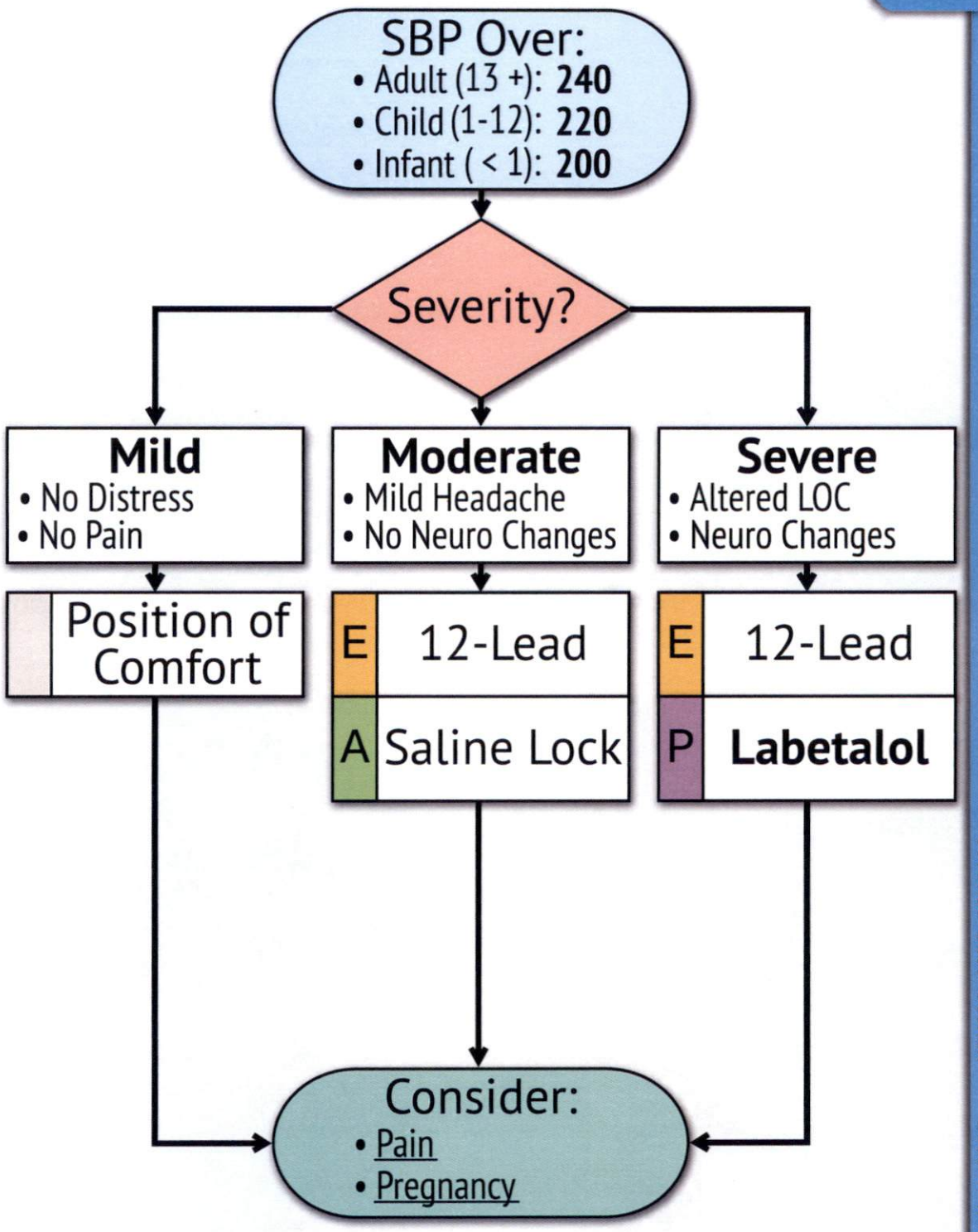
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vitals: emedicine.medscape.com/article/2172054
- Medscape Peds HTN: emedicine.medscape.com/article/889877
- NIH NHLBI: www.nhlbi.nih.gov/files/docs/resources/heart/hbp_ped.pdf
- Brady Emergency Care 12th Ed: Chapter 12, 20

Page Revised: Dec 2017 NEMSIS CODE 9914123

9 Hypertension



Labetalol: 10 ▶ 20 mg IV/IO Q 10 min x2 **Adult**

Page Revised: Nov 2017 NEMSIS CODE 9914123

11 Bradycardia

Also called: Slow Heart Rate, Heart Block

Imperatives

- Slow, wide complex bradycardia may be due to Hyperkalemia.
- Consider Overdose if clinically suspected.
  - Several common meds can produce bradycardia.

Poor Perfusion

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

Medications

- **Atropine**: may not be effective (but is also not harmful) for:
  - 3° Heart Block, Heart Transplant
- **Epi** (epinephrine): Preferred agent over **Atropine** in peds.
  - Use Epi (brady) dosing from Appendix A.

Notes

- Pacing: Start at **80 bpm / 80 mA**. Escalate mA as needed.
  - Alternate: follow manufacturer's or OMD's dosing guideline.

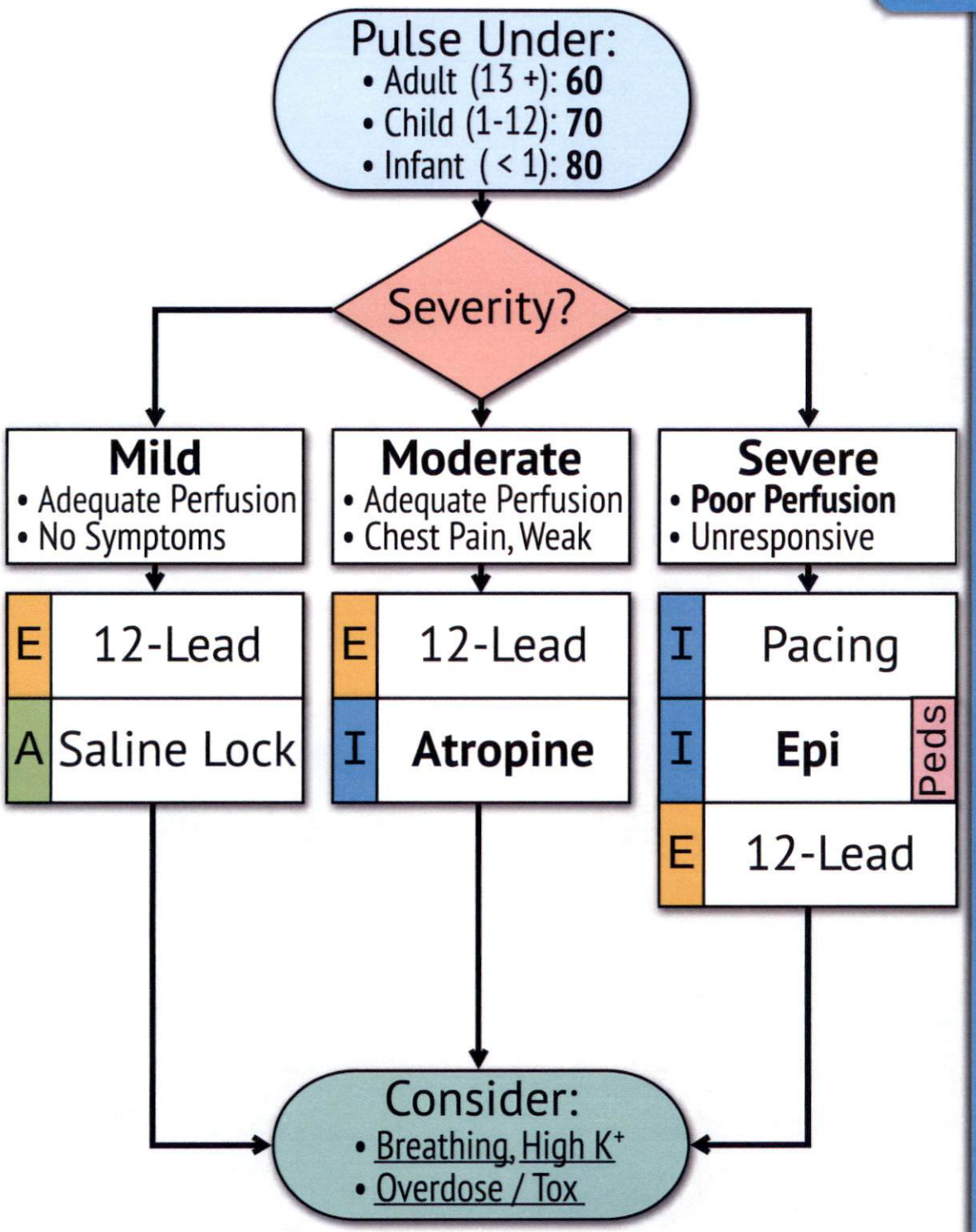
Pediatrics

- Refer to Neonate for any peds **under 1 month** (< 31 days) old.
- Frequently a Breathing problem: don't forget O_2.
- Even a single pill of some meds can cause severe bradycardia.
  - Consider opiate, Ca^{2+} or ß blocker Overdose.
- Consider effects of maternal medication in breast milk.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vitals: emedicine.medscape.com/article/2172054
  - Brady Emergency Care 12th Ed: Chapter 20

Page Revised: Nov 2018 NEMSIS CODE 9914115



Atropine: 0.5 mg	IV/IO	Q 5 min x3	**Adult**
Epi: *see* Appendix A	IV/IO	Q 5 min	

Page Revised: Sep 2017 NEMSIS CODE 9914115

Also called: Sinus Tach, SVT, A-Fib, A-Flutter, RVR, V-Tach

Imperatives

- Must distinguish a simple tachycardia from a critical arrhythmia.
- **Simple tachycardias** (like 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** (like SVT or V-Tach w/ pulse) are much faster.
  - A fast pulse is not always critical. Judgment is necessary.
  - ALS: Vagal Maneuvers may be attempted.

Critical Arrhythmia

- Suspect if pulse over:
  - Adult (13 +): **150**
  - Child (1-12): **180**
  - Infant (< 1): **220**

Poor Perfusion

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

Medications

- **Adenosine**: Give rapid IV push. Escalate for second dose.
- **Amiodarone**: Give over 10 min IV drip.

Notes

- Cardioversion: Enable **SYNC.** Start at **50 J**. Escalate as needed.
  - Alternate: follow manufacturer's or OMD's dosing guideline.

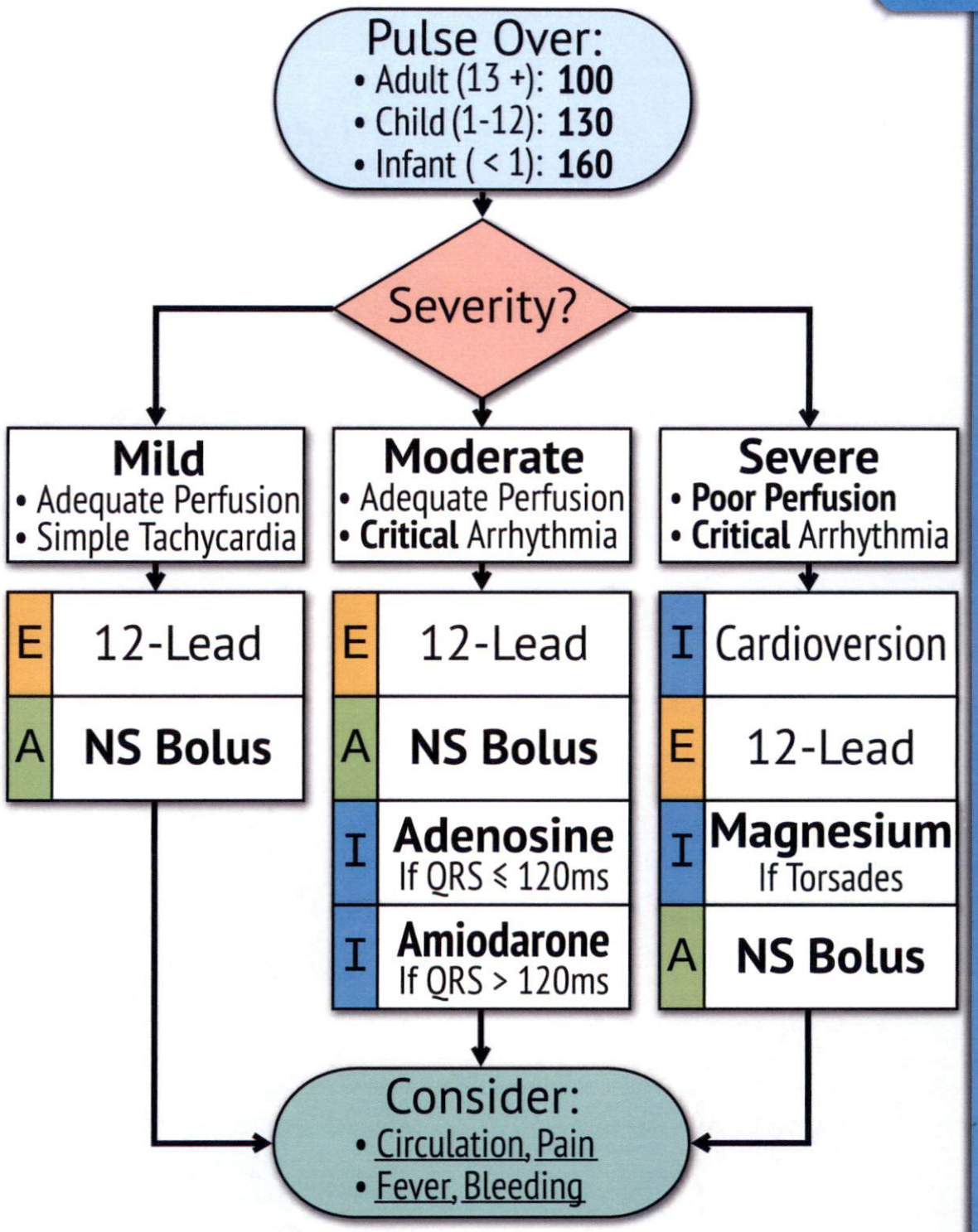
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vitals: emedicine.medscape.com/article/2172054
- Brady Emergency Care 12th Ed: Chapter 14

Page Revised: Nov 2018 NEMSIS CODES 9914147, 9914151, 9914199



NS Bolus: 1,000 mL	IV/IO	x1	**Adult Doses**
Adenosine: 6 ► 12 mg	IV/IO	Q 5 min x2	
Amiodarone: 150 mg	IV/IO	over 10 min	
Magnesium: 2 g	IV/IO	x1	

Page Revised: Dec 2017 NEMSIS CODES 9914147, 9914151, 9914199

Also called: Sepsis, Toxic Infection, Flu

Imperatives

- Use an appropriate mask for any cough or respiratory disease.
- Fever is a response to an infection.
  - Hyperthermia caused by environment or drugs is different.
  - Fever medications are contraindicated in Hyperthermia.
- Aggressive EMS fluid for sepsis without Shock is unnecessary.

Medications

- **Tylenol** (acetaminophen): contraindicated with liver disease
- **Ibuprofen** (Motrin): contraindicated with GI bleeding or ulcers

Poor Perfusion

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

Notes

- Temporal thermometers are inaccurate on sweaty skin.
- Oral thermometers are inaccurate after PO fluids or while talking.

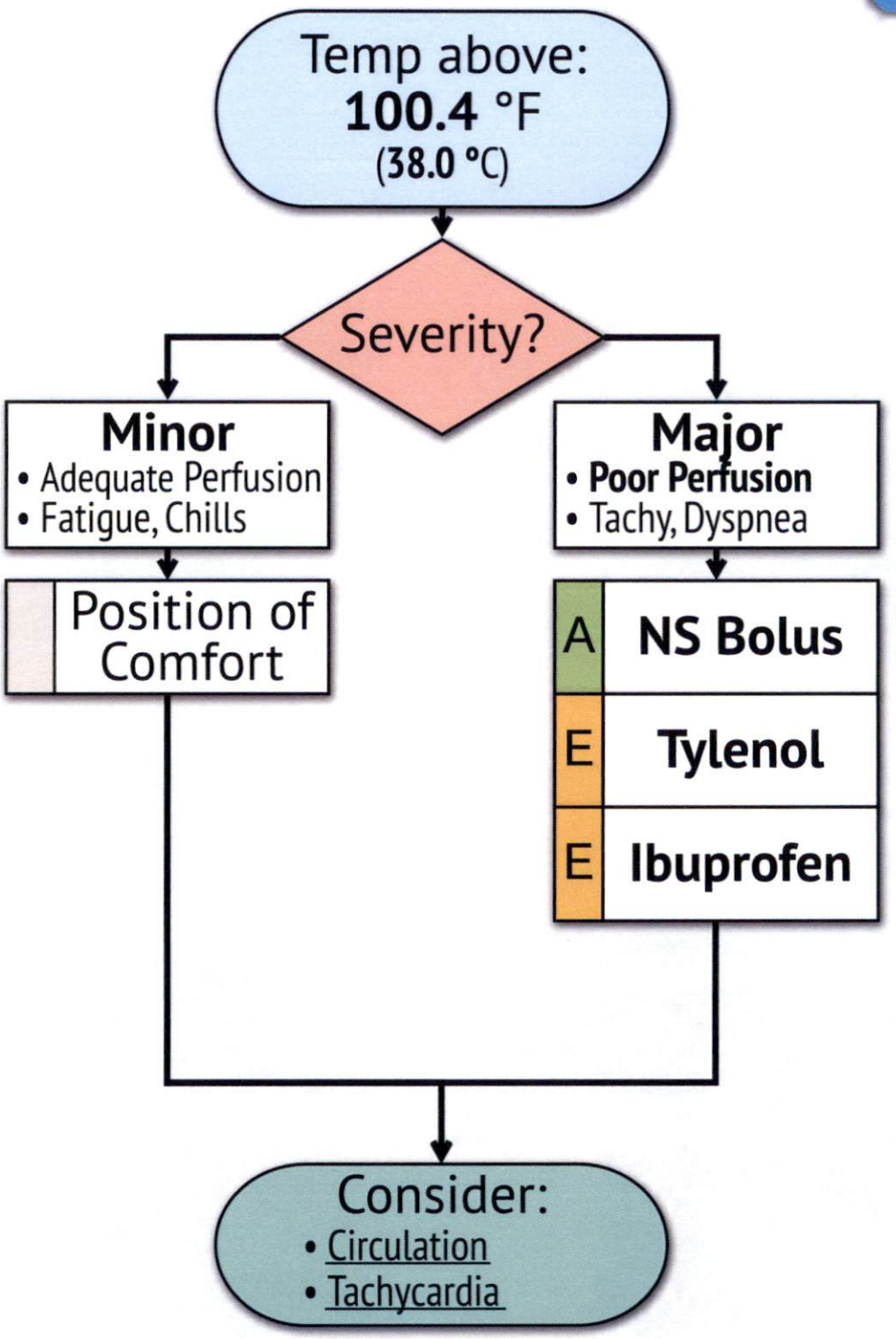
Pediatrics

- 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.
- Withhold medications if unable to provide accurate dose.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vitals: emedicine.medscape.com/article/2172054
- Brady Emergency Care 12th Ed: Chapter 14

Page Revised: Dec 2017 NEMSIS CODES 9914061, 9914129



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

Page Revised: Mar 2017 NEMSIS CODES 9914061, 9914129

Also called: Renal Failure, High K^+, Elevated Potassium

Imperatives

- Be aggressive with treatment if there are EKG changes.
  - Elevated potassium can be very dangerous.
- Don't delay transport to wait for EKG interpretation.

K^+ EKG Changes

- From minor to life threat:
  - Peaked T-waves
  - Long PRI / Loss of P-wave
  - Wide QRS (Over 120 ms)
  - Slow V-Tach (Sine Wave)

Medications

- **Albuterol** (Ventolin): May give without an EKG if hyperkalemic.
- **NS Bolus** (saline 0.9%): Aggressive fluids help dilute potassium.
  - Consider aggressive fluids even without Hypotension.
- **Calcium**: Avoid if the patient is taking digoxin (Lanoxin).
  - Do not mix with **Bicarbonate**. Flush line between meds.

Notes

- Consider hyperkalemia in a **dialysis** or renal failure patient.
  - If called to a dialysis center, inquire about the last K^+ level.
  - Avoid starting an IV in the same extremity as dialysis access.
- Consider hyperkalemia during Crush or suspension injury.

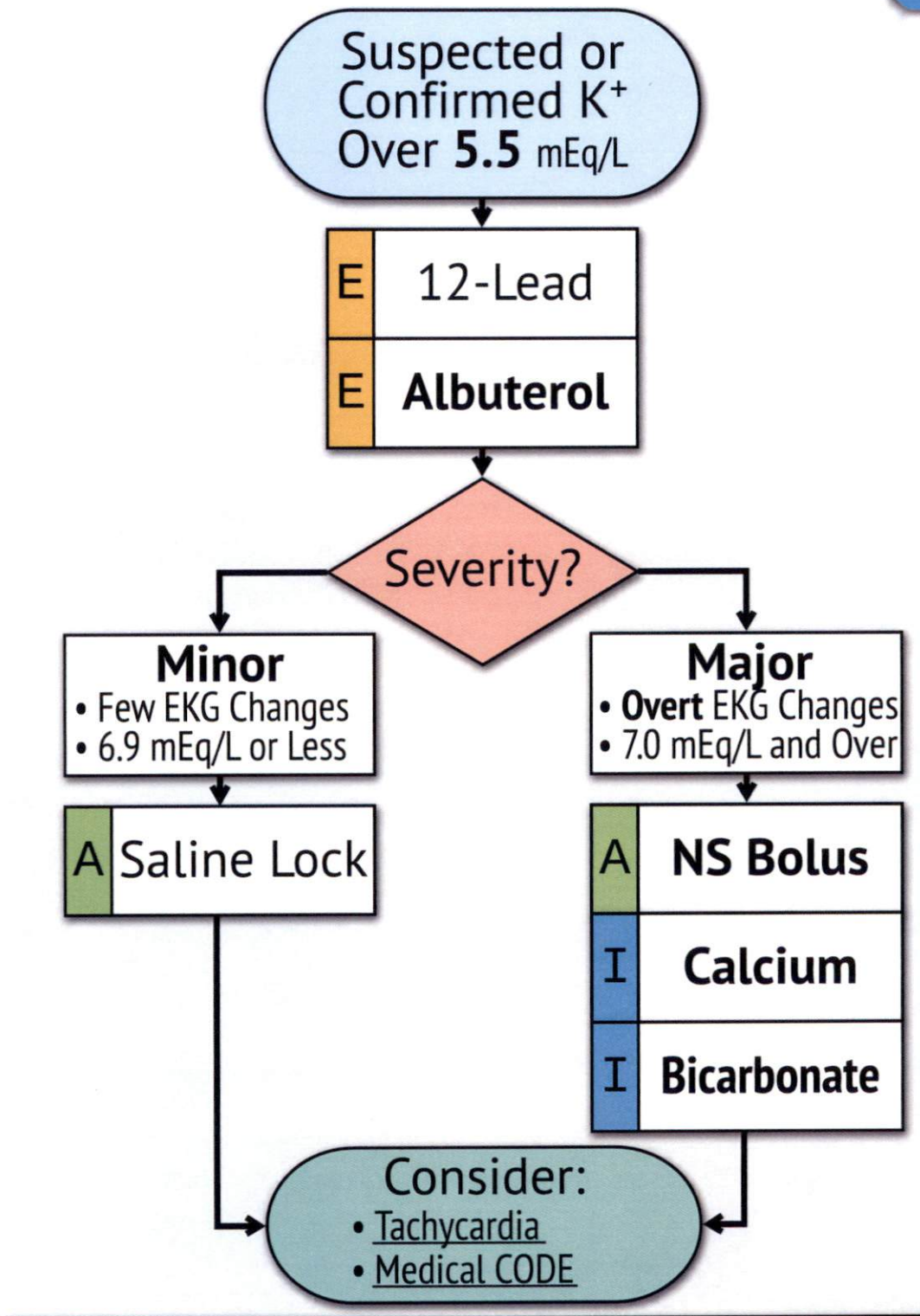
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Hyperkalemia: emedicine.medscape.com/article/240903
- Brady Emergency Care 12th Ed: Chapter 26

Page Revised: Oct 2017 NEMSIS CODE 9914089



Albuterol: 10 mg	NEB	(4 Nebs) x1	**Adult Doses**
NS Bolus: 1,000 mL	IV/IO	x2	
Calcium: 1 g	IV/IO	x1	
Bicarbonate: 50 mEq	IV/IO	x1	

Page Revised: Aug 2017 NEMSIS CODE 9914089

Also called: Backache, Toothache, Migraine, Fibromyalgia

Imperatives

- EMS pain control is indicated for recent injury or sudden pain:
  - Major Trauma, Obvious Fractures
  - Sudden Abdominal or Chest Pain
- PO pain meds are of limited use during short transports.
  - Consider **deferring** PO meds for mild/moderate pain to the ED.

Medications

- **Tylenol** (acetaminophen): contraindicated with liver disease
- **Ibuprofen** (Motrin): contraindicated with GI bleeding or ulcers
- **Fentanyl**: contraindicated for subacute or chronic pain like:
  - Toothache, Headache (Migraine), Sciatica, Fibromyalgia, etc.
- **Ketamine**: contraindicated for subacute or chronic pain like:
  - Toothache, Headache (Migraine), Sciatica, Fibromyalgia, etc.

Notes

- Pain is subjective. Clinical judgment is required.
  - It is appropriate to try another med if the first is ineffective.
  - Changes in pain scale are more useful than absolute numbers.

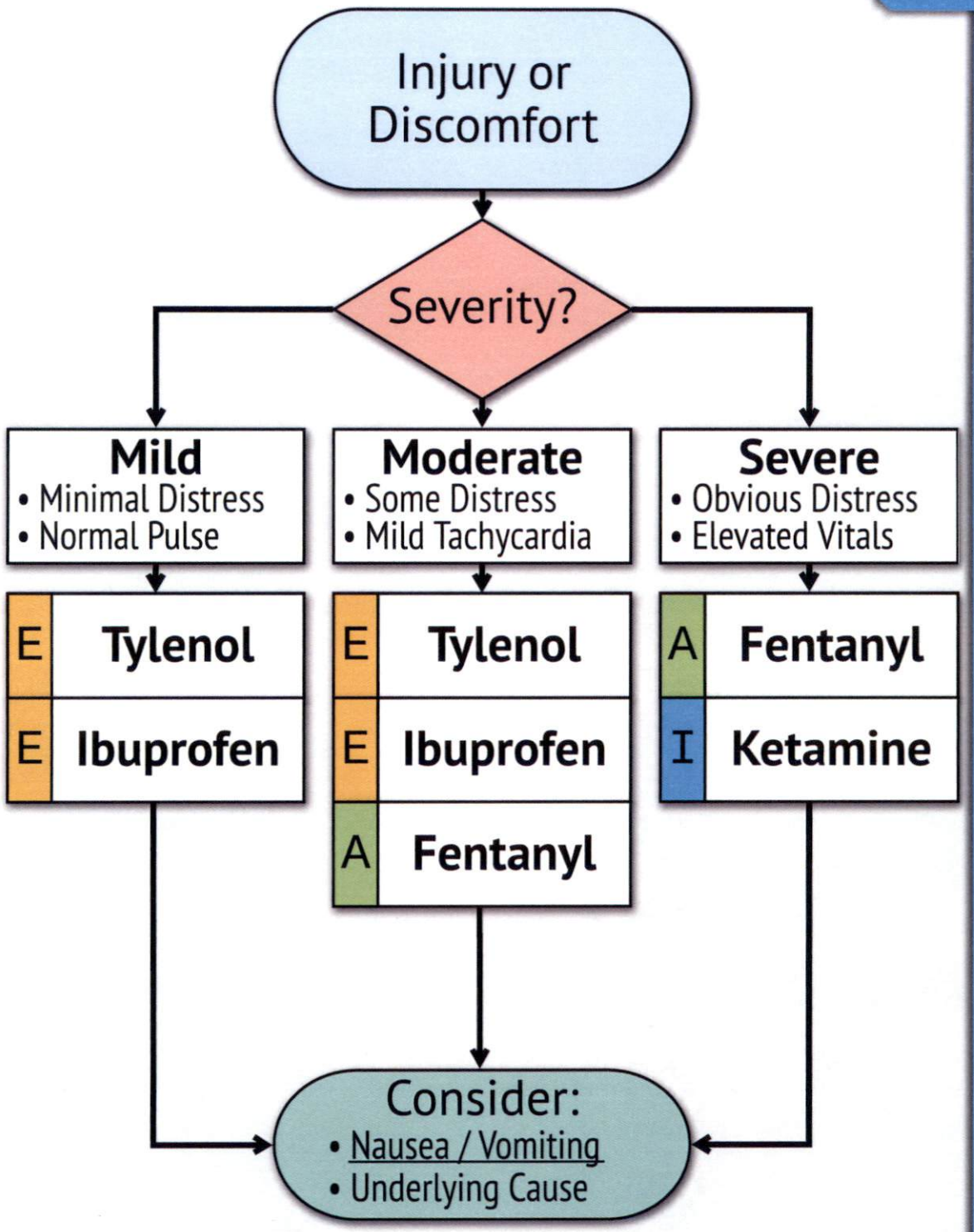
Pediatrics

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

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Pain: emedicine.medscape.com/article/310834
- Brady Emergency Care 12th Ed: Chapters 28, 30, 32

Page Revised: Nov 2017 NEMSIS CODES 9914051, 9914071



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

Page Revised: Apr 2019 NEMSIS CODES 9914051, 9914071

Also called: Throwing Up

Imperatives

- It is appropriate to **pre-treat for nausea** even before symptoms.
  - Consider before any intervention that may cause nausea.
  - Especially if vomiting would cause serious complications.

Medications

- **Zofran** (Ondansetron): contraindicated in OD and Pregnancy

Notes

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

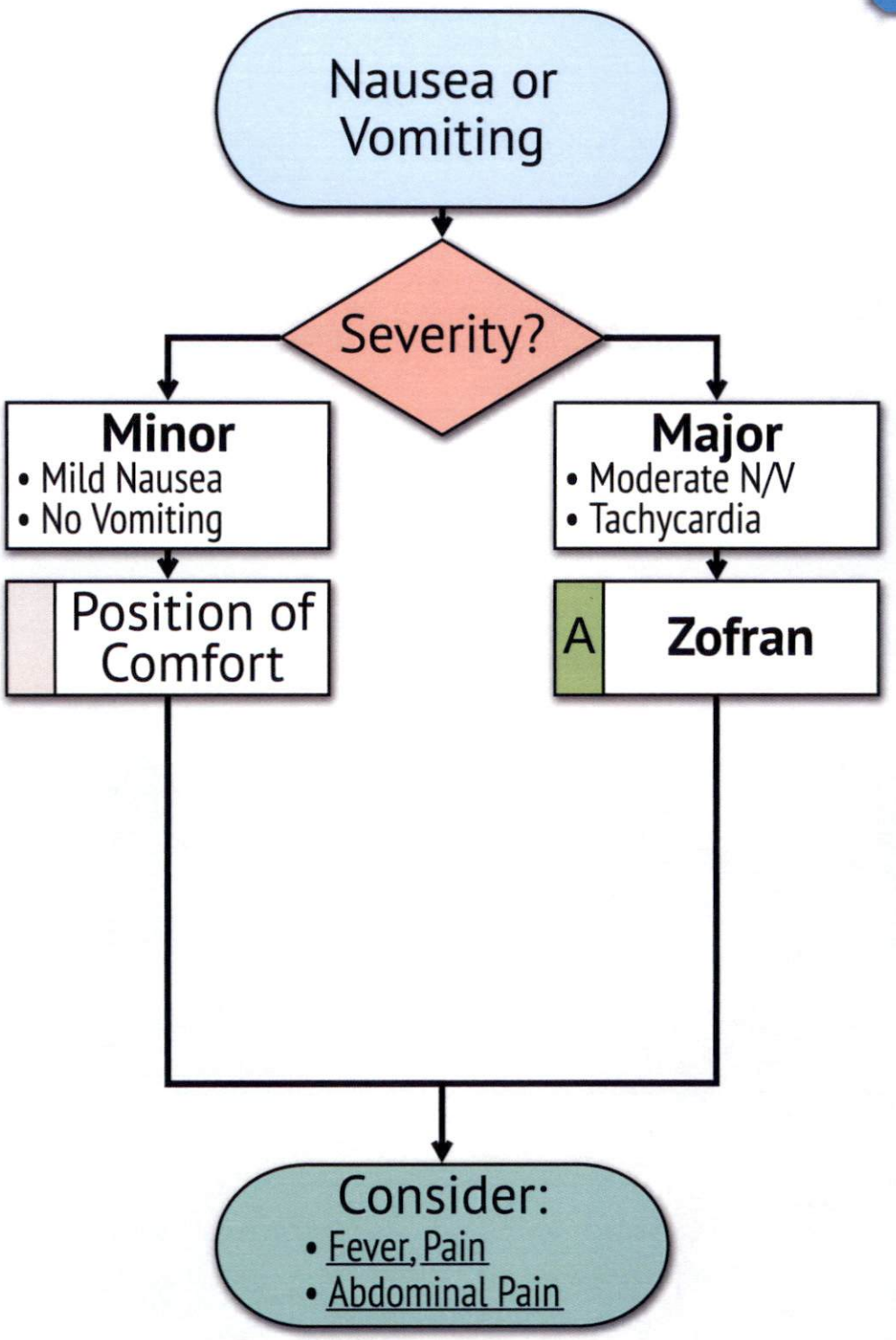
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Vomiting: emedicine.medscape.com/article/933135
- Brady Emergency Care 12th Ed: Chapters 21, 23, 24

Page Revised: Sep 2017 NEMSIS CODE 9914131



Zofran: 4 mg	IV/IO, IM/IN	Q 5 min x2	**Adult**

Page Revised: Apr 2019 NEMSIS CODE 9914131

Also called: Cardiac Arrest, CPR, VT/VF, PEA, Asystole

Compressions

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

Imperatives

- Start compressions in place.
  - Transport ASAP if ROSC.
  - Transport ASAP if **peds**, **pregnant** or any other **Special Case**.
- BLS: Get ALS ASAP. Transport ASAP if witnessed or after any shock.
- ALS: Try for **30 min**. If no ROSC:
  - Call for Termination

Obvious Death

- Pooling Lividity or
- Rigor Mortis or
- Body Decomposition

Medications

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

I	Amiodarone: 300 ▶ 150 mg	IO x2	Persistent VT/VF
I	Bicarbonate: 50 mEq	IO x1	Persistent VT/VF
I	Calcium: 1 g	IO x1	Persistent VT/VF
I	Magnesium: 2 g	IO x1	Torsades

Notes

- Use caution with **compressions** and **defib** in a moving vehicle.
- $EtCO_2$ can help identify ROSC and guide termination decision.
- A well run CODE should operate like a **pit crew**. Focus on your job.

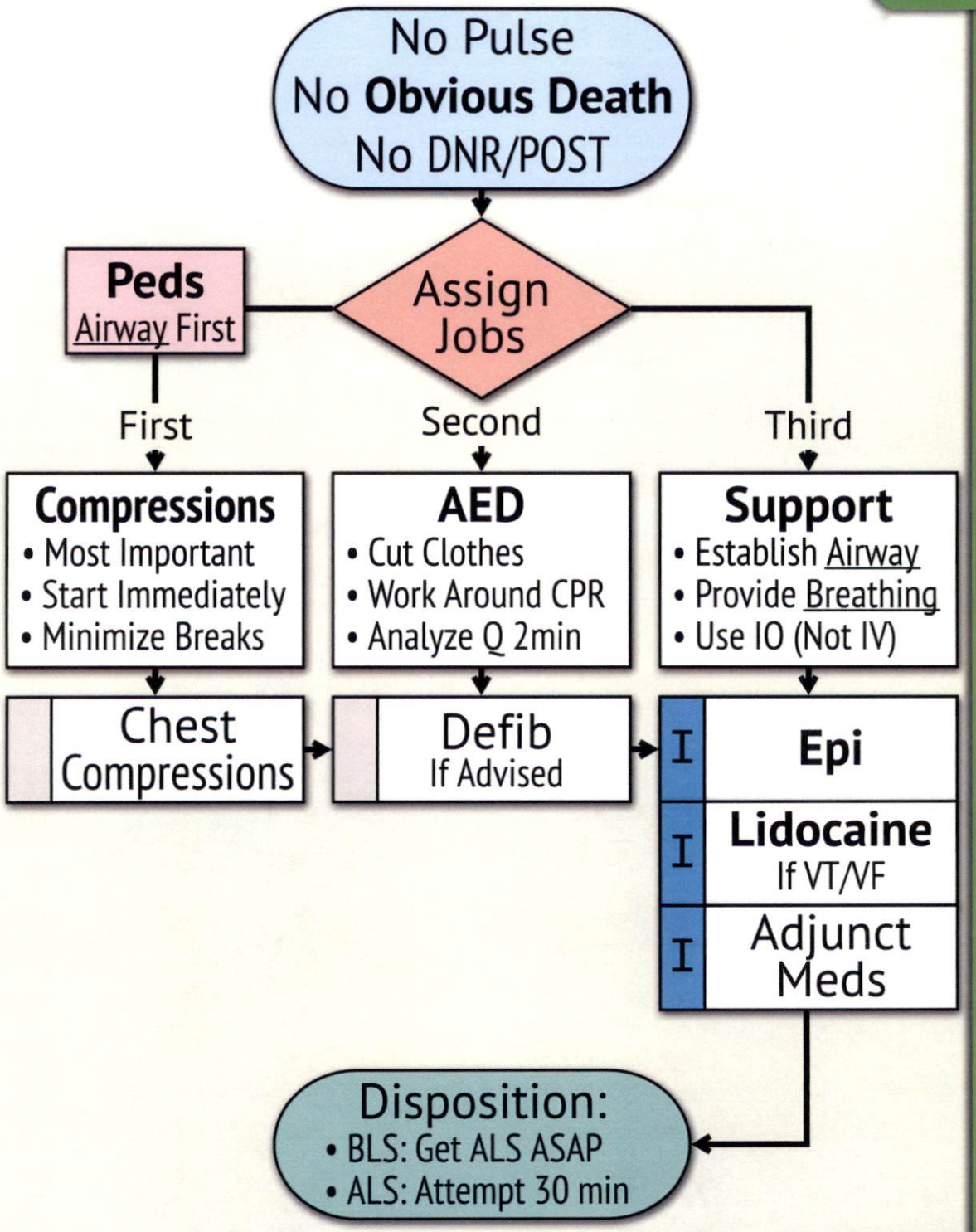
Pediatrics

- Use 15:2 compression ratio for dual rescuer BLS resuscitation.
- Refer to Neonate for any peds **under 1 month** (< 31 days) old.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape CPR: emedicine.medscape.com/article/1344081
  - Brady Emergency Care 12th Ed: Chapter 20

Page Revised: Sep 2018 NEMSIS CODES 9914011, 9914015, 9914017, 9914055



Epi: 1 mg	IO	Q 5 min	**Adult Doses**
Lidocaine: 100 mg	IO	Q 5 min x3	
Epi: 0.01 mg/kg	IO	Q 5 min	**Peds Doses**
Lidocaine: 1 mg/kg	IO	Q 5 min x3	

Page Revised: Sep 2018 NEMSIS CODES 9914011, 9914015, 9914017, 9914055

25 Medical ROSC

Also called: Return of Pulse, Post-Resuscitation Care

Imperatives

- Most important aspect is to prioritize emergent transport.
  - **Get the patient to the hospital.**
  - Move with purpose, but don't sacrifice patient stability.
- Second most important is to treat Hypotension.
  - Be aggressive with fluids and pressors to treat Circulation.
- Avoid hyperventilation. It can cause Hypotension and repeat arrest.

Medications

- **Ketamine**: Indicated for biting on BIAD or obvious discomfort.

Notes

- $EtCO_2$ can help identify ROSC.
- Therapeutic hypothermia is not included in this protocol.
  - This is also known as targeted tempreature management.

Pediatrics

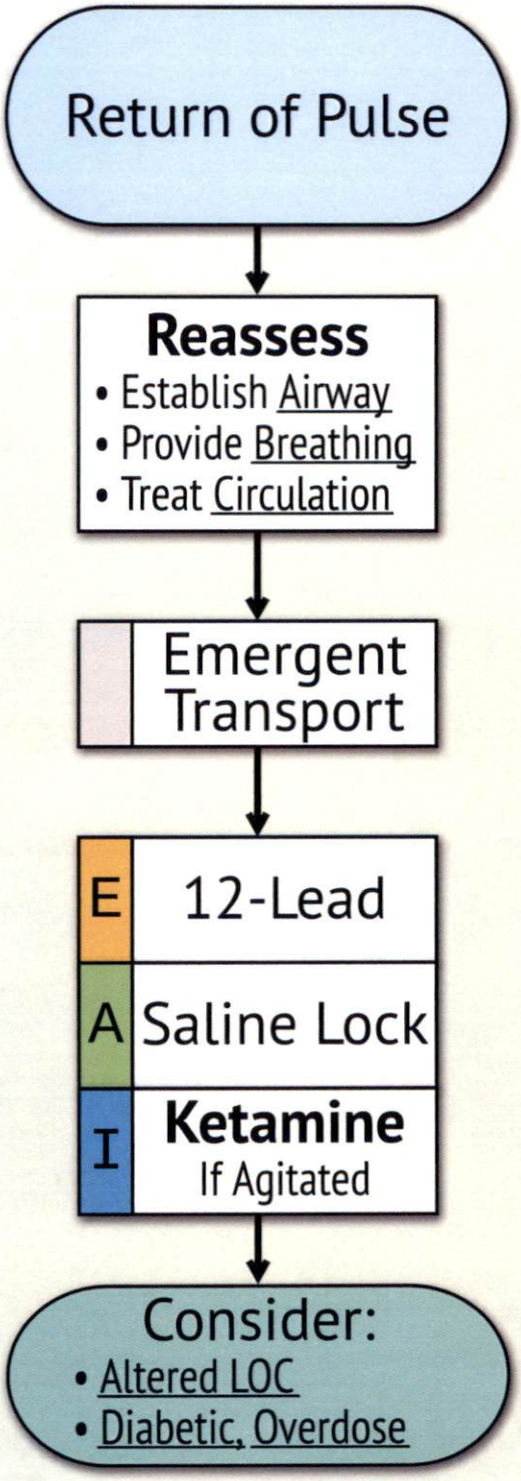
- Arrhythmias are common after ROSC, but are usually self-limited.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape ROSC: www.medscape.com/viewarticle/762373
- Brady Emergency Care 12th Ed: Chapter 20

Page Revised: Dec 2017 NEMSIS CODE 9914019

25 Medical ROSC



Ketamine: 20 mg	IV/IO	Q 5 min x2	Adult

Page Revised: Nov 2017 NEMSIS CODE 9914019

Also called: Heart Attack, Acute MI, Cardiac, Chest Discomfort

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.
- Place **defib pads** on all patients with identified STEMI.

Medications

- **Aspirin**: contraindicated with GI bleeding or peds.
  - Have patient chew 4x 81mg (baby) Aspirin.
- **Nitro** (nitroglycerin): May cause Hypotension.
  - Contraindicated if Hypotensive or inferior STEMI.
  - Contraindicated if recent (36 h) use of Viagra, Cialis, or Levitra.
  - **EMT**: May assist pt with their own **Nitro** if appropriate.

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

Notes

- Consider an atypical cardiac presentation in **diabetics and elderly**.
  - Actual chest pain is not always present.
  - Patients may have chest "discomfort" or be weak or sweaty.
  - Ask about: nausea, SOB, abd pain, altered LOC, cardiac hx, etc.

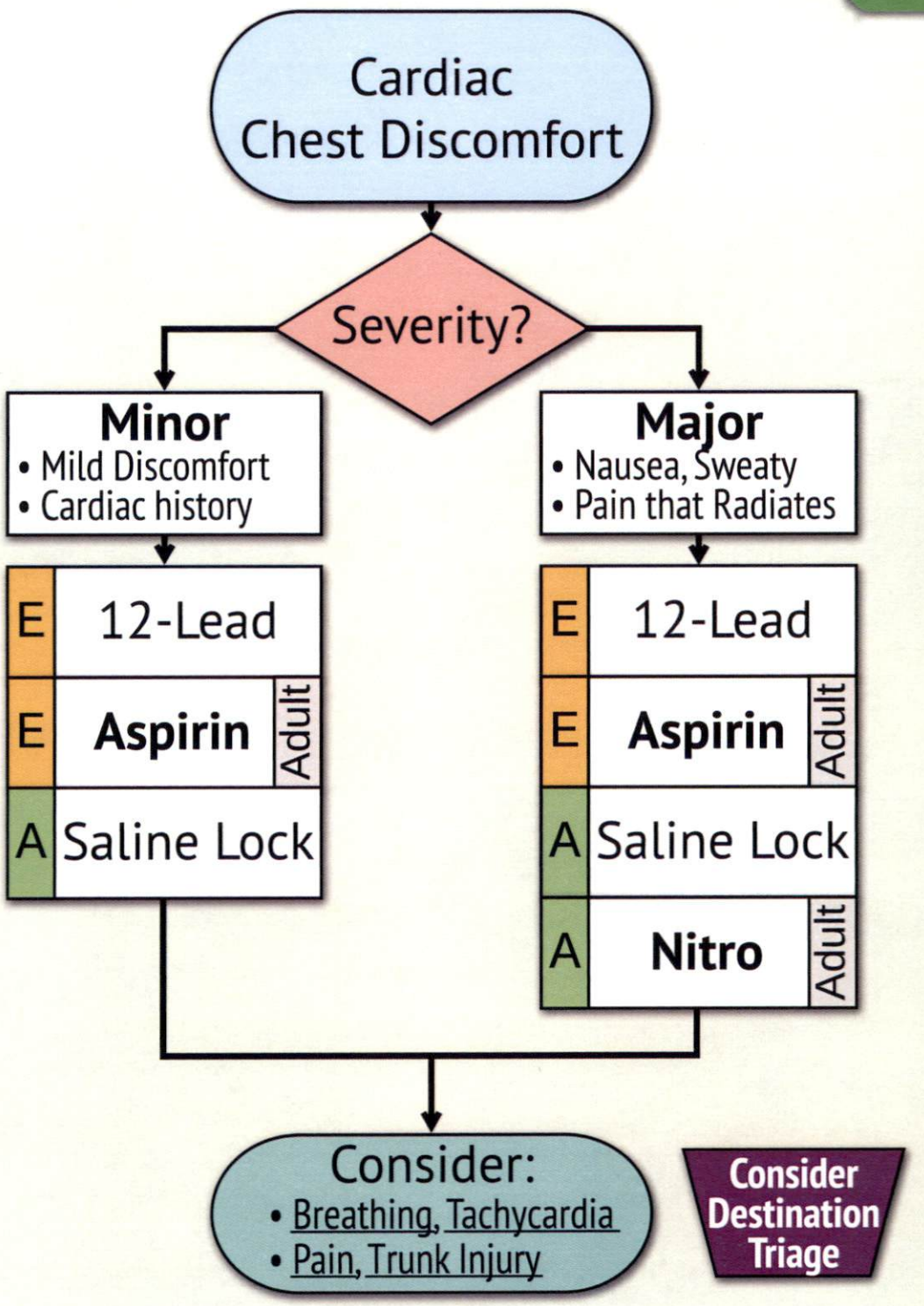
Pediatrics

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

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape ACS: emedicine.medscape.com/article/1910735
- Brady Emergency Care 12th Ed: Chapter 20

Page Revised: Apr 2019 NEMSIS CODES 9914117, 9914143



Adult Doses			
Aspirin: 4x 81 mg	PO	x1	
Nitro: 0.4 mg	SL	Q 5 min x3	

Page Revised: Nov 2017 NEMSIS CODES 9914117, 9914143

Also called: Wheezing, Asthma, COPD, CHF, Respiratory Distress

Imperatives

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

Medications

- **Decadron** (dexamethasone): May give PO.
  - May mix the IV solution with juice, or drink straight.
- **Nitro** (nitroglycerin): May cause Hypotension.
  - Contraindicated if Hypotensive or Inferior STEMI.
  - Contraindicated if recent (36 h) use of Viagra, Cialis, or Levitra.

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 will make it much worse.
  - Epiglottitis is unlikely in fully vaccinated patients.
- **Croup** is a viral infection that should be treated as reactive.
- Refer to Appendix A or other approved source for peds dosing.

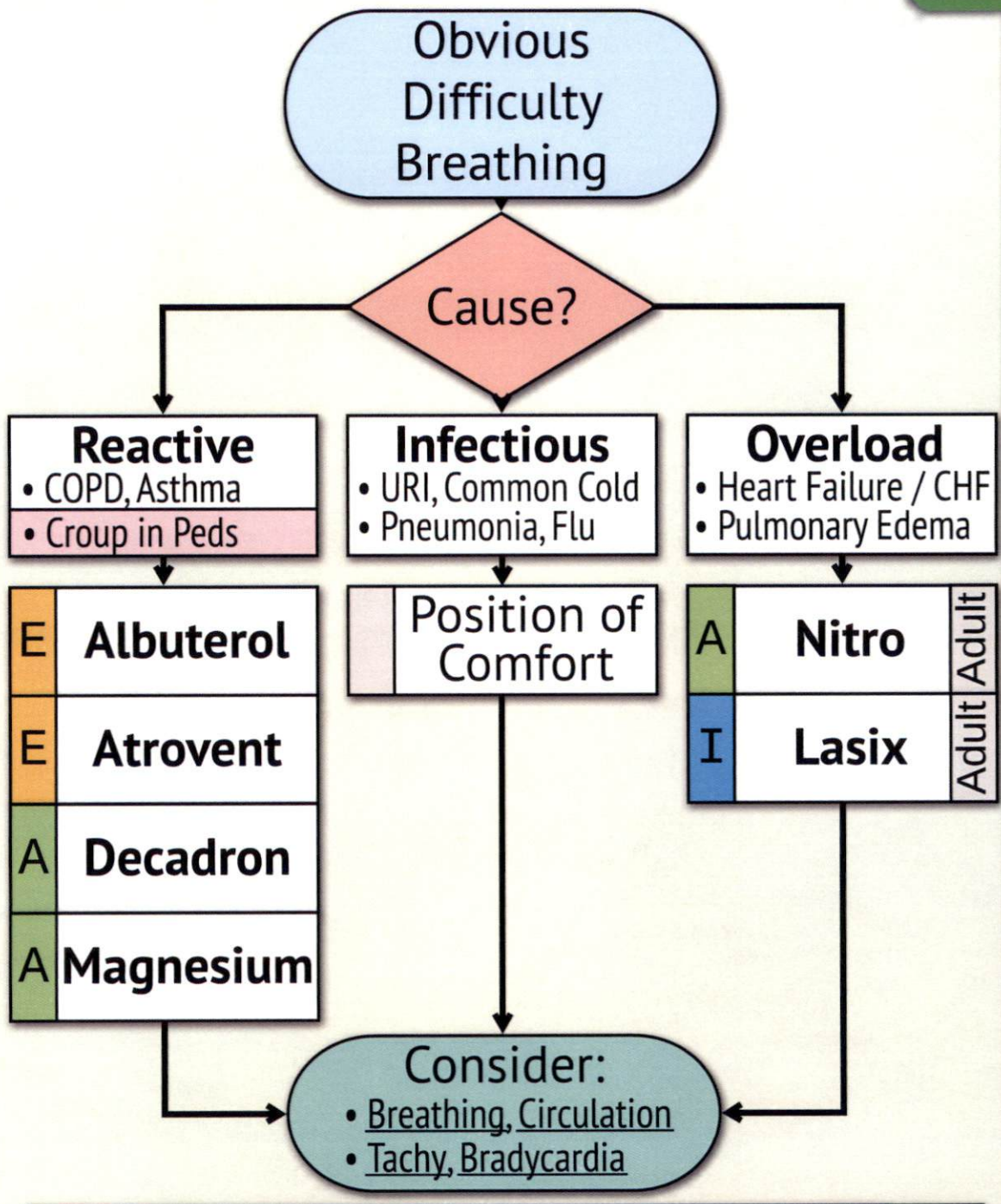
References

- Medscape COPD: emedicine.medscape.com/article/297664
- Medscape Asthma: emedicine.medscape.com/article/296301
- Medscape CHF: emedicine.medscape.com/article/163062
- Medscape Croup: emedicine.medscape.com/article/962972
- Brady Emergency Care 12th Ed: Chapter 19

Page Revised: Feb 2019 NEMSIS CODES 9914137, 9914139, 9914197, 9914221, 9914223

Dyspnea / SOB

30



Albuterol: 2.5 mg	NEB	Q 5 min x4
Atrovent: 0.5 mg	NEB	Q 5 min x2
Decadron: 8 mg	PO, IV/IO	x1
Magnesium: 2 g	IV/IO	x1
Nitro: 0.4 mg	SL	Q 5 min x3
Lasix: 40 mg	IV/IO	x1

Adult Doses

Page Revised: Feb 2019 NEMSIS CODES 9914137, 9914139, 9914197, 9914221, 9914223

Dyspnea / SOB

30

31 Allergic Reaction

Also called: Rash, Hives, Itching, Anaphylaxis, Angioedema

Imperatives

- Massive lip and tongue swelling may be **Angioedema**.
  - Angioedema can be an immediate life threatening condition.
  - It is not technically an allergy, but is treated similarly.

Medications

- **Epi** (epinephrine): Treat life threatening reactions aggressively.
  - Use for any Airway, Breathing or Circulation emergency.
  - **EMT**: Only use auto-injector or color coded admin system.
  - **AEMT** and above: May use any available source.
  - Common side effects: chest discomfort, palpitations, shaking
  - Be cautious in patients over 50 y/o or with chest pain.
- **Albuterol** (Ventolin): Use for dyspnea or wheezing.
  - Unlikely to help with rash or itching. May cause palpitations.
- **Decadron** (dexamethasone)
- **Benadryl** (diphenhydramine)
  - **EMT**: Only use PO.
  - **AEMT** and above: May use PO or IV/IO.

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 reactions may include N/V and abdominal pain.

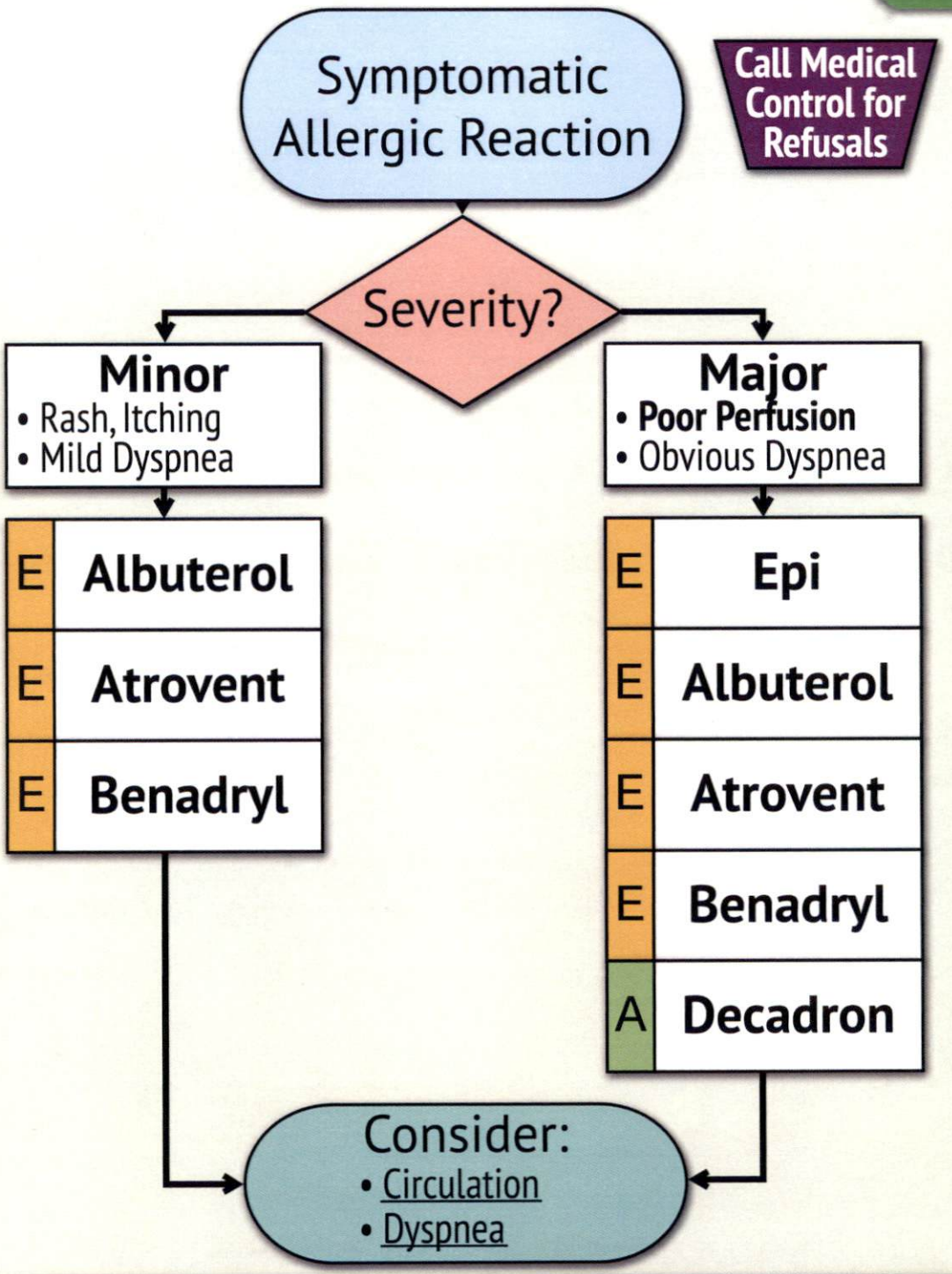
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Allergy: emedicine.medscape.com/article/137362
- Medscape Anaphylaxis: emedicine.medscape.com/article/135065
- Brady Emergency Care 12th Ed: Chapter 22

Page Revised: Apr 2019 NEMSIS CODE 9914111



Adult Doses			
Albuterol: 2.5 mg	NEB	Q 5 min x4
Atrovent: 0.5 mg	NEB	Q 5 min x2
Benadryl: 25 mg	PO, IV/IO	x1
Epi: 0.3 mg	auto, IM	Q 5 min x3
Decadron: 8 mg	IV/IO	x1

Page Revised: Apr 2019 NEMSIS CODE 9914111

Also called: Stomach (Belly) Pain, Heartburn, GERD, Acid Reflux

Imperatives

- Investigate and treat underlying cause.
- This protocol is for **medical** causes of abdominal pain.
  - For traumatic abdominal pain, refer to Trunk Injury.
- Inquire about Pregnancy and consider complications.
- Prepare for Hypotension if suspected:
  - **AAA**: Mid-line "pulsatile mass" in the elderly
  - **GI Bleeding**: Black stool (melena) or "coffee ground" emesis
- Avoid PO meds with severe abdominal pain.

Notes

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

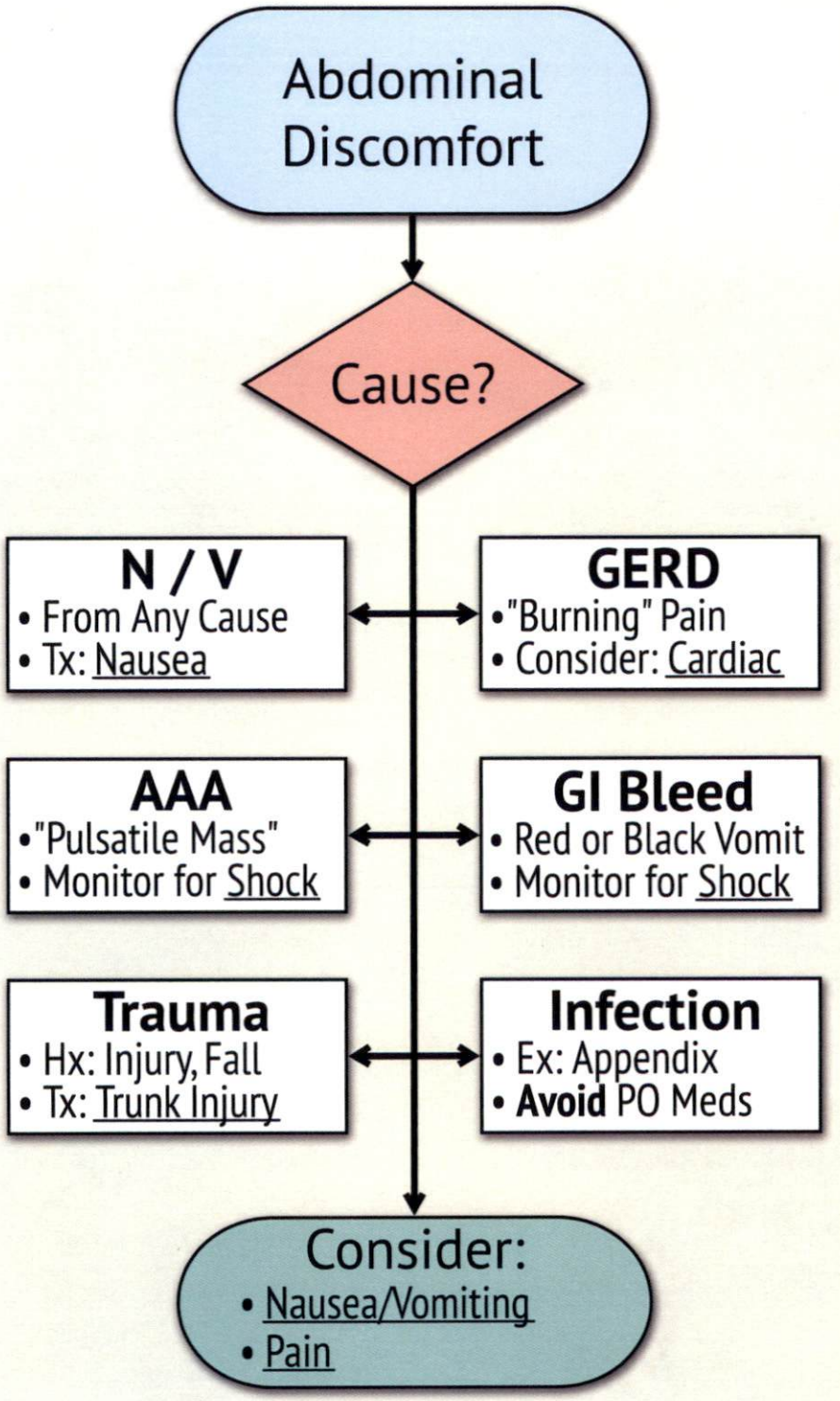
Pediatrics

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

References

- Medscape Abd Pain: emedicine.medscape.com/article/776663
- Brady Emergency Care 12th Ed: Chapter 24

Page Revised: Jun 2018 NEMSIS CODE 9914109



Page Revised: Dec 2018 NEMSIS CODE 9914109

Also called: Fainting, Collapse, Unresponsive "but breathing"

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.

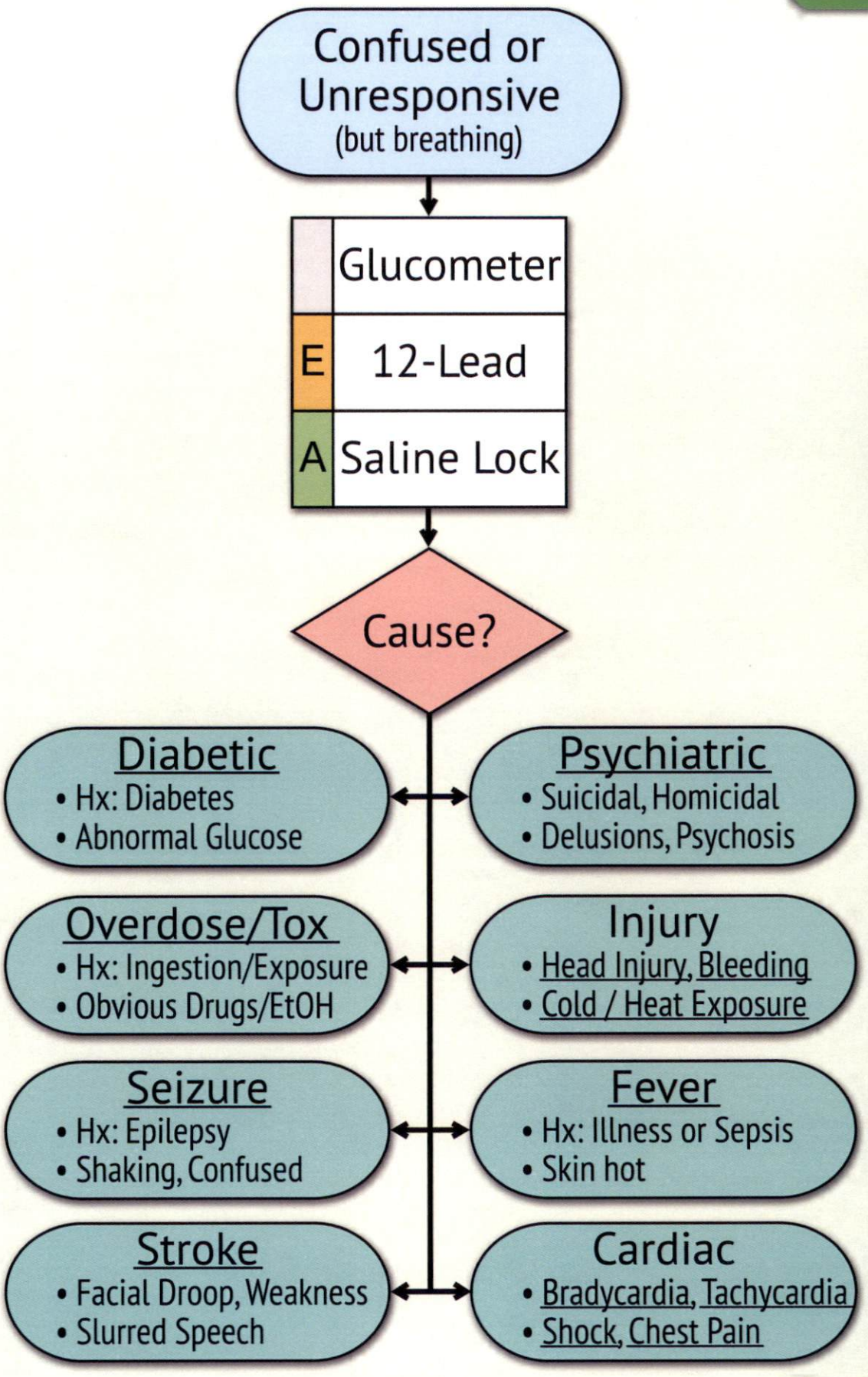
Pediatrics

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

References

- Medscape Syncope: emedicine.medscape.com/article/811669
- Medscape Delirium: emedicine.medscape.com/article/793247
- Medscape Hypoglycemia: emedicine.medscape.com/article/122122
- Brady Emergency Care 12th Ed: Chapter 21

Page Revised: Sep 2018 NEMSIS CODES 9914113, 9914149



Page Revised: Oct 2017 NEMSIS CODES 9914113, 9914149

Also called: Hypoglycemia, Hyperglycemia, Blood Sugar/Glucose

Imperatives

- EMS intervention is not required for mild asymptomatic patients.
- Consider a concurrent Cardiac emergency in the elderly.

Medications

- **Oral Glucose**: Contraindicated if patient cannot swallow.
  - Consider regular food as an alternative if available.
  - Prioritize food and drinks with simple sugar.
  - Also provide complex carbs/protein (peanut butter sandwich).
- **Glucagon**: Use caution, patient improvement is only temporary.
  - Must provide additional glucose after administration.
  - Give PO replacement if able and and be prepared to give D10.
  - Call **Medical Control** for all refusals after **Glucagon**.
  - **EMT**: Only use IN route for administration.
  - **AEMT** and above: May also give intramuscular (IM).
- **D10**: May attempt without glucometer if hypoglycemia likely.
  - Recheck glucose prior to repeat dosing.

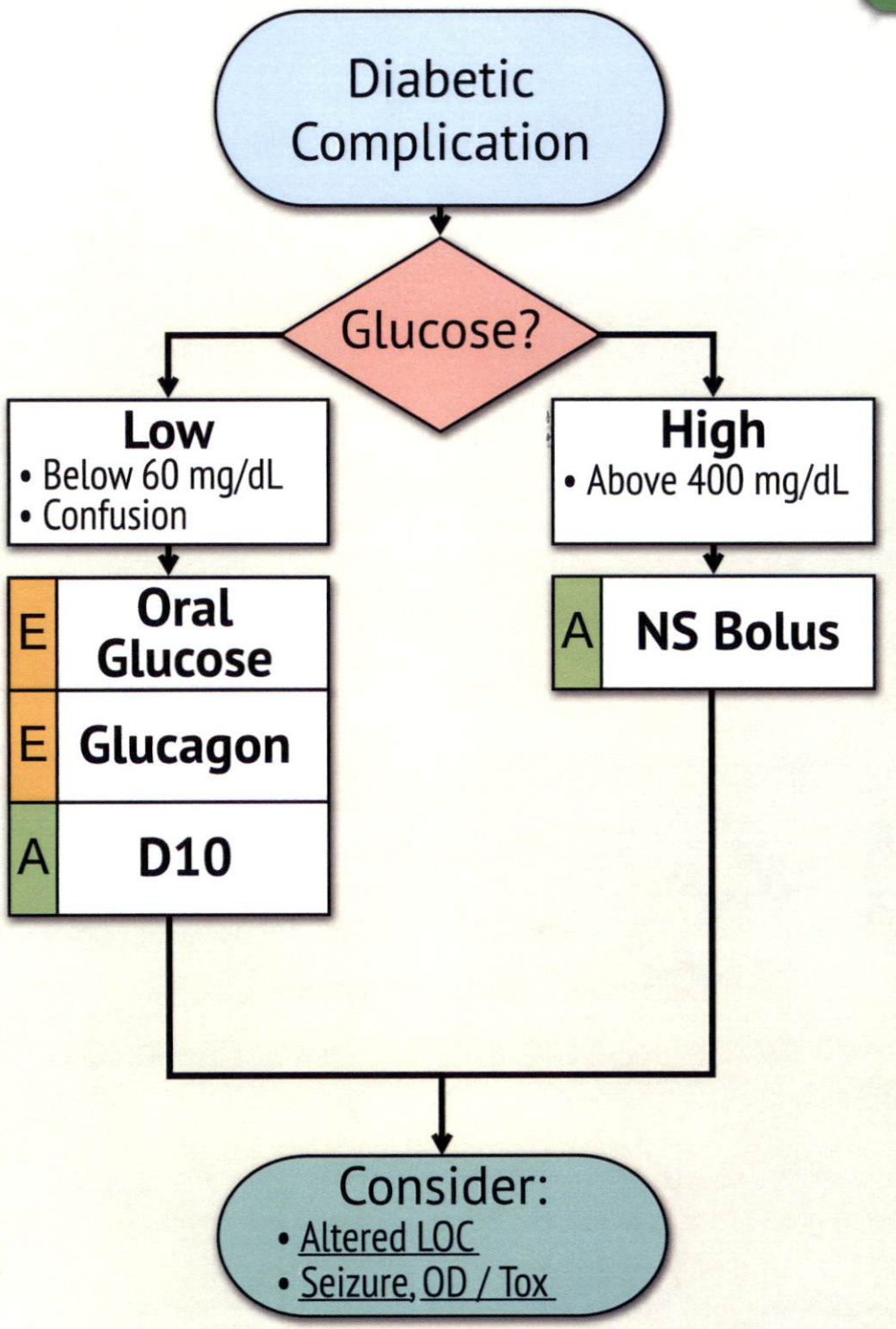
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Hypoglycemia: emedicine.medscape.com/article/122122
- Brady Emergency Care 12th Ed: Chapter 21

Page Revised: Apr 2019 NEMSIS CODES 9914121, 9914125



Oral Glucose: 15 g	PO	Q 5 min x3	**Adult Doses**
Glucagon: 1 mg	IM/IN	x1	
D10: 100 mL	IV/IO	Q 5 min x3	
NS Bolus: 1,000 mL	IV/IO	x1	

Page Revised: Apr 2019 NEMSIS CODES 9914121, 9914125

Overdose / Tox 39

Also called: Drunk, Intoxication, Poisoning, Ingestion

Imperatives

- Collect a detailed history and Safety Data Sheet if able:
  -Substance, quantity and time of ingestion or exposure
- Monitor Airway closely with all **caustic ingestions**.
- Not all ingestions require a specific antidote or intervention.
  -Stable patients may be monitored and transported.
  -Supportive care is sufficient for **Alcohol (EtOH)** intoxication.
- Goal is to maintain EtCO2 between 35-40
- Goal is to maintain SpO2 of 94-96%

Medications

- **Narcan** (naloxone): Should only be used to treat Hypoxia.
  -Narcan is titrated to effect of adequate oxygenation.
  -**NOT** given to restore consciousness.
  -IN/IM narcan should only be considered if no IV/IO access available.
  -If administering narcan be sure to check patient for any weapons.
  1. Dilute 1ml of 0.4mg narcan into 9ml NS flush (0.4mg/10ml)
  2. Give 1ml (0.04mg) at a time, allowing time to assess effects between doses. Usually 10-30 seconds between doses.
  3. Consider administering diluted narcan up to 2mg, until patient is breathing appropriately.
  4. Continuously monitor patient's breathing status along with EtCO2.
  5. Re-administer narcan if respiratory depression occurs.
- **Atropine**: Massive doses may be required for organophosphates.
- **Calcium**: Avoid if the patient is taking digoxin (Lanoxin).

Notes

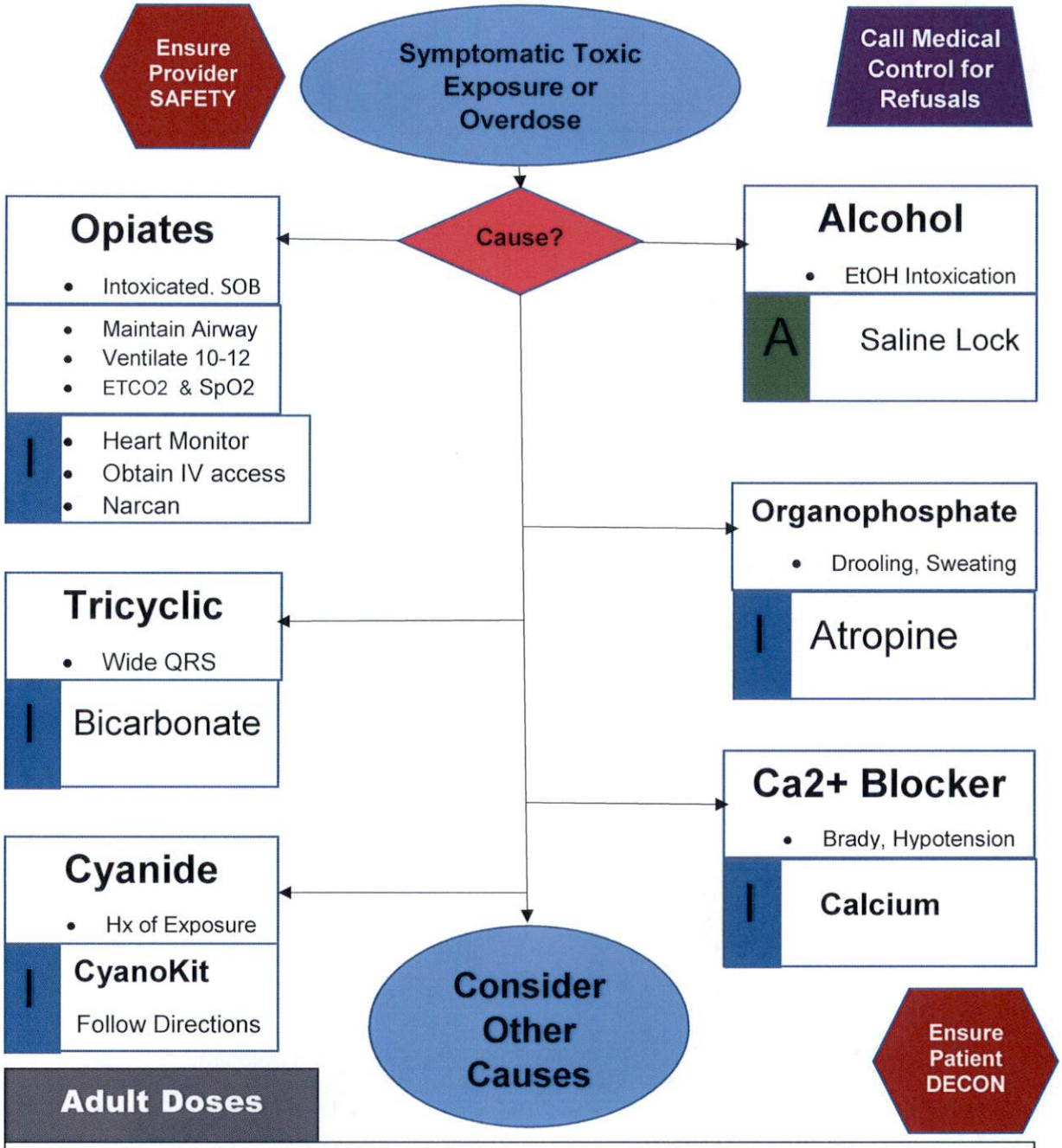
- If substance is known, consider **Poison Control**: 800-222-1222
- This protocol includes chemical **ingestions** and organophosphates.
  -For most **gas** exposures, refer to Inhalation.
  -For other **skin** exposures refer to Burns.

Pediatrics

- Even a single pill of some adult meds can cause severe symptoms.
  -Be prepared to treat Shock if overdose is suspected.
  -Ingested **nicotine** (cigarettes or vape fluid) can be fatal.
    - Refer to Appendix A or other approved source for pediatric dosing.

Overdose / Tox 39

Overdose / Tox 40



Adult Doses

Narcan: 0.04mg IV/IO, repeat doses 0.04mg to a max dose 2mg. IN/IM dose 0.8mg repeat doses 0.8mg to a max dose 2mg

Bicarbonate: 50 mEq IV/IO x1

Atropine: 0.5mg IV/IO Q 2 min

Calcium: 1g IV/IO x1

Overdose / Tox 40

41 Seizure

Also called: Epilepsy, Eclampsia, Febrile Seizure, Withdrawal

Imperatives

- Active convulsions with Altered LOC should be treated promptly.
  - Meds are contraindicated without active convulsions.
- Non-specific shaking with normal LOC may not need intervention.
- Non-epileptic **pseudoseizures** do not require EMS intervention.
  - Consider other causes such as Psychiatric or OD / Tox.
- Aggressively treat seizures due to alcohol or benzo withdrawal.

Medications

- **Versed** (midazolam): Only appropriate during active convulsions.
- **Magnesium**: May cause Hypotension and Dyspnea.
  - Useful for seizures in **late pregnancy** (20 weeks & over).
  - Do not provide in early pregnancy. Eclampsia is unlikely.

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

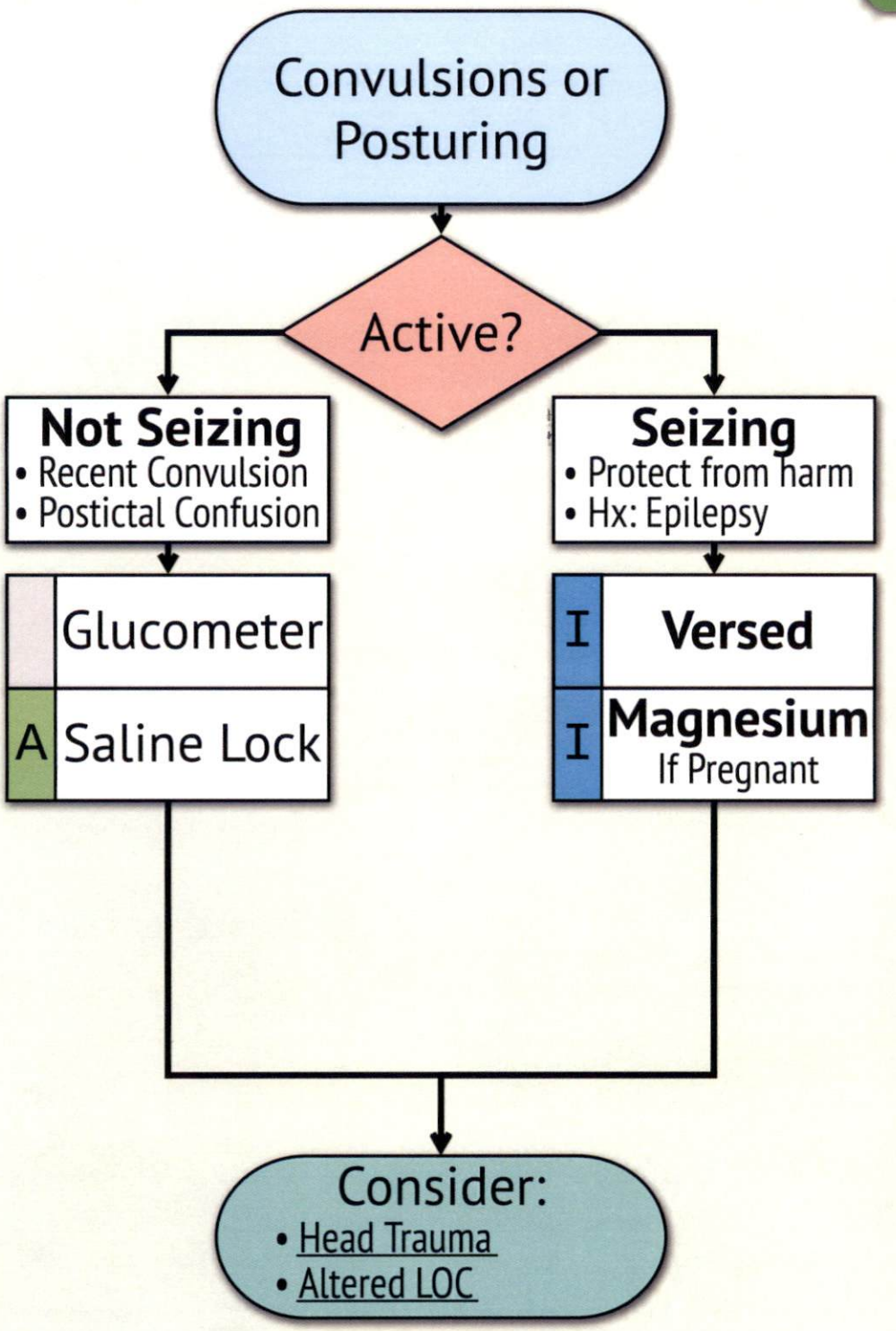
- Peds under 5 y/o may have a seizure caused by Fever.
  - It is usually self limiting and does not require intervention.
  - Consider medication if longer than 5 min or seizure reoccurs.
  - Aggressively treat any peds seizure not associated with Fever.
- Refer to Appendix A or other approved source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

References

- Medscape Seizure: emedicine.medscape.com/article/1184846
- Brady Emergency Care 12th Ed: Chapter 21

Page Revised: Apr 2019 NEMSIS CODES 9914141, 9914157

41 Seizure



Versed: 2.5 mg	IV/IO, IM/IN	Q 2 min x4	**Adult Doses**
Magnesium: 2 g	IV/IO	x1	

Page Revised: Apr 2019 NEMSIS CODES 9914141, 9914157

Also called: CVA, TIA, Mini Stroke

Imperatives

- Stroke treatment is time sensitive.
- **Time Last Normal** is not necessarily when symptoms started.
  - If noticed upon waking up: last normal is before bed.
  - If altered LOC: last normal is when someone saw them normal.
- Stroke Questionnaires:
  - The **Cincinnati Stroke** FAST is appropriate for EMS screening.
  - Consider additional screening if able (Stroke VAN or NIHSS).

Cincinnati Stroke

- **F**acial Droop?
- **A**rm Drift?
- **S**lurred Speech?
- **T**ime Last Normal?

Stroke VAN

- **V**ision - Partial / Total Loss?
- **A**phasia - Trouble Speaking?
- **N**eglect - Ignoring One Side?

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

Notes

- Most thrombolytic therapy must occur **within 6 hours**.
  - Vascular 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.

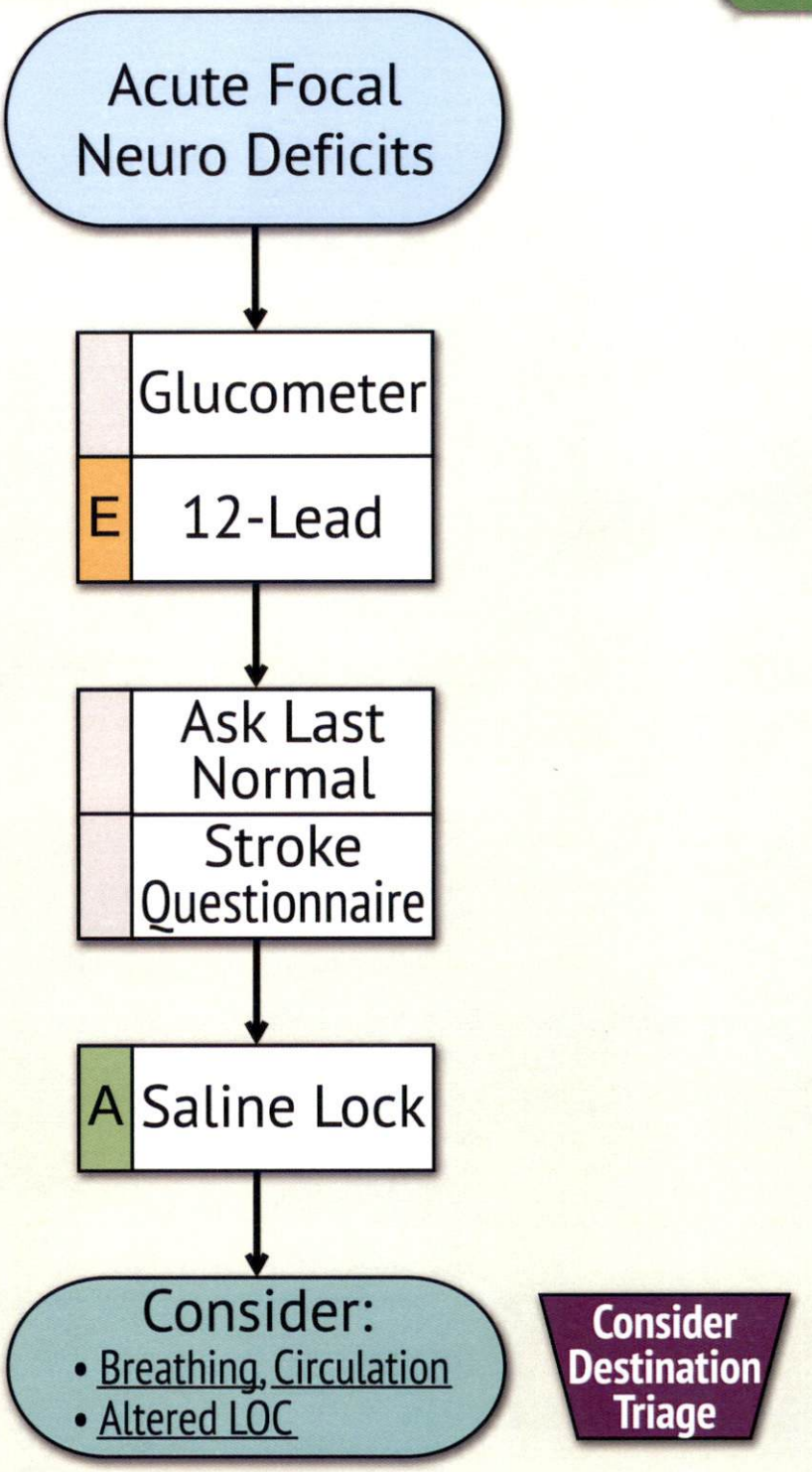
Pediatrics

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

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- Medscape Stroke: emedicine.medscape.com/article/1916852
  - Brady Emergency Care 12th Ed: Chapter 21

Page Revised: Sep 2018 NEMSIS CODE 9914145



Page Revised: Oct 2017 NEMSIS CODE 9914145

Also called: Restraint, Suicidal, Behavioral, Dementia, Delirium

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.
  - 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.
  - Restraint should be a **last resort**.
- Physical restraint should only be used in conjunction with Police.
  - **Ask for Police** help if the patient is physically combative.
  - Monitor closely for Airway or Breathing complications.

Medications

- **Versed** (midazolam): May start with half dose when given IV.
- **Haldol** (haloperidol): Requires transport and **ALS** monitoring.

Notes

- Consider calling **Medical Control** for repeat dosing.
- SI / HI: Suicidal or Homicidal Ideation
  - Thoughts or acts of hurting themselves or other people.

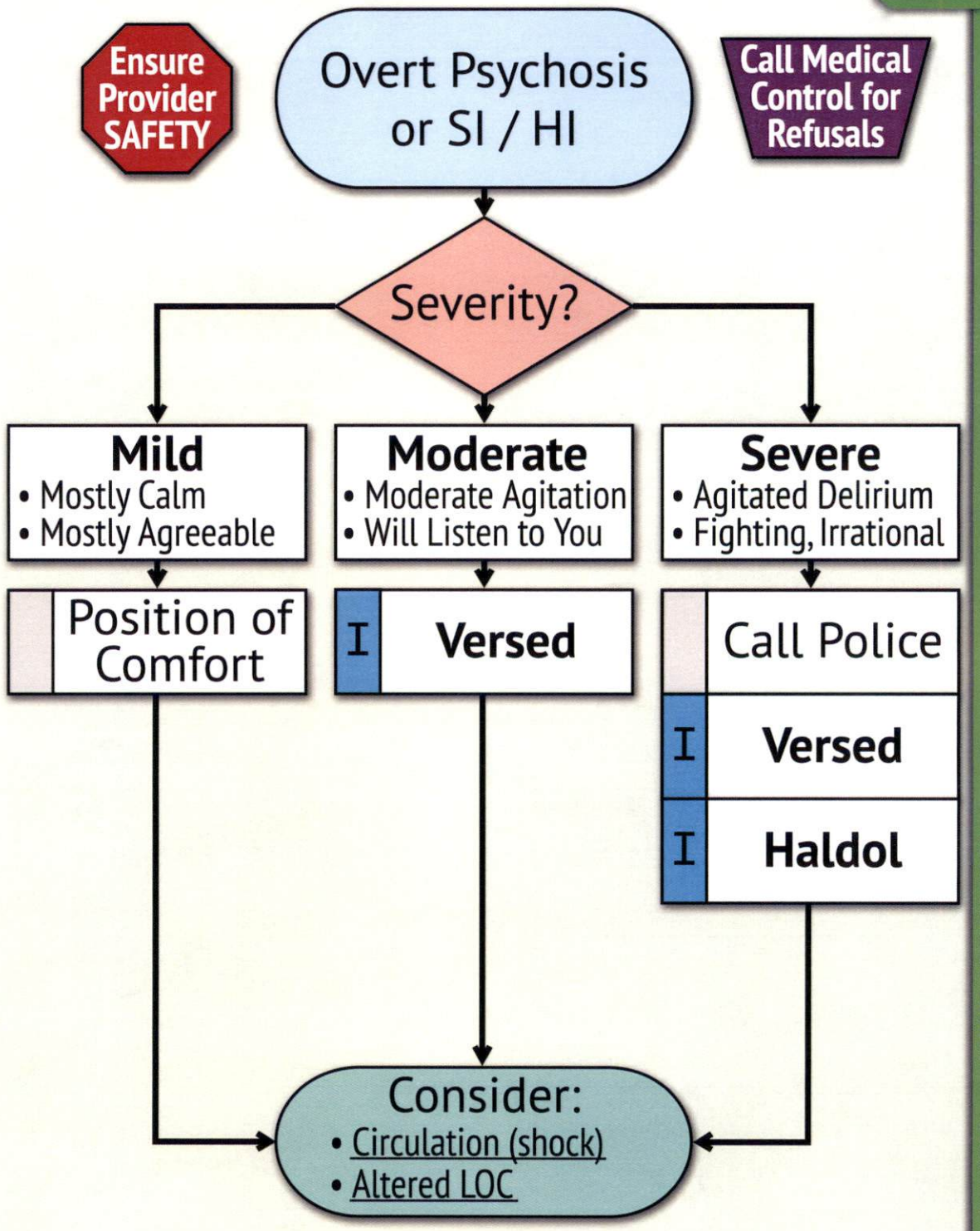
Pediatrics

- Consider calling **Medical Control** prior to restraining peds.
- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Suicide: emedicine.medscape.com/article/2013085
- Medscape Aggression: emedicine.medscape.com/article/288689
- Brady Emergency Care 12th Ed: Chapter 25

Page Revised: Feb 2019 NEMSIS CODE 9914053



Versed: 5 mg	IV/IO, IM/IN	x1	**Adult Doses**
Haldol: 5 mg	IM	x1	

Page Revised: Apr 2019 NEMSIS CODE 9914053

Also called: Contractions, Pre / Eclampsia, Post-Partum care

Imperatives

- This protocol applies to **late pregnancy** (20 weeks & over).
  - Uterus palpable **above the umbilicus** suggests late pregnancy.
  - There are no specific EMS interventions for early pregnancy.
- Any SBP reading above 140 mmHg may be **preeclampsia**.
  - Prioritize transport. Call **Medical Control** for any refusal.
- 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 Complications** during transport:
  - Failed Delivery / Shoulder Dystocia: transport knees to chest
  - Prolapsed Cord: fingers in vagina to remove pressure on cord
  - Breech: support presenting part, do not pull on part

Notes

- Remember not all medications are safe in pregnancy.
  - Call **Medical Control** if any question.
- **Fundal massage** is important to help stop post-partum bleeding.
- 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.

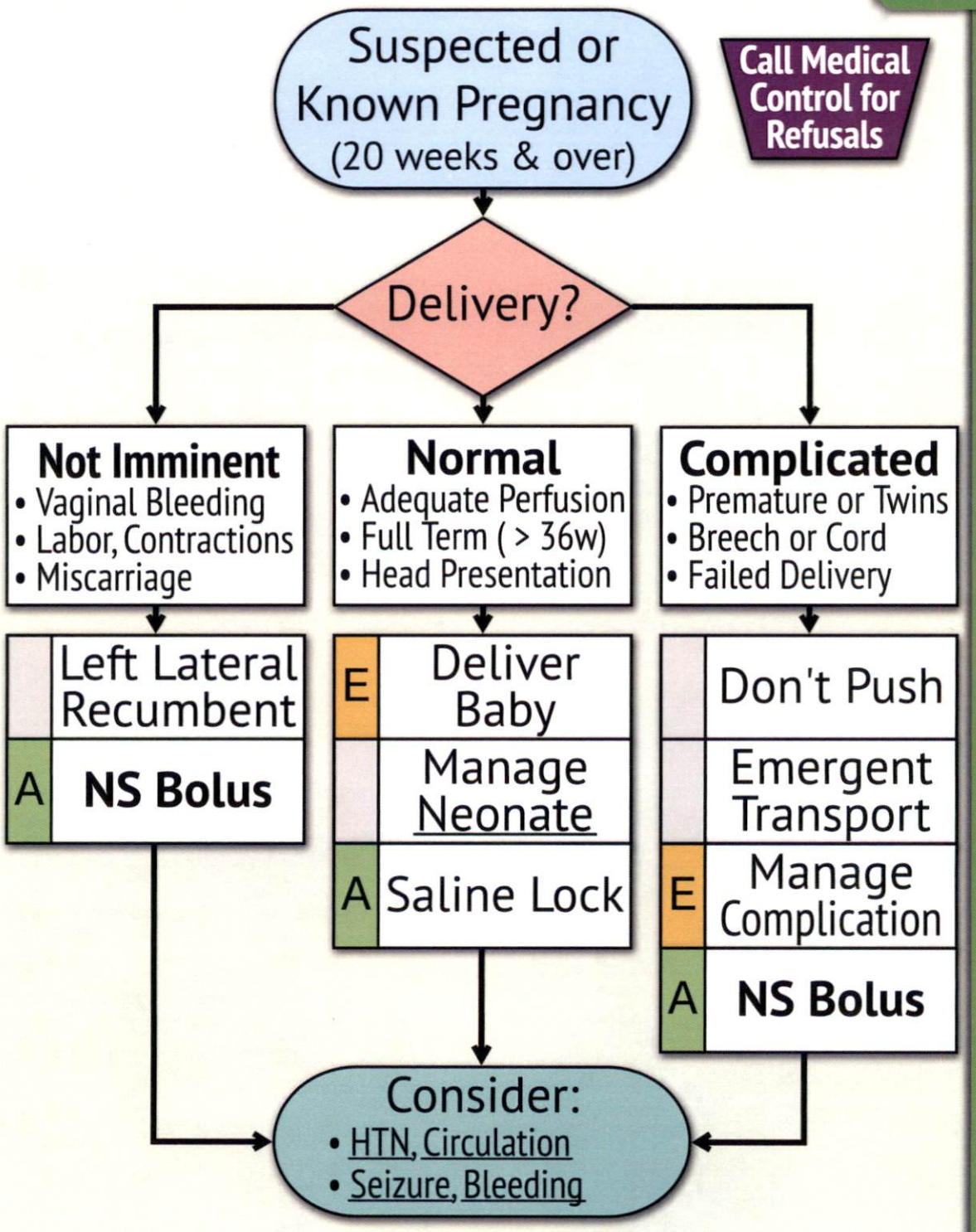
Pediatrics

- Refer to Neonate for management of the newborn baby.

References

- Medscape Delivery: emedicine.medscape.com/article/260036
- Medscape Eclampsia: emedicine.medscape.com/article/253960
- Brady Emergency Care 12th Ed: Chapter 34

Page Revised: Feb 2018 NEMSIS CODE 9914155



NS Bolus: 1,000 mL IV/IO x1 **Adult**

Page Revised: Dec 2017 NEMSIS CODE 9914155

Also called: Newborn, Baby Resuscitation

Compressions

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

BVM Rate

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

Imperatives

- Most respond to stimulation.
  - Suction mouth then nose.
  - Clamp & cut cord.
  - Dry off. Keep warm.
  - Use **BVM if any distress**.
- Other less common causes of newborn distress include:
  - Pneumothorax, Hypoglycemia, Shock

APGAR	2	1	0
• **A**ppearance	pink	blue	gray
• **P**ulse	100+	99-1	0
• **G**rimace	good	poor	none
• **A**ctivity	kicks	weak	limp
• **R**espiration	cry	gasp	0

Notes

- Document 1 and 5 minute APGAR scores.
  - Add total points from each of the five categories.
- 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.

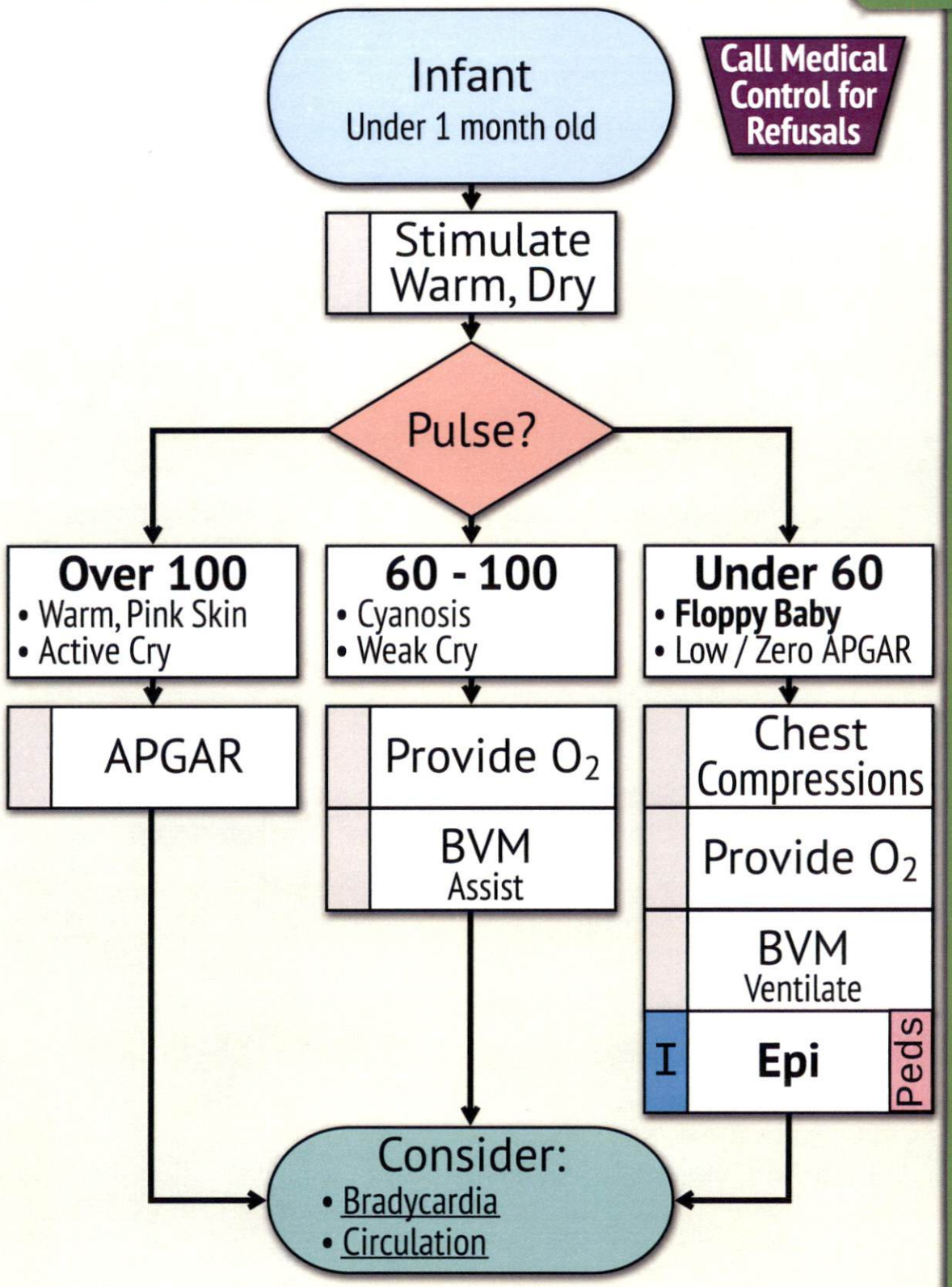
Adults

- This protocol is for infants under 1 mo. It does not apply to adults.

References

- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Delivery: emedicine.medscape.com/article/260036
- Medscape Neonate: emedicine.medscape.com/article/977002
- Brady Emergency Care 12th Ed: Chapter 34

Page Revised: Sep 2018 NEMSIS CODES 9914133, 9914163



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

Page Revised: Apr 2019 NEMSIS CODES 9914133, 9914163

Also called: Traumatic Arrest

Compressions

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

Imperatives

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

- If Major Trauma
- If active CPR
- Call **FIELD 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** (saline 0.9%): Appropriate use in trauma is critical.
  - Be aggressive with fluid for Hypotension or **poor perfusion**.
  - Avoid aggressive fluids once SBP above **90** mmHg.

Notes

- Use caution with **compressions** and **defib** in a moving vehicle.
- $EtCO_2$ can help identify ROSC and guide termination decision.
- A well run CODE should operate like a **pit crew**. Focus on your job.

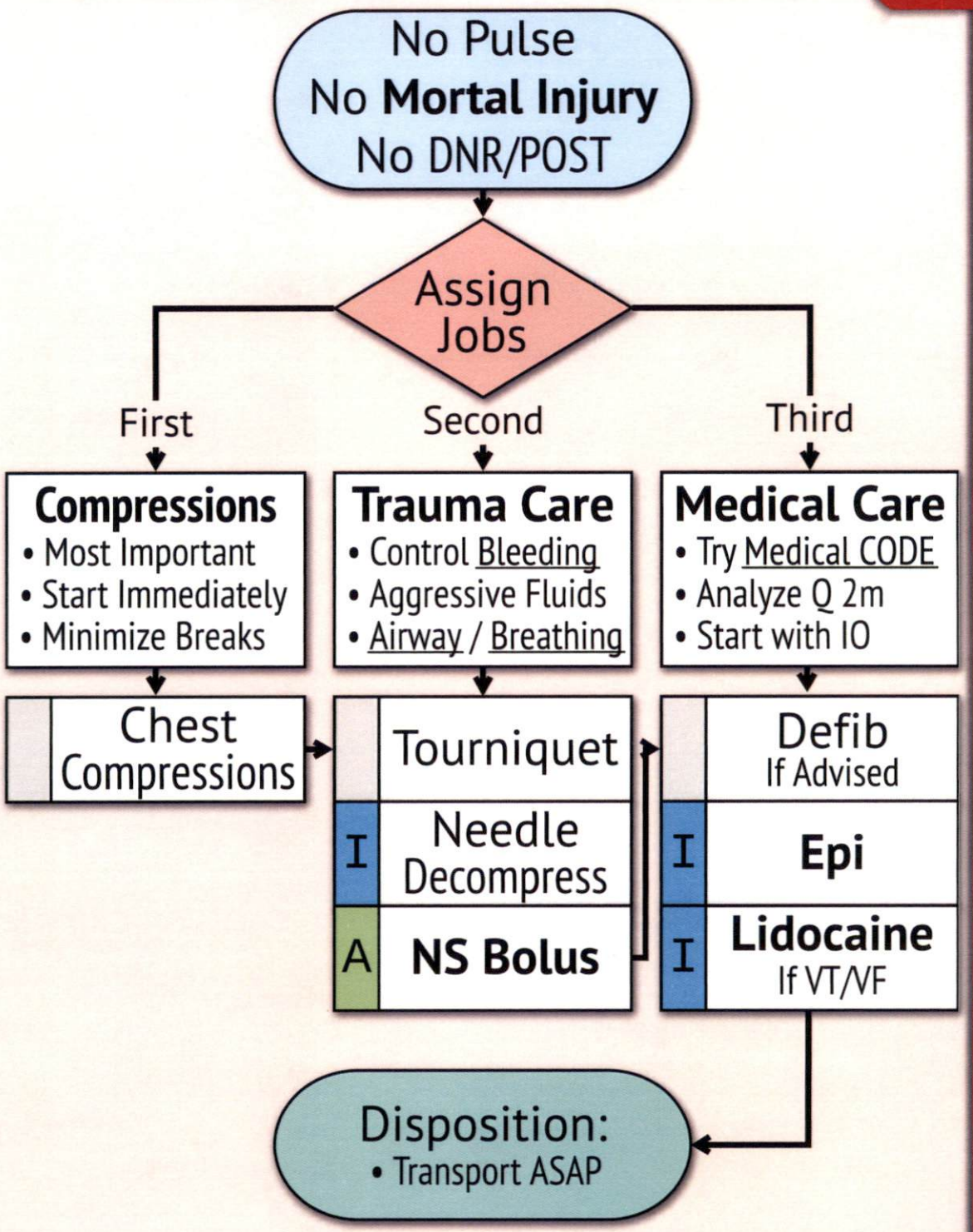
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ATLS: www.ncbi.nlm.nih.gov/pubmed/23609291
- NAEMSP: doi.org/10.3109/10903127.2012.755586
  - Brady Emergency Care 12th Ed: Chapter 32

Page Revised: Jan 2019 NEMSIS CODE 9914087



NS Bolus: 1,000 mL	IV/IO	x2	**Adult Doses**
Epi: 1 mg	IV/IO	Q 5 min	
Lidocaine: 100 mg	IV/IO	Q 5 min x3	

Page Revised: Jan 2018 NEMSIS CODE 9914087

Also called: Return of Pulse / Post-Resuscitation after Trauma

Imperatives

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

Medications

- **Ketamine**: Indicated for biting on BIAD or obvious discomfort.

Poor Perfusion

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

- If Major Trauma
- If Unstable Vitals
- Call **FIELD ALERT**

Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- ATLS: www.ncbi.nlm.nih.gov/pubmed/23609291
  - Brady Emergency Care 12th Ed: Chapter 32

Page Revised: Jan 2019 NEMSIS CODE 9914165

Return of Pulse

Reassess
- Establish Airway
- Provide Breathing
- Treat Circulation

Emergent Transport

Tourniquet

I Needle Decompress

E 12-Lead

A Saline Lock

I **Ketamine**
If Agitated

Consider:
- Bleeding, Shock
- Medical ROSC

Consider Destination Triage

Ketamine: 20 mg	IV/IO	Q 5 min x2	**Adult**

Page Revised: Nov 2017 NEMSIS CODE 9914165

Also called: Multisystem Trauma, Explosion / Blast Injury

Imperatives

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

Medications

- **NS Bolus** (saline 0.9%): Appropriate use in trauma is critical.
  - Be aggressive with fluid for Hypotension or **poor perfusion**.
  - Avoid aggressive fluids once SBP above **90** mmHg.

Poor Perfusion

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

- If Major Trauma
- If Unstable Vitals
- Call **FIELD ALERT**

Notes

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

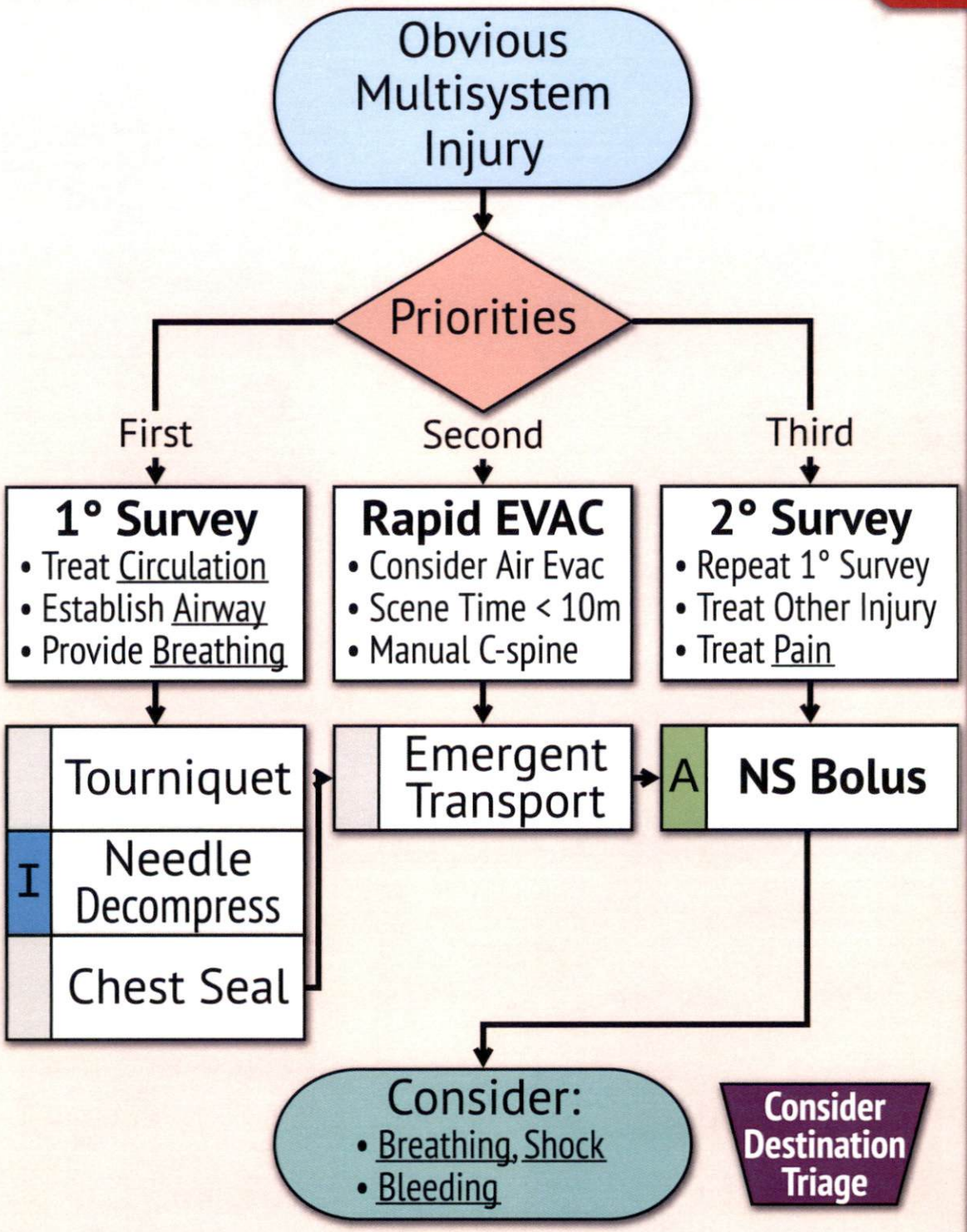
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Polytrauma: emedicine.medscape.com/article/1270888
- Brady Emergency Care 12th Ed: Chapter 32

Page Revised: Jan 2019 NEMSIS CODES 9914045, 9914105, 9914207



NS Bolus: 1,000 mL IV/IO x2 **Adult**

Page Revised: Aug 2017 NEMSIS CODES 9914045, 9914105, 9914207

Also called: Hemorrhage Control, Tourniquet

Imperatives

- Advance to tourniquet rapidly for major arm / leg bleeding.
  - Write the time of tourniquet application on the patient.
- Avoid packing or tourniquets for:
  - Unstable, depressed or open skull fractures
  - Bleeding from body cavities: vagina, rectum, ear, mouth, etc.
  - Deep chest or abdominal injury
- For **non-traumatic bleeding**:
  - Prioritize transport.

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

Poor Perfusion

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

Medications

- **TXA** (tranexamic acid): Appropriate for all major bleeding.
  - Avoid if injury greater than 3 hours old or known DVT/PE.

Notes

- Consider removing bystander dressings to investigate severity.
- **Lacerations** benefit from repair within the first few hours.
- Bandage wounds after bleeding is controlled.

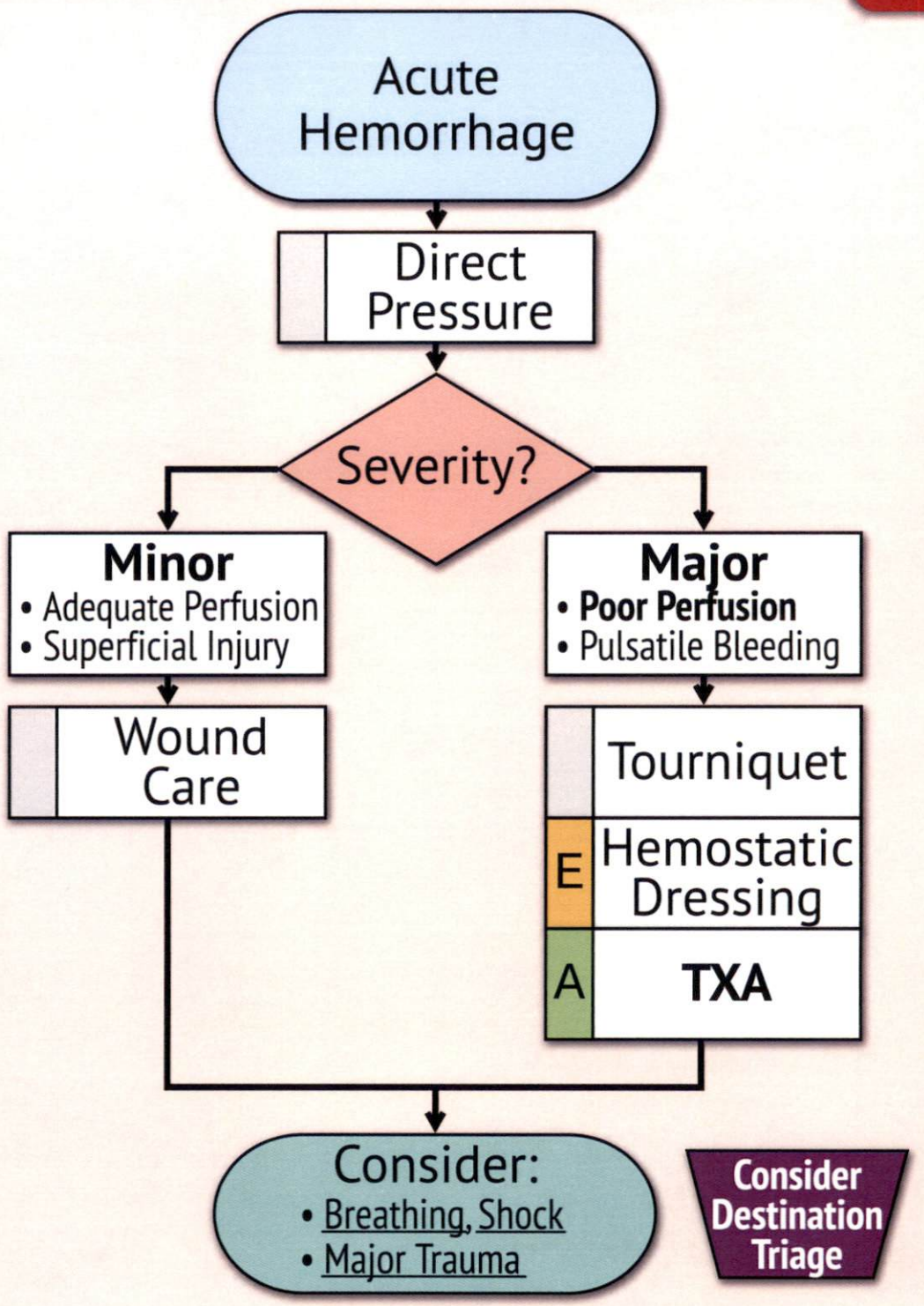
Pediatrics

- Hypotension is a late sign of Shock in peds.
- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- ATLS: www.ncbi.nlm.nih.gov/pubmed/23609291
- Stop the Bleed: stopthebleedingcoalition.org
- Brady Emergency Care 12th Ed: Chapter 27

Page Revised: Jan 2019 NEMSIS CODE 9914083



TXA: 1 g	IV/IO	over 10 min	**Adult**

Page Revised: Apr 2019 NEMSIS CODE 9914083

Also called: Spinal Motion Restriction (SMR), C-spine, Backboard

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. †
- A long spine board, a scoop stretcher, or a vacuum mattress is recommended to assist with **patient transfers** in order to minimize flexion, extension, or rotation of the possibly injured spine. †
- There is no role for SMR in penetrating trauma. †
- SMR requires **supine positioning** and a **c-collar**.
- Awake, compliant patients may be safely secured with seat belts.

Notes

- **Spine Tenderness or Deformity** includes any:
  - Mid-line neck or back pain, tenderness, 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:
  - GCS less than baseline, new confusion
- **Acute Intoxication** includes any alteration in mentation due to:
  - Alcohol, medications or illegal drugs
- **Distracting Injury or Mechanism** may include:
  - Airway trauma, obvious SOB, major bleeding, unstable vitals
  - Fall > 10 ft, flail chest, unstable pelvis, 2° or 3° Burn > 10%
  - Major fracture, crushed, mangled or amputated extremity
  - High risk MVC: ejection, roll over, death in vehicle, struck by car

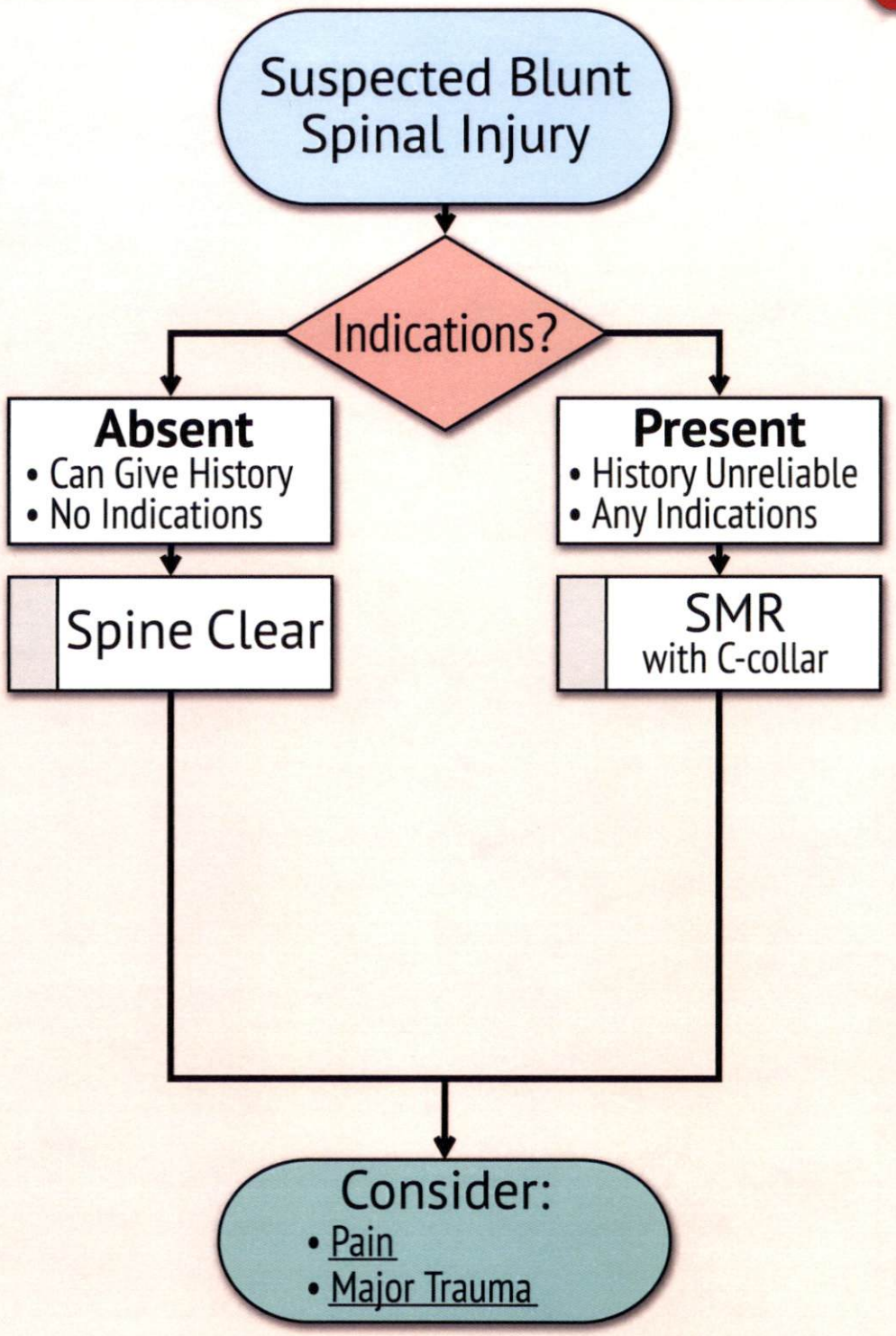
Pediatrics

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

References

- ACS-COT, ACEP, NAEMSP 2018 SMR in Trauma - Joint Statement †
- Brady Emergency Care 12th Ed: Chapter 31

Page Revised: Feb 2019 NEMSIS CODES 9914073, 9914107



Indications

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

Page Revised: Feb 2019 NEMSIS CODES 9914073, 9914107

Also called: Concussion, Face / Neck / Eye / Mouth Trauma

Imperatives

- Transport emergently if sudden changes in LOC.
- Hyperventilate to $EtCO_2$ of 30-35mmHg if signs of herniation:
  - Obvious HTN with profound bradycardia
  - Altered LOC with unequal pupils or posturing
- Do not remove **impaled** objects. Splint object in position found.
- Wrap amputated parts in saline gauze and place in sealed bag.
  - Transport on ice if available. Record time placed on ice.
- **Lacerations** benefit from repair within the first few hours.
- **Mechanism** predicts severity.

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

Notes

- **Skull Fx:** May cause bruising behind ears or around both eyes.
- **Scalp:** Lacerations may bleed aggressively. Direct pressure if no fx.
- **Neck:** All penetrations should have a chest seal.
- **Eye:** Contamination benefits from copious flushing (NS or water).
  - Patch both eyes for any penetrating injury.
- **Mouth:** Monitor Airway. May skip BIAD if obvious complications.
- **Ear**: Check any discharge for CSF by dropping on white paper.
  - A yellow / clear halo suggests CSF leak from skull fracture.
- **Nose:** Do not attempt to reduce. Treat for Epistaxis.
- **Teeth:** Transport avulsions in Hank's solution or NS.
  - Attempt replantation only in uncomplicated & isolated injury.
- **Concussion:** Usually does not require EMS intervention.

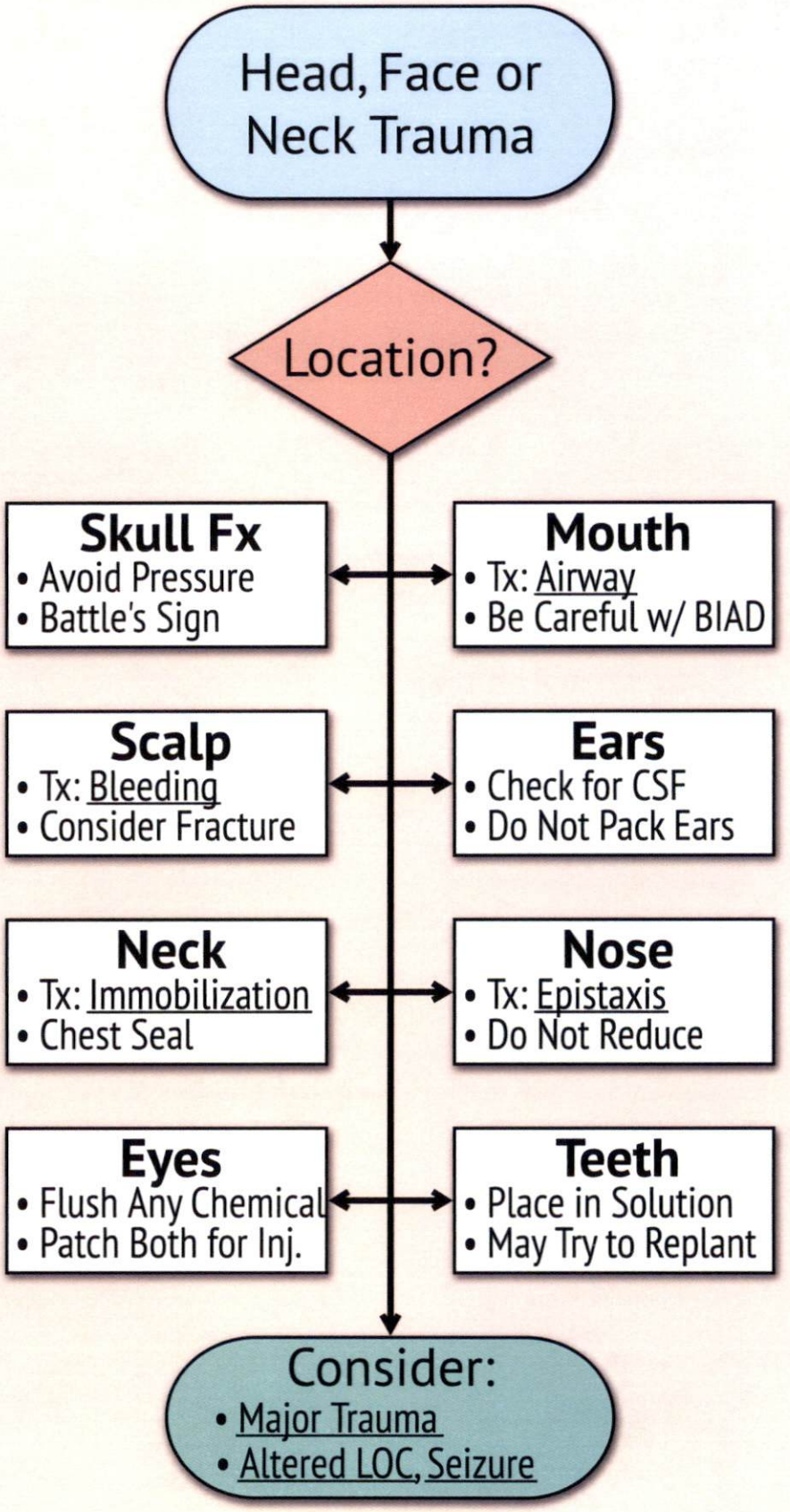
Pediatrics

- Do not attempt replantation for primary (baby) teeth.
- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Head Injury: emedicine.medscape.com/article/1163653
- Brady Emergency Care 12th Ed: Chapter 31

Page Revised: Jan 2019 NEMSIS CODES 9914041, 9914057, 9914099, 9914101, 9914205



Page Revised: Aug 2017 NEMSIS CODES 9914041, 9914057, 9914099, 9914101, 9914205

Also called: Thoracic / Abdominal Injury, Evisceration

Imperatives

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

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

Notes

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

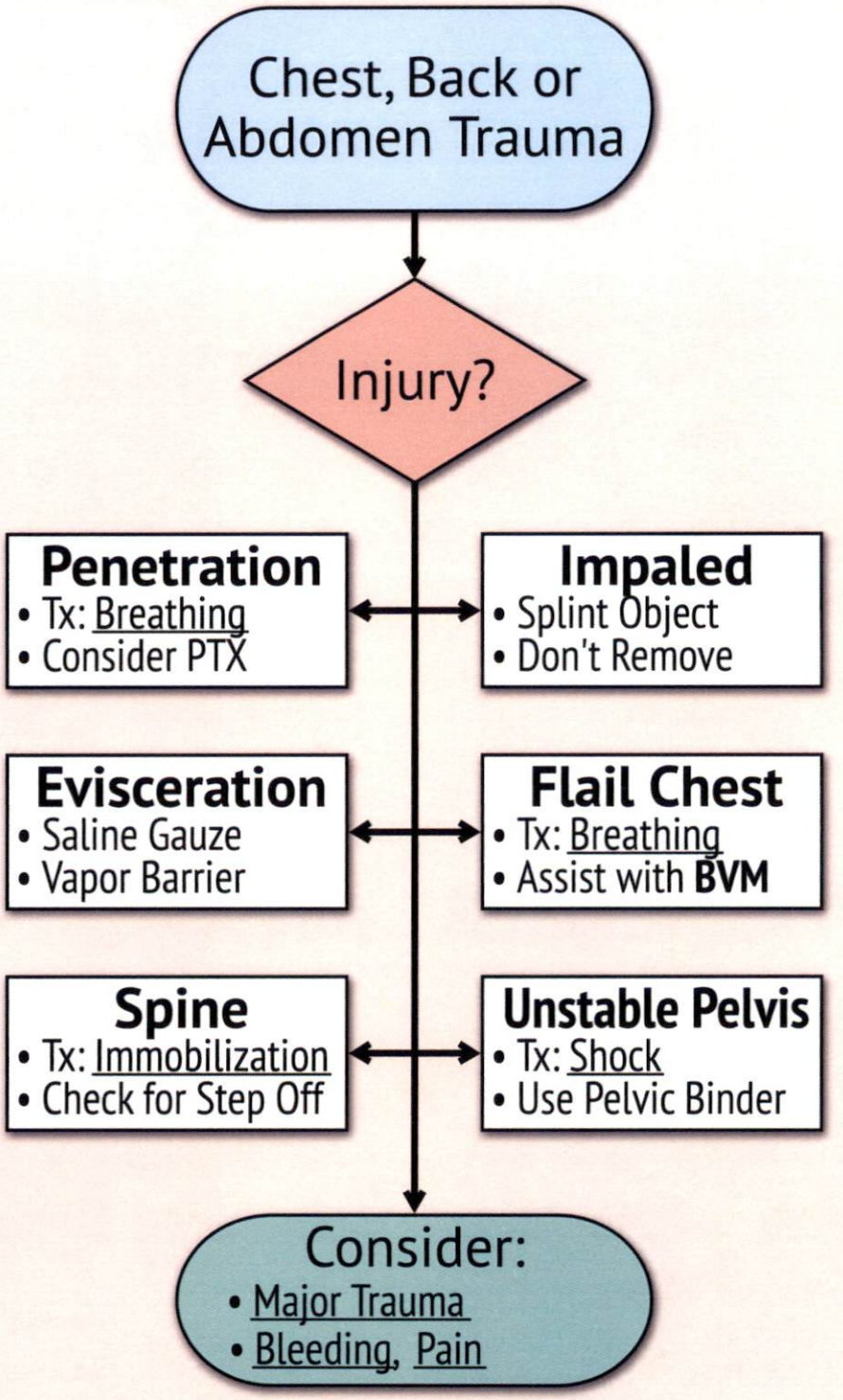
Pediatrics

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

References

- Medscape Blunt Chest: emedicine.medscape.com/article/428723
- Medscape Penetrating Abd: emedicine.medscape.com/article/1270717
- Brady Emergency Care 12th Ed: Chapter 29

Page Revised: Jan 2019 NEMSIS CODE 9914193



Page Revised: Oct 2017 NEMSIS CODE 9914193

Also called: Amputation, Long Bone Fx, Splinting, Sprain/ Strain

Imperatives

- **Pulseless extremities** and **amputations** are true emergencies.
  - Record time of injury. Transport ASAP.
  - Wrap amputated parts in saline gauze and place in sealed bag.
  - Place bag on ice if available. Record time placed on ice.
- Remove adjacent and distal jewelry if able.
- Record peripheral neurovascular status before and after splinting.
- Consider a Traction Splint for **femur fractures** when appropriate.
  - Massive internal bleeding is possible with femur or hip fx.

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

Notes

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

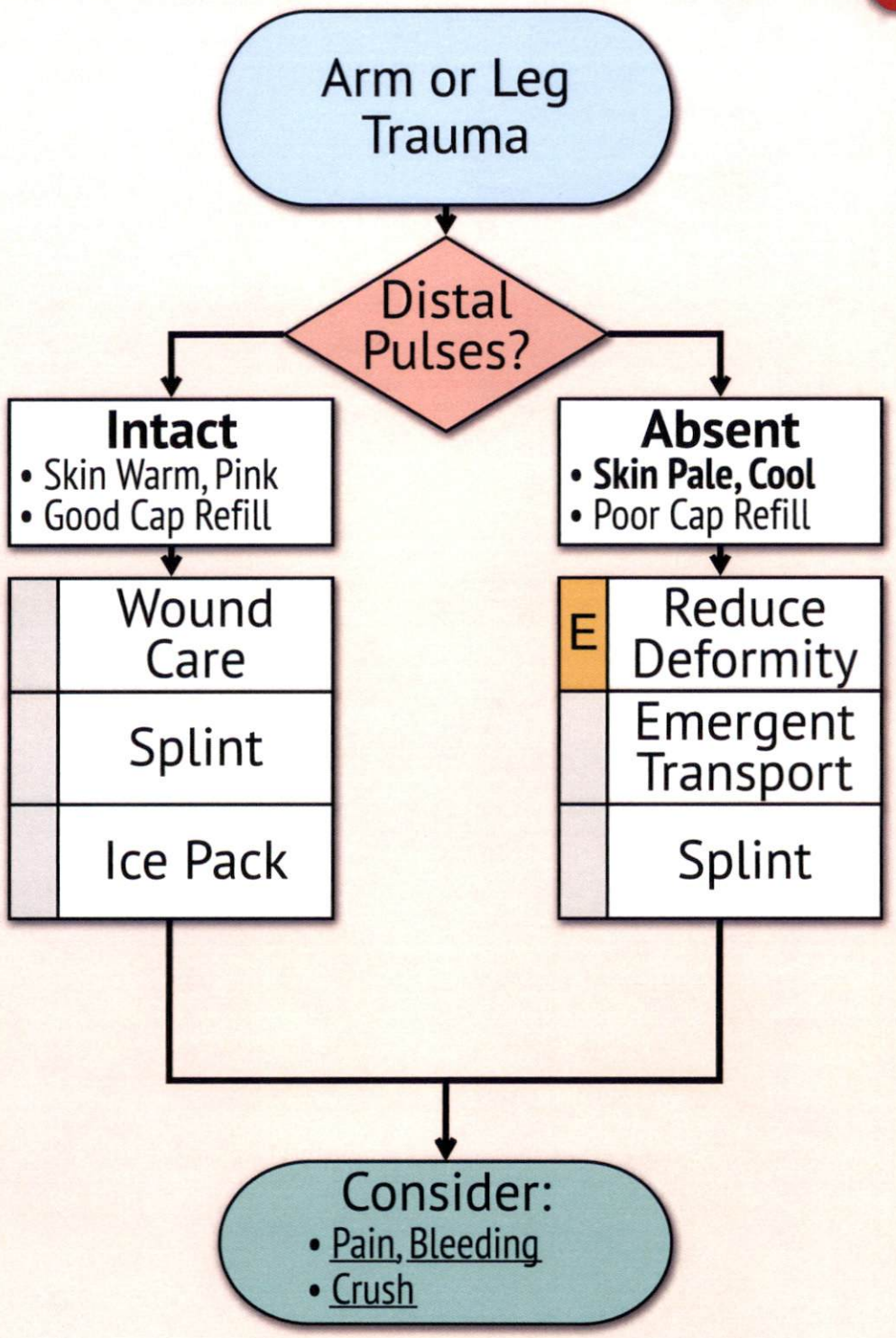
Pediatrics

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

References

- Medscape Fracture Care: emedicine.medscape.com/article/1270717
- Medscape Vascular Trauma: emedicine.medscape.com/article/462752
- Brady Emergency Care 12th Ed: Chapter 29

Page Revised: Jan 2019 NEMSIS CODES 9914077, 9914097



Page Revised: Oct 2017 NEMSIS CODES 9914077, 9914097

Also called: Entrapment, Harness Hang

Imperatives

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

Medications

- **NS Bolus** (saline 0.9%): Aggressive fluids help dilute potassium.
  - Consider aggressive fluids even without Hypotension.
- **Calcium**: Avoid if the patient is taking digoxin (Lanoxin).
  - Do not mix with **Bicarbonate**. Flush line between meds.

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

K^+ EKG Changes

- From minor to life threat:
  - Peaked T-waves
  - Long PRI / Loss of P-wave
  - Wide QRS (Over 120 ms)
  - Slow V-Tach (Sine Wave)

Notes

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

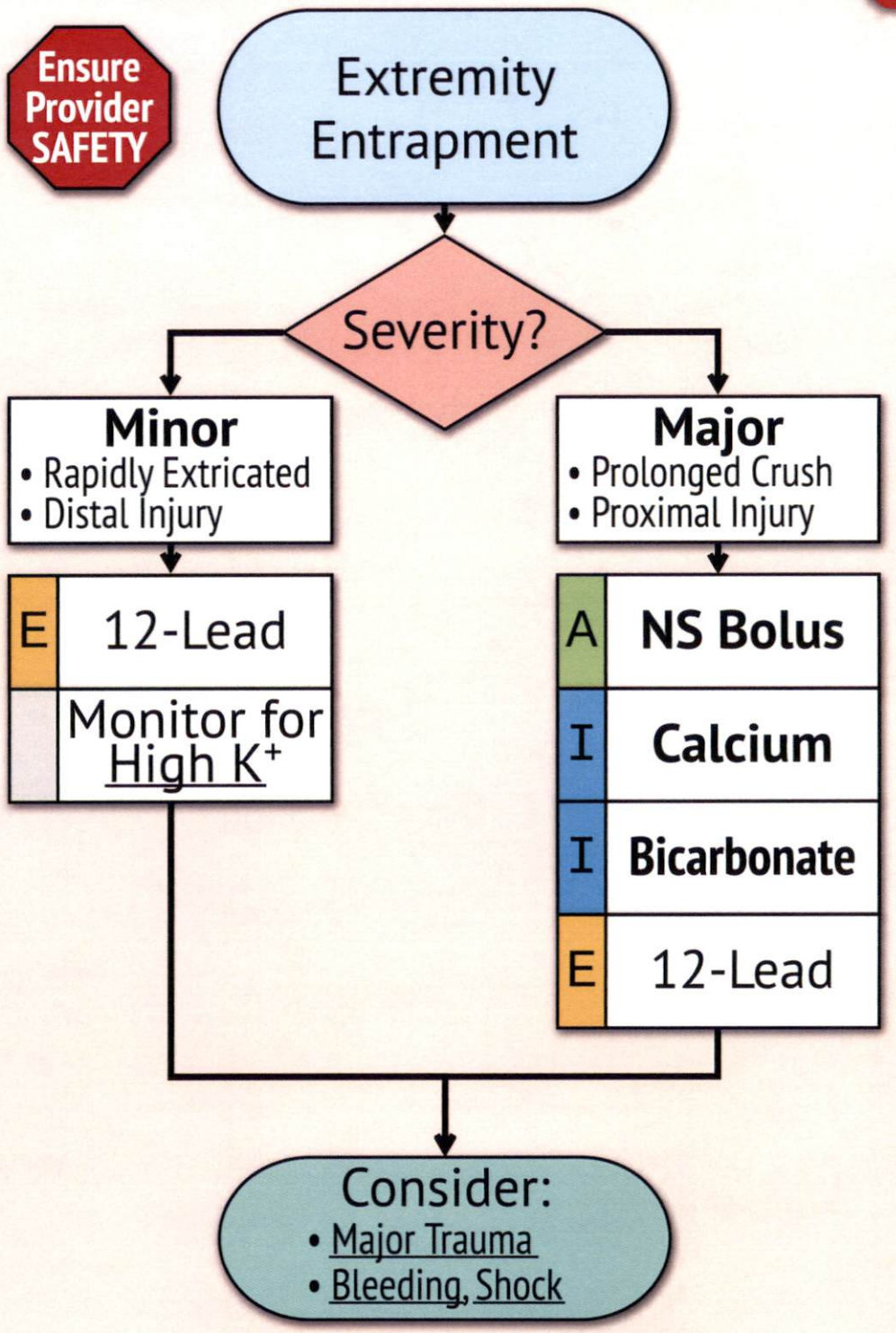
Pediatrics

- May exhibit symptoms quicker than adults.
- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Rhabdo: emedicine.medscape.com/article/1007814
- Brady Emergency Care 12th Ed: Chapter 28

Page Revised: Jan 2019 NEMSIS CODE 9914089



Adult Doses			
NS Bolus: 1,000 mL	IV/IO	x2	
Calcium: 1 g	IV/IO	x1	
Bicarbonate: 50 mEq	IV/IO	x1	

Page Revised: Aug 2017 NEMSIS CODE 9914089

Also called: Hypo/ Hyperthermia, Frost Nip/ Bite, Heat Stroke

Imperatives

- **Resuscitation** of major **hypo**thermia is a special case:
  - Most important intervention is **active rewarming**.
  - Check carefully for pulse. If present, it will be **very** faint.
  - Only **defib once**. Only give **ACLS meds once**. Avoid pacing.
  - Call **Medical Control** before termination of resuscitation.
  - Resume normal Medical CODE above **86** °F (**30** °C).
- **Confusion** is the hallmark of major **hyper**thermic emergencies.
  - Patients with a normal LOC respond well to passive cooling.
- **Hyper**thermia is **not** the same as Fever.
  - Meds for Fever **worsen** **hyper**thermia and are contraindicated.
- **Passive techniques** include clothing and environment changes.

Notes

- Special thermometers or core temp monitors may be helpful.
  - Major **hypo**thermia is likely below: **86** °F (**30** °C).
  - Major **hyper**thermia is likely above: **106** °F (**41** °C).
- Excessive movement of **hypo**thermic patients can cause V-Fib.
- Delay active rewarming if unable to maintain (prolonged evac).
- Drugs may also cause **hyper**thermia. The treatment is the same.
- Peds and the elderly will decompensate faster.
- Try to pad heat or ice packs. Do not place directly against the skin.

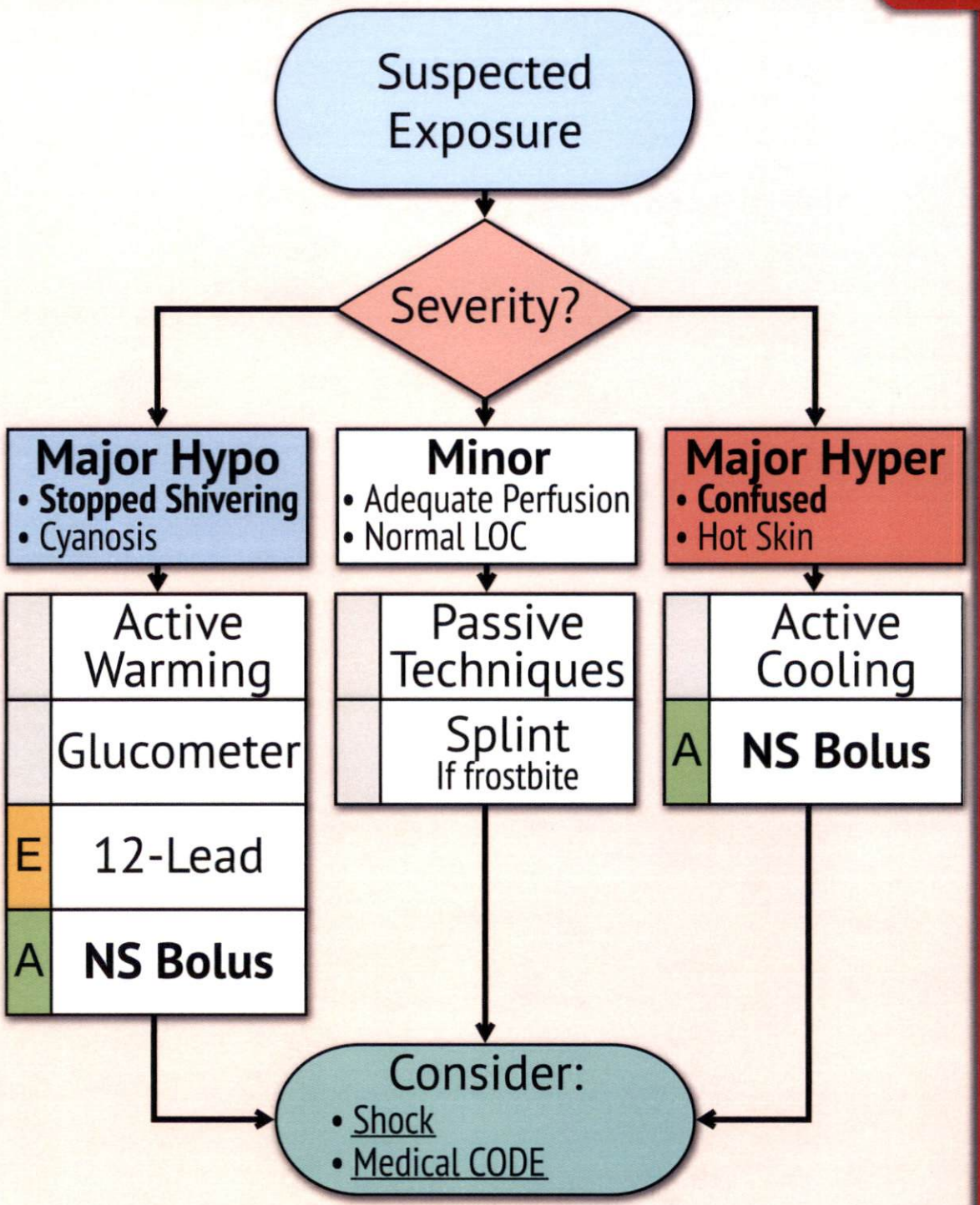
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape Hypothermia: emedicine.medscape.com/article/770542
- Medscape Heat Stroke: emedicine.medscape.com/article/166320
- Brady Emergency Care 12th Ed: Chapter 33

Page Revised: Sep 2017 NEMSIS CODES 9914023, 9914205, 9914027, 9914029, 9914031



Active Warming

- Remove Wet Clothes
- Heat Packs (kit) to Groin/ Pits
- Warmed IV Fluids

Active Cooling

- Fan and Misting
- Ice Packs to Groin / Armpits
- Chilled IV Fluids

NS Bolus: 1,000 mL IV/IO x2 **Adult**

Page Revised: Nov 2017 NEMSIS CODES 9914023, 9914205, 9914027, 9914029, 9914031

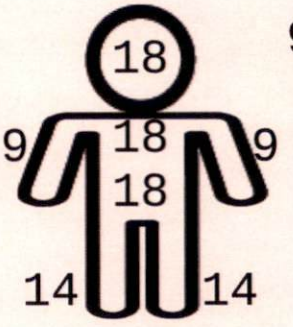
Also called: Haz Mat, Heat / Chemical / Electric Burn, Sunburn

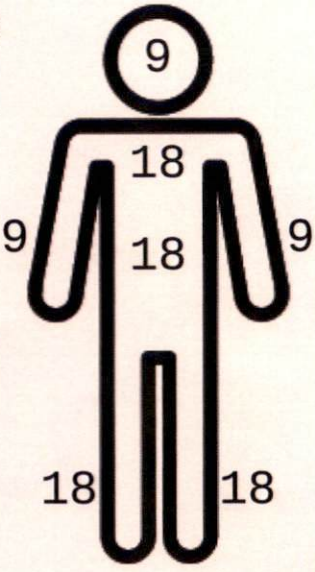
Imperatives

- Monitor Airway closely with any facial, nasal or oral burns.
- Remove adjacent and distal jewelry if able.
- Be aggressive with fluids for **major burns.**
  - Be prepared for Hypothermia. Avoid ice.
- **ALS** should monitor EKG in electrical burns.

- If Major Mechanism
- If Major Intervention
- Call **FIELD ALERT**

BSA percentage
(front and back)





Notes

- Rule of 9's can estimate BSA in adults.
  - Patient's palm (without fingers) is about 1% BSA.
  - Consider only partial and full thickness when calculating BSA.
- This protocol includes most exposures on **skin**.
  - For most **gas** exposures, refer to Inhalation.
  - For chemical **ingestions** or organophosphates, refer to OD/Tox.
- If substance is known, consider Poison Control: 800-222-1222.
- This does not include **radiation** exposure. Call **Medical Control**.

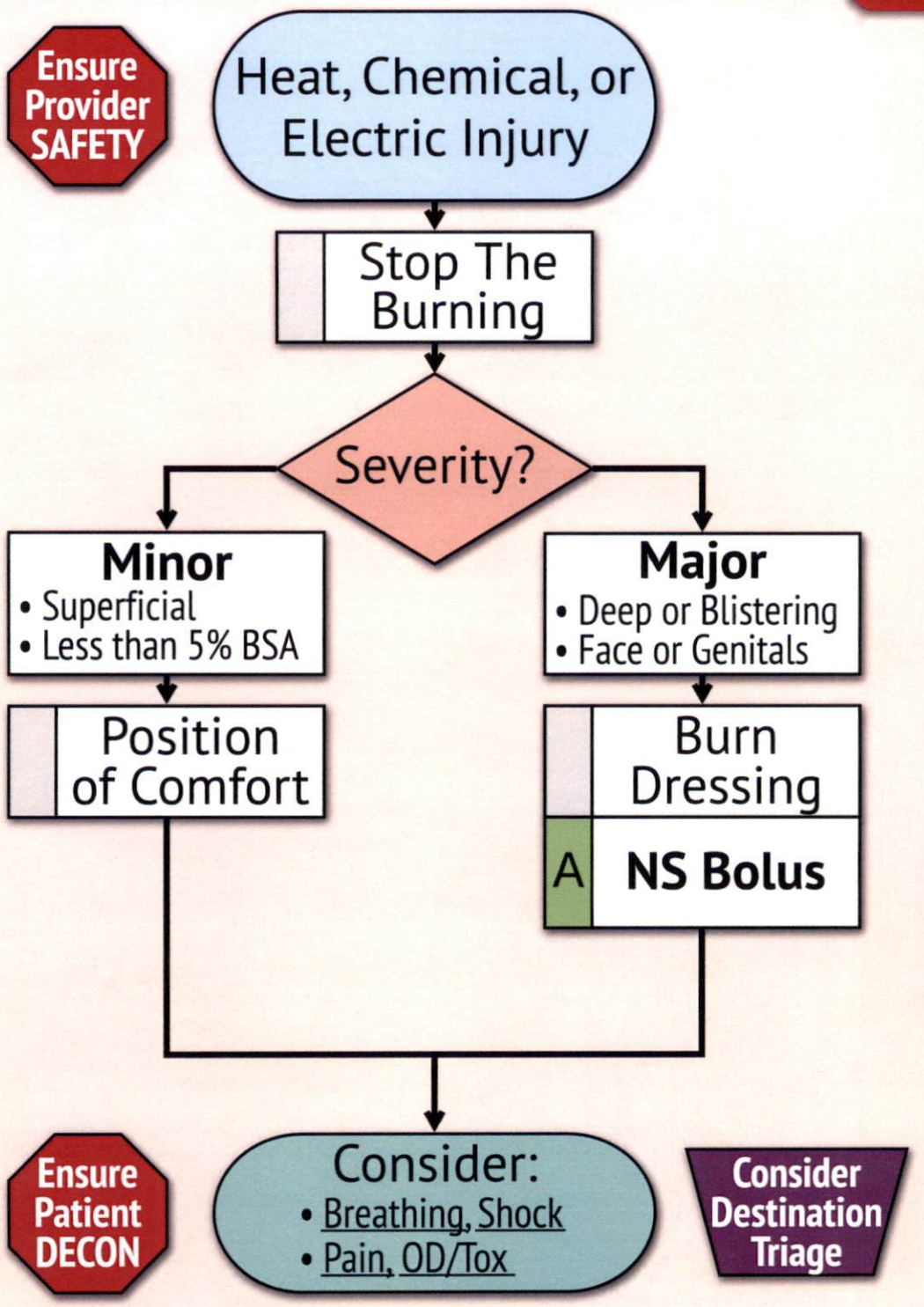
Pediatrics

- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Burns: emedicine.medscape.com/article/1278244
  - Brady Emergency Care 12th Ed: Chapter 28

Page Revised: Jan 2019 NEMSIS CODES 9914085, 9914095, 9914209, 9914213



NS Bolus: 1,000 mL IV/IO x2 **Adult**

Page Revised: Aug 2017 NEMSIS CODES 9914085, 9914095, 9914209, 9914213

Also called: Smoke Inhalation, Carbon Monoxide, Toxic Gas

Imperatives

- Monitor Airway closely with any facial, nasal or oral burns.
- Provide high flow oxygen for any carbon monoxide (CO) exposure.
  - Symptoms may include: headache, confusion, red skin, N/V.
  - SpO_2 may read false normal. (CO can fool the SpO_2 monitor.)
  - Oxygen is critical for pregnant females exposed to CO.
- Even non-toxic gases can produce Hypoxia and dyspnea.

Notes

- SpCO monitors are available and work like SpO_2 monitors.
  - Normal: less than 3% (may be up to 6% in heavy smokers)
  - Exposure: 3% - 10%
  - Toxic: above 10%
- This protocol includes most **gas** exposures.
  - For most **skin** exposures refer to Burns.
  - For chemical **ingestions** or organophosphates, refer to OD/Tox.
- If substance is known, consider Poison Control: 800-222-1222.

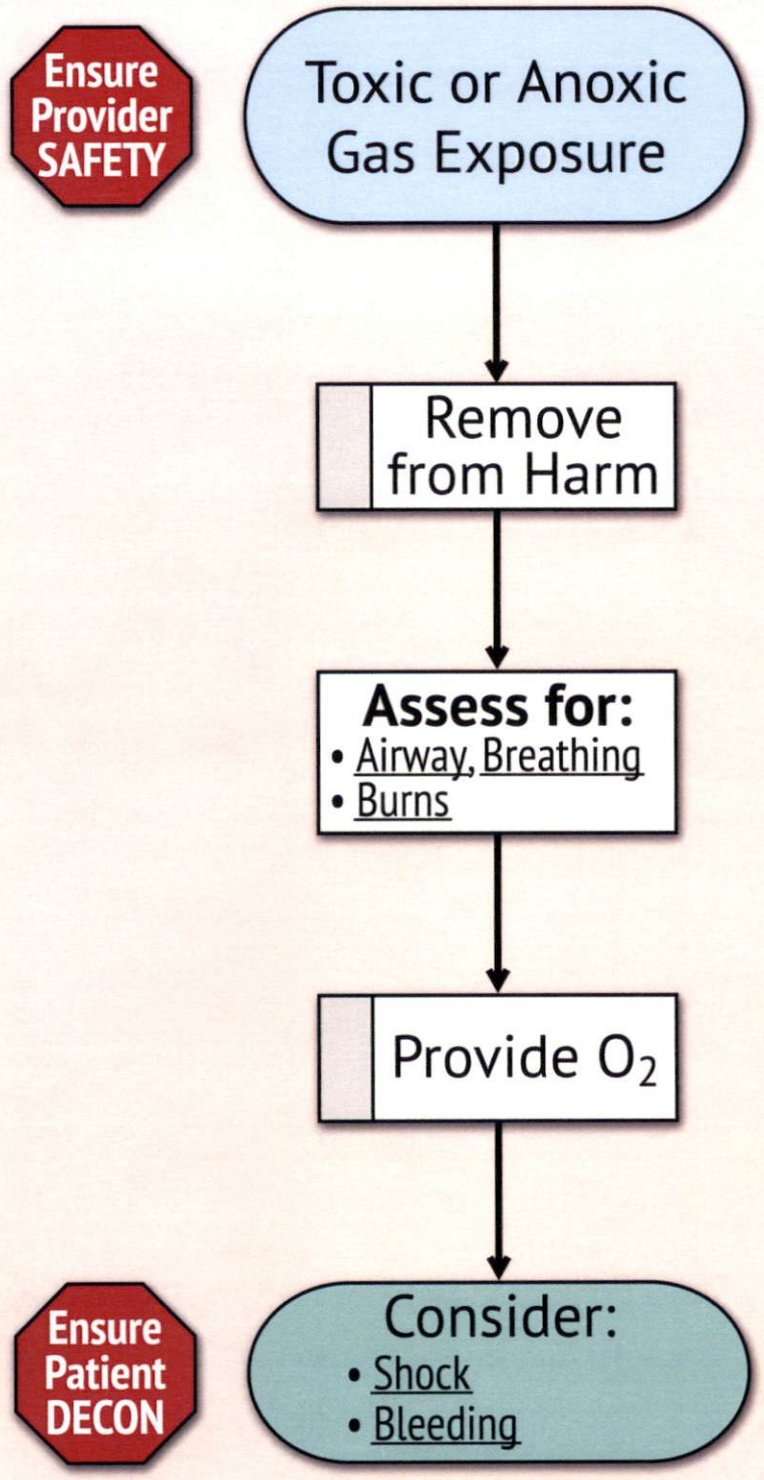
Pediatrics

- May exhibit symptoms quicker than adults.

References

- ACLS: circ.ahajournals.org/content/132/18_suppl_2
- PALS: circ.ahajournals.org/content/132/18_suppl_2/S526
- Medscape CO: emedicine.medscape.com/article/2085044
- Brady Emergency Care 12th Ed: Chapter 31

Page Revised: Nov 2017 NEMSIS CODES 9914033, 9914167, 9914173



Page Revised: Sep 2017 NEMSIS CODES 9914033, 9914167, 9914173

Also called: Animal/ Snake/ Spider/ Tick Bite, Bee/ Wasp Sting

Imperatives

- **Don't bring** animals, snakes or bugs with you to the ED.
- Remove distal jewelry if able.
- Venous tourniquets and wound suction are not indicated.
- Serious or deep bites (especially human and cat) need antibiotics.
- Inquire about the rabies status of any domestic animal.
- Consider ice for animal bites and insect stings.
  - Avoid ice for snake bites.

Notes

- Police can assist with animal control.
- Tick bites do not usually require EMS intervention.
- This protocol does not apply to marine stings or bites.
- Venomous bites in VA: Rattlesnake, Copperhead, Black Widow
- Use caution around all dangerous animals.
  - Do not risk provider safety to catch or photograph.

Rattlesnake

Timber_Rattlesnake

Copperhead

PHIL 8129

Black Widow

Redback_back_view

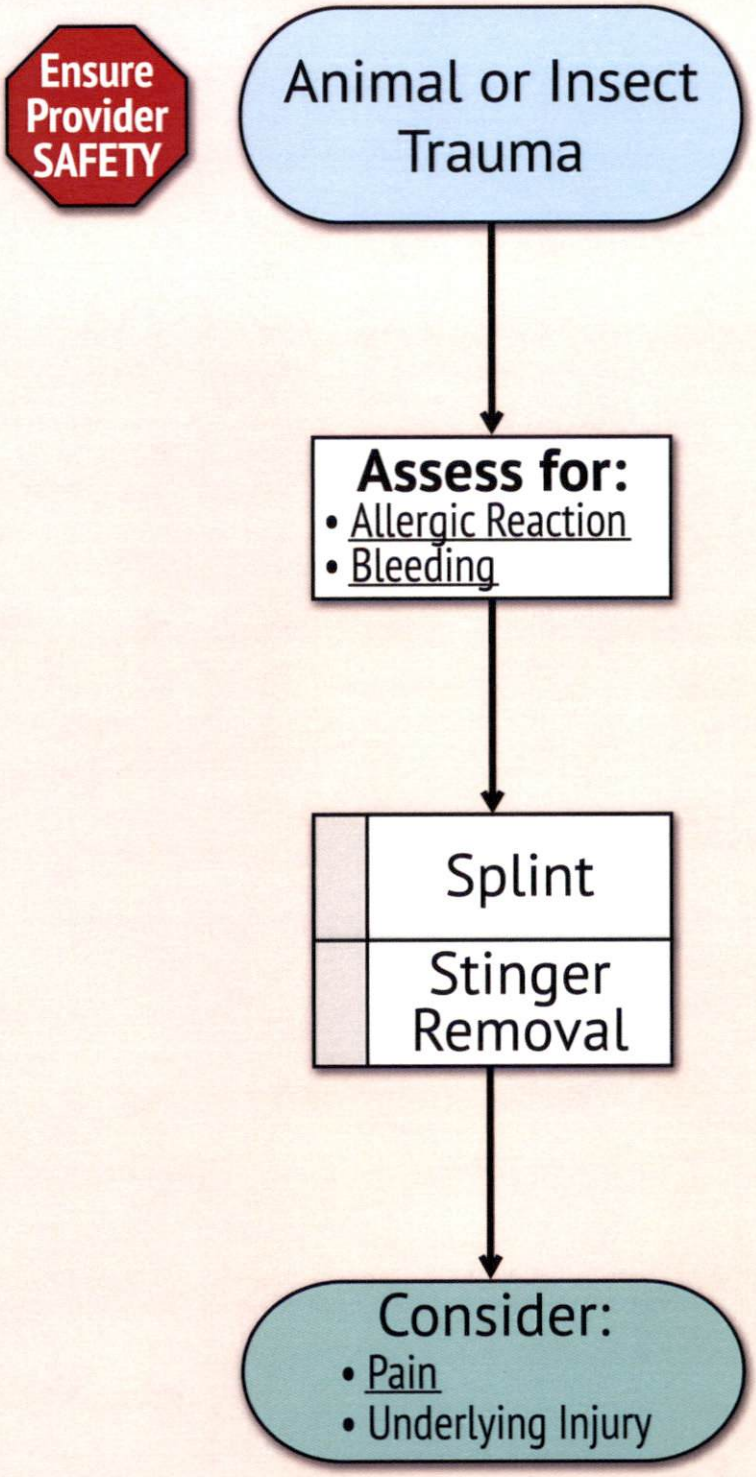
Pediatrics

- Watch for first time Anaphylaxis.

References

- Medscape Snakebite: emedicine.medscape.com/article/168828
- Medscape Widow Spider: emedicine.medscape.com/article/772196
- Wikimedia Commons © BY-SA 3.0: commons.wikimedia.org/w/index.php
- Brady Emergency Care 12th Ed: Chapter 33

Page Revised: Sep 2018 NEMSIS CODE 9914079



Page Revised: Jan 2018 NEMSIS CODE 9914079

Also called: Nose Bleed

Imperatives

- Have the patient lean forward slightly.
- Have patient squeeze the soft part of their nose together firmly.

Medications

- **Afrin** (oxymetazoline): contraindicated with chest pain

Notes

- It is very difficult to quantify the amount of blood loss.
- Check pharynx for possible posterior bleeding.
- Not all nose bleeds are traumatic. The treatment is the same.
- Ask about anti-coagulation medications such as:
  - Aspirin
  - Coumadin (warfarin)
  - Plavix (clopidogrel)
  - Xarelto (rivaroxaban)
  - Effient (prasugrel)
  - Pradaxa (dabigatran)
  - Brilinta (ticagrelor)
  - Lovenox (enoxaparin)

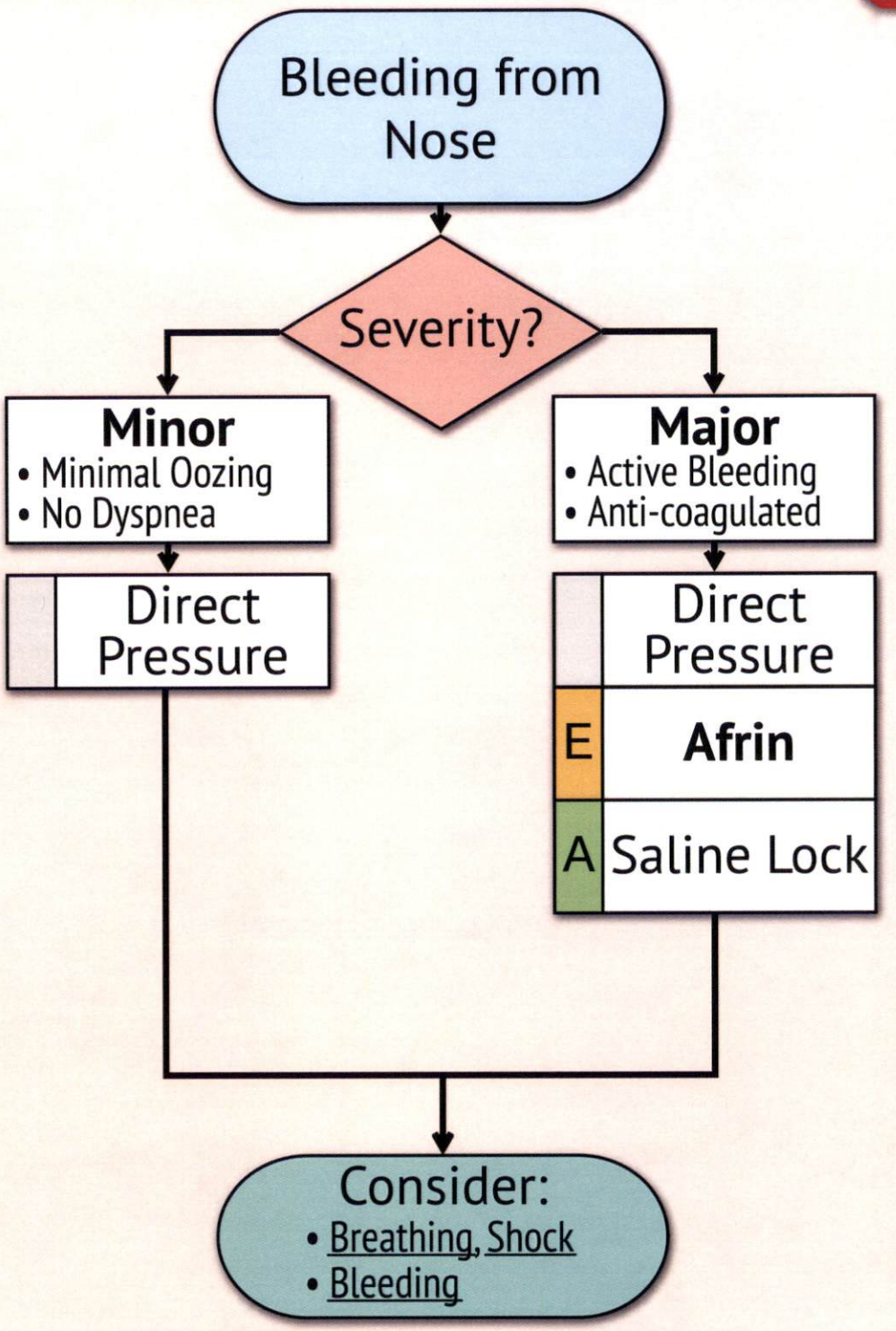
Pediatrics

- Nose bleeds are usually from minor trauma (nose picking).
- Refer to Appendix A or other approved source for peds dosing.

References

- Medscape Epistaxis: emedicine.medscape.com/article/764719
- Brady Emergency Care 12th Ed: Chapter 27

Page Revised: Sep 2017 NEMSIS CODE 9914059



Afrin: 1 spray	IN	Q 5 min x3	**Adult**

Page Revised: Aug 2017 NEMSIS CODE 9914059

Page 80
General

A	Saline Lock
	Glucometer
E	12-Lead

Page 81
Airway

	Heimlich
	Suction
A	Magill Forceps

Page 82
Breathing

	BVM
E	CPAP

Page 83
Resuscitation

	Chest Compressions
A	I O
	Defib

Page 84
Adjuncts

	NPA
	OPA
E	OG-Tube

Page 85
Advanced Adjuncts

E	BIAD
I	Needle Decompress

Page 86
Bleeding

	Wound Care
	Tourniquet
E	Hemostatic Packing

Page 87
Injury

	SMR with C-collar
E	Reduce Deformity
	Splint
	Stinger Removal

Page 88
Cardiac

I	Pacing
I	Cardioversion

Page 89
Obstetrics

E	Deliver Baby
E	Manage Complication

Page Revised: Dec 2018

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. Start with IO in a CODE.
2. Clean site well. Apply a venous tourniquet.
3. Perform venipuncture with appropriate size cath.
4. Confirm placement with flash of blood. (Draw labs if available.)
5. Attach lock and flush with saline. Secure well with tape.

NOTE: It is almost always inappropriate for EMS to access an established indwelling central line (such as dialysis or PICC line).
   - EMS may consider using established lines in a CODE only.

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 an IV attempt.
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. Contact receiving hospital to confirm.

BLS: May read machine interpretation. ALS: May interpret directly.

Page Revised: Jan 2017

Heimlich

1. Help patient **cough if able**.
2. Attempt thrusts only if choking:
   - Adult: Abdominal thrusts (Use chest thrusts if obese/preg.)
   - Child: Abdominal thrusts
   - Infant: 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.

Suction

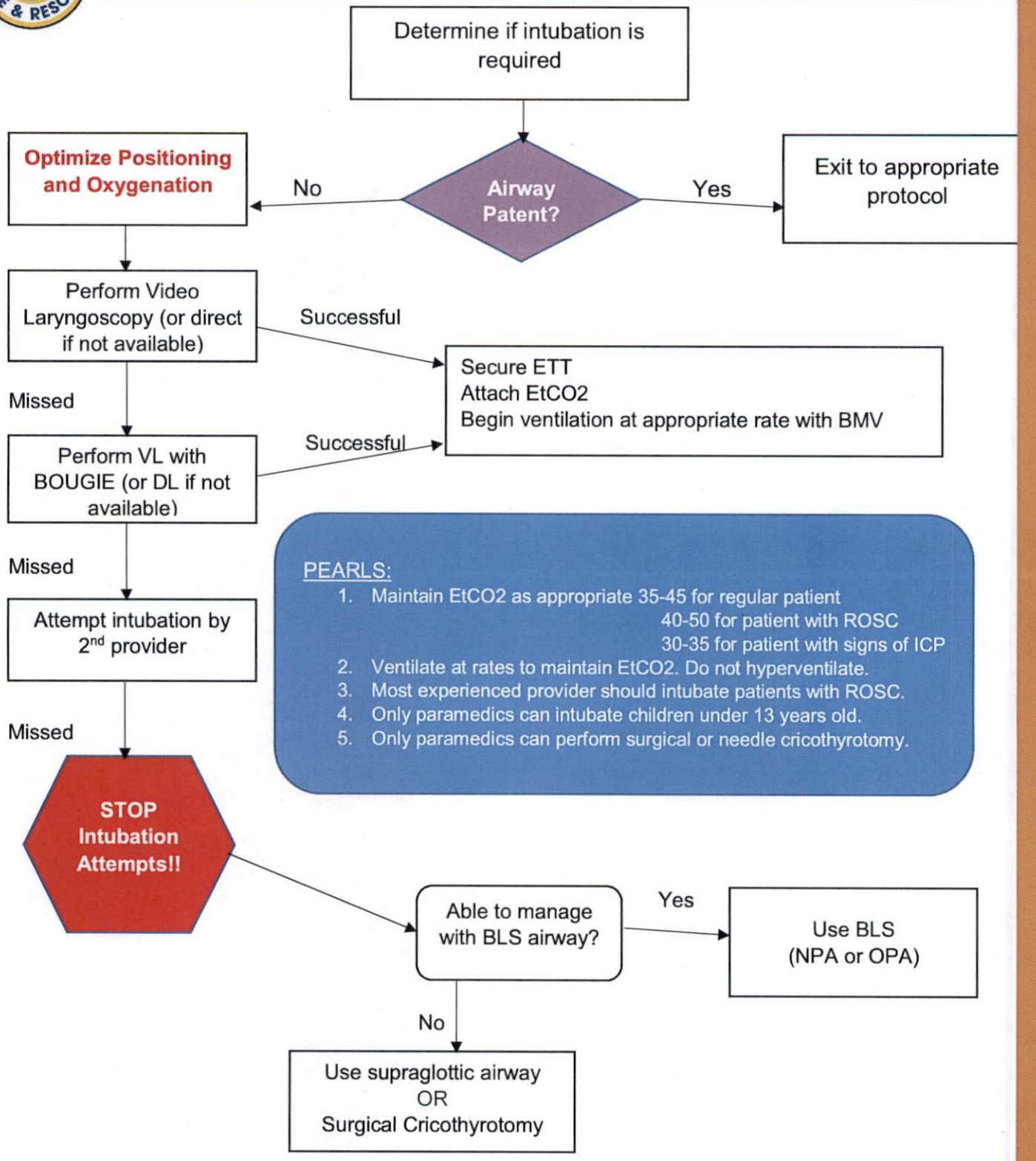
1. Awake pts may suction themselves.
2. Prepare suction device with tip:
   - Oropharynx: **hard tip** (Yankauer)
   - BIAD, Trach tube: **soft cath** (French)
3. Insert tip with suction off and/or vent hole uncovered.
   - May use 2-3ml saline to loosen secretions.
4. Cover vent hole and apply suction as tip is withdrawn.

A Magill Forceps

1. Prepare appropriate laryngoscope:
   - Average adults use **Mac #3.**
2. Visualize posterior pharynx with laryngoscope in left hand.
3. Use Magill Forceps to remove any identified foreign bodies.
   - Consider using suction.
4. Secure airway with BIAD if needed.

Page Revised: Nov 2017

Procedure - Intubation 81-A



Procedure - Intubation 81-A

BVM

1. Prepare appropriately sized BVM.
   - Connect to high-flow oxygen.
   - Extend O_2 reservoir if equipped.
2. Maintain adequate mask seal. Dual rescuers is preferred.
   - Single Rescuer: Use E - C clamp technique.
   - Dual Rescuers: Use two handed technique.
3. Ventilate with slow deliberate squeezing of bag.
   - Assist with natural rate if adequate.
   - Provide additional breaths if natural rate is inadequate.

E CPAP

1. Explain procedure to pt.
   - Consider an NPA.
2. Start the flow of oxygen to the mask. Set PEEP at 7.5 cm H_2O.
3. Place the mask over patient's nose and mouth.
4. Ensure adequate seal by adjusting placement and straps.
5. Provide encouragement. Monitor closely for complications.
   - Remove promptly if vomiting or unresponsive.

BLS: Maintain PEEP at 7.5 cm H_2O. ALS: May titrate PEEP.

Page Revised: Dec 2018

Chest Compressions

1. Confirm no pulse and not breathing.
2. Place hands on chest:
   - Adult: Two hands with fingers interlaced over center of chest
   - Child: One hand over center of chest
   - Infant: Two hands circling chest using thumbs
3. Push hard and fast. Compress about ⅓ the depth of the chest.
4. **Minimize interruption.** Compressions are the most important.
5. Switch personnel every 2 min or sooner if needed.

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

A IO

1. Prepare IO device and select site.
   - Consider pre-treating for Pain.
2. Insert IO following manufacturer's recommended procedure.
3. Secure well with bulky dressing or other device.
4. Consider admin of **Lidocaine** to adults 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.

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.
   - BLS: Use AED "analyze" function. ALS: May interpret directly.
4. If shock indicated: charge defibrillator while continuing CPR.
   - Follow manufacturer's or OMD's dosing guideline.
   - Refer to Appendix A or other approved source for peds dosing.
5. **Assertively state "CLEAR!"** Visually confirm everyone is clear.
6. Defibrillate by pressing the SHOCK button.
   - Restart compressions immediately.

ALS: Consider **dual sequential** defibrillation for persistent VT/VF:
- Attach two separate defibrillators. Do not overlap pads.
- Defibrillate **at the same time** using both machines.

Page Revised: Sep 2018

NPA

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

OPA

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

E OG-Tube

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

Page Revised: Nov 2017

E BIAD

1. Prepare appropriately sized device:
   - Apply water-soluble lube.
   - Average adults use an **iGel #4 (green)**, or a **King #4 (red)**.
2. Pull jaw and tongue forward, or use jaw thrust.
3. Insert BIAD into pharynx slightly rotated to either side.
   - Rotate back to mid-line while advancing.
   - Rock BIAD gently to seat in airway.
4. **If balloon**(s) present: inflate per manufacturer's instruction.
5. **If dual lumen**: attempt alternate port if poor ventilation.
6. Confirm placement. Secure well with tape or other device.
   - Use auscultation, capnometry, $EtCO_2$ and SpO_2 if available.
7. If BIAD fails, **try again with a different size**.
   - Most common failure of a BIAD is inappropriate size.

I Needle Decompress

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

Page Revised: Dec 2018

Wound Care

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

Tourniquet

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

E Hemostatic Packing

1. Apply direct pressure.
2. Consider treatment of Pain.
3. If massive bleeding from a limb, consider a tourniquet first.
4. If bleeding continues, wipe gross blood and clot out of wound.
5. 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.
6. Reapply direct pressure on top of packing.

Page Revised: Nov 2017

SMR with C-collar

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

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

Splint

1. Provide manual immobilization.
2. Remove or cut clothing if able.
3. Check and document distal pulse, movement and sensation.
4. Select appropriate splint and secure above and below injury.
5. Recheck and document distal pulse, movement and sensation.
   - Reapply or remove splint if any decline in distal function.

NOTE: Consider traction splint for isolated femur fracture.

E Reduce Deformity

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

Stinger Removal

1. Inspect wound for stinger.
2. If visualized, scrape stinger away.
   - Use tool with firm edge, like a credit card.

Page Revised: Feb 2019

I Pacing

1. Place defib pads and 12-Lead.
   - Consider pre-treating for Pain.
2. Place monitor in "pacing" mode.
   - Select initial rate and energy of **80 bpm** for adults.
   - Refer to Appendix A 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 aggressively if patient condition allows.
   - Consider reducing energy if appropriate.

I Cardioversion

1. Place defib pads and 12-Lead.
   - Consider pre-treating for Pain.
2. Enable SYNC mode and charge to **50 J** for adults.
   - Alternate: follow manufacturer's or OMD's dosing guideline.
   - Refer to Appendix A 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.
   - Refer to Appendix A or other approved source for peds dosing.

Page Revised: Nov 2017

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. **Deliver Head.** Suction mouth, then nose with bulb suction.
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.
7. Deliver body. Caution: **neonates are slippery**.
8. **Clamp and cut cord.**
   - Clamp about 2 in. away from the baby. Cut between clamps.
9. Manage Neonate. (Stimulate, warm, clean, dry.)
10. Massage mother's lower abdomen (fundal massage).
    - This should help stop post-partum bleeding.
11. Prepare for delivery of the placenta. Do not pull on the cord.
    - Take the placenta to the hospital with mom and baby.

E Manage Complication

1. **Prioritize emergent transport.**
2. **Tell mom: Do Not Push.**
2. Continue standard care. Treat: Breathing, Pain, etc.
   - EMS can do very little for: preemies, twins, or breech birth.
3. Try to help during transport.
   - Failed Delivery / Shoulder Dystocia: transport knees to chest
   - Prolapsed Cord: fingers in vagina to remove pressure on cord
   - Breech: support presenting part, do not pull on part

Page Revised: Nov 2017

Page Revised: Apr 2019

Drug Box

• Agencies participating in the regional drug box exchange program shall follow the procedures below regarding the use and exchange of boxes at regional hospitals.
• EMS provider breaks seal and places seal in top tray of drug box. There will be a new/unused GREEN seal in both the box, and another in the narcotics box, and must be saved for resealing the opened box(es) after use.
• EMS provider documents medications used on the patient care report and the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form. A physician's signature shall be obtained when a provider obtains online orders for medications (including DEA number in any and all cases where online orders for narcotics are used). Boxes will be returned to the Emergency Department, if the signature of the physician or nurse is not legible and/or there is not a DEA number when needed and the regional council will be notified. Enter the RESEAL serial number(s) on the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form. Except under extenuating circumstances the drug box should only be used on one patient and exchanged after use.
• EMS provider and E.D. nurse, physician, pharmacist or pharmacy technician and/or other person as authorized, check used box to account for narcotics. Both assure that all trash and used needles have been removed from the box. The old seal should be left in the box and forwarded to the pharmacy. The nurse, physician, or authorized person will sign the appropriate space indicating that all narcotics have been accounted for. After everything is accounted for, the AIC shall take the green reseal(s) provided in the drug box/narcotics box, and seal the box(es).
• E.D. nurse, physician, pharmacist or pharmacy technician or authorized person issues a new box to the EMS provider, both complete the "Drug Box Exchange Log". The seal on the new box is not to be broken until needed on the scene of an emergency. Boxes on which seals have been broken must be returned to the E.D. or Pharmacy for exchange. If the facility requires a copy of a PPCR or patient reporting printout with an explanation of why the seal was broken this must accompany the box.
• Pharmacy will fill the box in accordance with the contents used from the box schematic. The pharmacy checks the box to assure all contents are present and in-date. The box is sealed with a numbered seal provided by the EMS Council. A hospital sticker indicating the date of the first drug to expire is to be placed on the outside of the box.
• If a box is returned to the pharmacy with dirty needles or excessive litter and debris, the box will be held out of service and the EMS Council notified. The Council will in turn notify the agency and/or personnel responsible and they will be required to report to the hospital to correct the situation. Repeated occurrences by the same provider/agency may result in suspension or revocation of drug box privileges.
• Refilled boxes are returned to the E.D. or stored in the pharmacy for distribution. Each hospital is responsible to assure that the boxes are properly secured against tampering while at the hospital.
• If an EMS provider opens a box and finds one or more medications missing he/she shall document such on the PPCR or patient reporting software and the EMS provider shall notify the EMS Council in writing of the discrepancy; noting the box number and seal number in the report. If the missing drug is a narcotic refer to item # 11. As long as the missing medication is not a narcotic, the box may be returned to service by the hospital pharmacy after restocking the box.
• No item for item exchange may be made in the E.D. The box must be returned to the pharmacy to bechecked, restocked, and resealed.
• When narcotics are used on a call, the ALS technician will bring the unused portion to the E.D. The nurse, physician, or authorized person checking the box will record the amount remaining on the patient care report and the WVEMS/BREMS Regional Pharmacy Administration Record Physician Order Form, and sign his/her name. The authorized person signing and the ALS technician will then properly dispose and accounting for the narcotic according to hospital policy.
• In the event that medications are missing are missing from the box the following steps must be followed:

A. If the seal is found to be broken during a routine drug inspection:
1. Avoid handling the box.
2. Contact local law enforcement. (NARCOTICS ONLY)
3. Contact the agency Chief or Captain
4. Contact the Western Virginia EMS Council
5. Complete and file a drug diversion form with the Office of EMS (see 12 VAC 5-31-520, D of the Virginia EMS Rules and Regulations)
6. Have drug box inspection forms ready for police, EMS Council, and Office of EMS personnel.

B. If the seal is on the box and medications are missing while performing patient care or after arriving at the hospital:
1. Continue patient care, you may continue to utilize the contents of the box.
2. If the medication needed is not present consider requesting another unit to meet en route, DO NOT DELAY TRANSPORT.
3. Upon arrival at the hospital notify the E.D. Nursing Supervisor of the problem.
4. Follow the procedures listed in 11-A.
5. The box must be secured in the hospital and may be released only after being notified by the EMS Council.

C. In all cases you will be asked to write a report stating the events surrounding the incident. It should include the box number, seal number, witnesses and a description of what occurred.

D. Depending on the individual circumstances, the Operational Medical Director of the agency or the Regional Medical Director may suspend the agency's authorization to administer drugs in the pre-hospital setting pending the outcome of a formal investigation by law enforcement or the Office of EMS, and may require implementation of additional security measures at the agency's expense.

Page Revised: Apr 2019

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.

• **Be aware** of the potential for abuse in all patients. In any case where abuse is suspected, first protect the patient and the EMS team from harm. Collect as much information as possible and preserve physical evidence if able. Signs of abuse may include:

- **Physical**: injuries that are inconsistent with the reported mechanism, injuries in different stages of healing, defensive injuries (ex. to forearms), or injuries during pregnancy
- **Psychological**: excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, or non-compliance
- **Neglect**: inappropriate level of clothing for weather, inadequate hygiene, inattentive caregiver, or malnutrition

• **Immediately report** any suspicious findings to both the receiving hospital (if transported) and social services:
For children contact Child Protective Services at (800) 552-7096.
For adults contact Adult Protective Services at (888) 832-3858.
For domestic violence offer police intervention and provide the patient with the National Hotline, 1-800-799-SAFE.

Infant Abandonment

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

Page Revised: Jun 2018

Verification of on scene personnel

• The delivery of prehospital care at the scene of an emergency is the responsibility of the **responding EMS resources**. Occasionally, bystanders may be crucial to providing or assisting with treatment. Bystanders can be considered when the immediate needs outweigh the EMS resources available, or if a bystander can provide a unique resource. EMS should never authorize or perform any intervention outside their scope **or comfort level**.

• Bystanders may have a unique understanding of a **specialized medical device** or condition. EMS should consider the advice of patients or bystanders, such as caretakers managing a vent at home, or a patient with an LVAD, etc. EMS must call **Medical Control** for any orders to deviate from routine EMS care.

• **BLS procedures** are frequently taught as a component of common first aid. Appropriate bystanders may assist with common first aid when EMS resources are insufficient. EMS must direct bystanders and maintain overall responsibility.

• **ALS interventions** are only appropriate by responding ALS resources. A formal mutual aid agreement or authorization by **Medical Control** must exist prior to delivery of ALS interventions. EMS has no authority to enable non-EMS medical personnel (RN, NP, PA, CRNA, RT, etc.) to perform ALS interventions.

Physician Orders

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

Page Revised: Jun 2018

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.**
• 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 risk of emergent transport against the benefit of prolonged resuscitation.

• **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.

Special Cases

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

• **ALS** should resuscitate on scene for non-special cases. **Call Medical Control if no ROSC within 30 min.**

ALS Termination

- Not a Special Case
- No ROSC within 30 min

• **BLS** should try to turn over care to ALS (or the hospital) within 15 min. **Prioritize transport if a hospital is within 15 min.** Extended BLS resuscitation beyond 15 min may still be successful if the arrest is witnessed by EMS or if any shock is ever advised by the AED. **Prioritize transport for any witnessed or shocked arrest regardless of time to the hospital.** Call **Medical Control** if not witnessed, and not shocked, and no ALS after 15 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

Page Revised: Sep 2018

LVAD (left ventricular assist device)

- LVAD patients can quickly become very complicated.
  - Their life literally depends on an external pump they wear.
  - **When in doubt, follow regular protocols.**

- All LVAD patients will have an assigned "**LVAD center**."
  - The patient should have the emergency phone number.
  - EMS may try to **contact the LVAD center** with any problems.
  - Call **Medical Control** to verify any recommendations.

- Diagnosing LVAD problems is complex.
  - **Do not unplug anything.**
  - Consider the advice of the patient and any trained bystanders.
  - Some LVADs may provide voice prompts for troubleshooting.
  - Call **Medical Control** to verify any recommendations.

- Patients who are alive and well **may not have a palpable pulse**.
  - It may be impossible to palpate or auscultate a blood pressure.
  - Do not start CPR on patients who are obviously alive and well.

- An LVAD makes diagnosis of cardiac arrest difficult.
  - Look for other signs of life and listen for the LVAD pump noise.
  - Chest compressions may harm an LVAD.
  - Consider the advice of trained bystanders or the LVAD center.
  - Call **Medical Control ASAP for any unconscious LVAD** patient.

- **Bring all LVAD supplies** and information to the ED with you.
  - Bring batteries and cords.
  - Bring paperwork and contact information.

- Consider destination triage in consultation with **Medical Control**.

Page Revised: Nov 2017

EMS Standbys

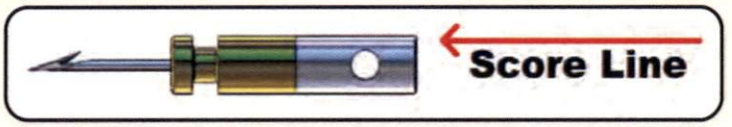
- EMS may be utilized to standby at a scene without a specific pt.
- EMS should complete a full report for any patients or treatments.
  - Consider simple interventions such as PO pain meds and ice.
  - Document a refusal if any patient declines transport.

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 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

- EMS may also 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.



Page Revised: Jan 2019

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.
  - EMS may not refuse transport if requested.
- All patients who wish to refuse must be **eligible** to make their own decisions. Eligible patients include:
  - Adults (18 y/o and older)
  - Minors who are married, divorced or emancipated
- The Code of Virginia (§54.1-2969 G) allows **pregnant minors** to direct treatment **only relating to the delivery of their baby**.
- The responsible party (parent, guardian, etc.) may refuse for a patient who is not eligible to refuse on their own.
- All patients or guardians who wish to refuse must also demonstrate **capacity**. This requires them to be awake, oriented, and able to demonstrate understanding of the potential risks associated with their refusal.
  - Patients with altered LOC lack capacity and cannot refuse.
  - Suicidal patients lack capacity and cannot refuse.
- Call **Medical Control** and enlist police 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.

Page Revised: Jan 2019

Destination Triage Plan

- Some specific conditions benefit from prehospital triage to a more appropriate destination. Consider increasing transport time **no more than 30 minutes** to reach a more capable facility if any of the following emergency conditions are identified.
- The decision to pass a less capable facility and therefore increase transport time should include consideration of **air transport**, the stability of the patient and system resources at the time. Call **Medical Control** if there is any doubt or conflict.

Acute STEMI with chest pain

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

Acute (large vessel) CVA

- Pts should have a definite **time last normal under 6 hrs** and at least one positive finding on a **Cincinnati Stroke** (FAST) exam.
- Pts must also have at least one positive finding on a **VAN** exam.
- Appropriate WVEMS stroke hospitals (PSC or CSC) include:
  - **Carilion Roanoke Memorial** and **Lewis Gale Salem**

Major or Unstable Trauma

- Pts should meet trauma triage guidelines with **major injury** and/or major mechanism.
- Appropriate WVEMS trauma hospitals (Level I or II) include:
  - **Carilion Roanoke Memorial**

Page Revised: Feb 2019

Deceased Subjects

- EMS may occasionally encounter a deceased subject.
  - Maintain respect for the deceased and their family.
  - Always involve the police. 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 the police.
  - Police 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 the police or Medical Examiner.
- In some situations the **police may release the body**.
  - EMS should not transport the deceased to the ED.
  - EMS may offer courtesy transport to a funeral home.
  - EMS may remove lines, tubes, etc if the body is released.
  - Courtesy transport is not required. Defer to agency policy.
  - Inform **Medical Control** of any courtesy transports.
- EMS may confirm death in several ways including:
  - Lack of pulse, respirations or response.
  - Asystole in at least two cardiac leads with gain at max.
  - Obvious Death or Mortal Injury.

Mass Casualty

- **Call for more help. Begin a standardized MCI triage system**.
  - Several systems are described, such as START and JumpSTART.
- Do the most good for the most people until adequate help arrives.
  - Consider utilizing any available resources, such as bystanders.
  - Prioritize life-saving interventions.
  - Triage and prioritizing care during an MCI is not abandonment.

Page Revised: Sep 2018

GRAY

Resuscitation
Defib: 10 ▶ 20 J
Epi (code): 0.04 mg
Lidocaine: 4 mg

Common
NS Bolus: 100 mL
Afrin: *<do not use>*
Albuterol: 0.625 mg
Atrovent: 0.25mg
Benadryl: 5 mg
D10: 25 mL
Decadron: 2 mg
Epi (allergy): 0.04 mg
Epi (neb): 0.25 mL
Fentanyl: 5 mcg
Glucose: 3.25 g
Ibuprofen: 40 mg
Ketamine (pain): *<do not use>*
Narcan: 0.4 mg
Tylenol: 64 mg
Zofran: *<do not use>*

Misc
IV Cath: 24 g
King Airway: Clear (0)
iGel Airway: Pink (1)
Pacing Rate: 120 bpm
Cardioversion: 5 ▶ 10 J

Less Common
Adenosine: 0.4 ▶ 0.8 mg
Amiodarone: *<do not use>*
Atropine: 0.1 mg
Bicarbonate: 4 mEq
Calcium: 100 mg
Dopamine: 20 mcg/min
Epi (brady): 0.004 mg
Glucagon: 0.5 mg
Haldol: *<do not use>*
Ketamine (rosc): *<do not use>*
Labetalol: 2.5 ▶ 5 mg
Magnesium: 0.25 g
TXA: 50 mg
Versed: 0.25 mg

0 - 5 kg **0 - 12 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

PINK

Resuscitation
Defib: 15 ▶ 30 J
Epi (code): 0.06 mg
Lidocaine: 6 mg

Common
NS Bolus: 120 mL
Afrin: <do not use>
Albuterol: 0.625 mg
Atrovent: 0.25mg
Benadryl: 5 mg
D10: 25 mL
Decadron: 3 mg
Epi (allergy): 0.06 mg
Epi (neb): 0.25 mL
Fentanyl: 10 mcg
Glucose: 3.25 g
Ibuprofen: 60 mg
Ketamine (pain): 1.5 mg
Narcan: 0.4 mg
Tylenol: 96 mg
Zofran: 0.5 mg

Misc
IV Cath: 24 g
King Airway: White (1)
iGel Airway: Blue (1.5)
Pacing Rate: 110 bpm
Cardioversion: 7 ▶ 15 J

Less Common
Adenosine: 0.6 ▶ 1.2 mg
Amiodarone: 30 mg
Atropine: 0.1 mg
Bicarbonate: 6 mEq
Calcium: 150 mg
Dopamine: 30 mcg/min
Epi (brady): 0.006 mg
Glucagon: 0.5 mg
Haldol: <do not use>
Ketamine (rosc): 1.5 mg
Labetalol: 2.5 ▶ 5 mg
Magnesium: 0.25 g
TXA: 50 mg
Versed: 0.5 mg

6 - 7 kg **13 - 16 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

A2 Peds Dosing: 4 - 6 months

RED

Resuscitation

Defib: 15 ▶ 30 J
Epi (code): 0.08 mg
Lidocaine: 8 mg

Common

NS Bolus: 160 mL
Afrin: *<do not use>*
Albuterol: 1.25 mg
Atrovent: 0.25mg
Benadryl: 5 mg
D10: 25 mL
Decadron: 4 mg
Epi (allergy): 0.08 mg
Epi (neb): 0.25 mL
Fentanyl: 10 mcg
Glucose: 3.25 g
Ibuprofen: 80 mg
Ketamine (pain): 2 mg
Narcan: 0.8 mg
Tylenol: 128 mg
Zofran: 0.5 mg

Misc

IV Cath: 24 g
King Airway: White (1)
iGel Airway: Blue (1.5)
Pacing Rate: 100 bpm
Cardioversion: 7 ▶ 15 J

Less Common

Adenosine: 0.8 ▶ 1.6 mg
Amiodarone: 40 mg
Atropine: 0.2 mg
Bicarbonate: 8 mEq
Calcium: 150 mg
Dopamine: 40 mcg/min
Epi (brady): 0.008 mg
Glucagon: 0.5 mg
Haldol: *<do not use>*
Ketamine (rosc): 2 mg
Labetalol: 2.5 ▶ 5 mg
Magnesium: 0.25 g
TXA: 50 mg
Versed: 0.5 mg

8 - 9 kg **17 - 20 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

PURPLE

Resuscitation
Defib: 20 ▶ 40 J
Epi (code): 0.1 mg
Lidocaine: 10 mg

Common
NS Bolus: 200 mL
Afrin: *<do not use>*
Albuterol: 1.25 mg
Atrovent: 0.25mg
Benadryl: 10 mg
D10: 50 mL
Decadron: 5 mg
Epi (allergy): 0.1 mg
Epi (neb): 0.5 mL
Fentanyl: 10 mcg
Glucose: 7.5 g
Ibuprofen: 100 mg
Ketamine (pain): 2 mg
Narcan: 0.8 mg
Tylenol: 160 mg
Zofran: 1 mg

Misc
IV Cath: 22 g
King Airway: White (1)
iGel Airway: Blue (1.5)
Pacing Rate: 100 bpm
Cardioversion: 10 ▶ 20 J

Less Common
Adenosine: 1 ▶ 2 mg
Amiodarone: 50 mg
Atropine: 0.2 mg
Bicarbonate: 10 mEq
Calcium: 200 mg
Dopamine: 50 mcg/min
Epi (brady): 0.01 mg
Glucagon: 0.5 mg
Haldol: *<do not use>*
Ketamine (rosc): 2 mg
Labetalol: 2.5 ▶ 5 mg
Magnesium: 0.5 g
TXA: 100 mg
Versed: 0.75 mg

10 - 11 kg **21 - 25 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

A4 Peds Dosing: 10 - 15 months

YELLOW

Resuscitation

Defib: 25 ▶ 50 J
Epi (code): 0.12 mg
Lidocaine: 12 mg

Common

NS Bolus: 250 mL
Afrin: <do not use>
Albuterol: 1.25 mg
Atrovent: 0.25mg
Benadryl: 10 mg
D10: 50 mL
Decadron: 6 mg
Epi (allergy): 0.12 mg
Epi (neb): 0.5 mL
Fentanyl: 20 mcg
Glucose: 7.5 g
Ibuprofen: 120 mg
Ketamine (pain): 3 mg
Narcan: 1.2 mg
Tylenol: 192 mg
Zofran: 1 mg

Misc

IV Cath: 22 g
King Airway: Green (2)
iGel Airway: Grey (2)
Pacing Rate: 100 bpm
Cardioversion: 12 ▶ 25 J

Less Common

Adenosine: 1.2 ▶ 2.4 mg
Amiodarone: 60 mg
Atropine: 0.3 mg
Bicarbonate: 12 mEq
Calcium: 250 mg
Dopamine: 60 mcg/min
Epi (brady): 0.012 mg
Glucagon: 0.5 mg
Haldol: <do not use>
Ketamine (rosc): 3 mg
Labetalol: 5 ▶ 10 mg
Magnesium: 0.5 g
TXA: 100 mg
Versed: 1 mg

12 - 14 kg **26 - 31 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

WHITE

Resuscitation

Defib: 30 ▶ 60 J
Epi (code): 0.15 mg
Lidocaine: 15 mg

Common

NS Bolus: 300 mL
Afrin: *<do not use>*
Albuterol: 2.5 mg
Atrovent: 0.25mg
Benadryl: 15 mg
D10: 50 mL
Decadron: 8 mg
Epi (allergy): 0.15 mg
Epi (neb): 0.5 mL
Fentanyl: 20 mcg
Glucose: 7.5 g
Ibuprofen: 160 mg
Ketamine (pain): 4 mg
Narcan: 1.6 mg
Tylenol: 256 mg
Zofran: 1 mg

Misc

IV Cath: 22 g
King Airway: Green (2)
iGel Airway: Grey (2)
Pacing Rate: 100 bpm
Cardioversion: 15 ▶ 30 J

Less Common

Adenosine: 1.5 ▶ 3 mg
Amiodarone: 80 mg
Atropine: 0.3 mg
Bicarbonate: 15 mEq
Calcium: 300 mg
Dopamine: 80 mcg/min
Epi (brady): 0.015 mg
Glucagon: 0.5 mg
Haldol: *<do not use>*
Ketamine (rosc): 4 mg
Labetalol: 5 ▶ 10 mg
Magnesium: 0.5 g
TXA: 100 mg
Versed: 1.25 mg

15 - 18 kg **32 - 40 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

BLUE

Resuscitation

Defib: 40 ▶ 80 J
Epi (code): 0.2 mg
Lidocaine: 20 mg

Common

NS Bolus: 400 mL
Afrin: <do not use>
Albuterol: 2.5 mg
Atrovent: 0.25mg
Benadryl: 20 mg
D10: 100 mL
Decadron: 10 mg
Epi (allergy): 0.15 mg
Epi (neb): 0.5 mL
Fentanyl: 30 mcg
Glucose: 15 g
Ibuprofen: 200 mg
Ketamine (pain): 5 mg
Narcan: 2 mg
Tylenol: 320 mg
Zofran: 2 mg

Misc

IV Cath: 20 g
King Airway: Green (2)
iGel Airway: Grey (2)
Pacing Rate: 90 bpm
Cardioversion: 20 ▶ 40 J

Less Common

Adenosine: 2 ▶ 4 mg
Amiodarone: 100 mg
Atropine: 0.4 mg
Bicarbonate: 20 mEq
Calcium: 400 mg
Dopamine: 100 mcg/min
Epi (brady): 0.02 mg
Glucagon: 0.5 mg
Haldol: <do not use>
Ketamine (rosc): 5 mg
Labetalol: 5 ▶ 10 mg
Magnesium: 1 g
TXA: 200 mg
Versed: 1.5 mg

19 - 23 kg **41 - 51 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

ORANGE

Resuscitation

Defib: 50 ▶ 100 J
Epi (code): 0.25 mg
Lidocaine: 25 mg

Common

NS Bolus: 500 mL
Afrin: 1 spray
Albuterol: 2.5 mg
Atrovent: 0.5mg
Benadryl: 25 mg
D10: 100 mL
Decadron: 10 mg
Epi (allergy): 0.15 mg
Epi (neb): 0.5 mL
Fentanyl: 30 mcg
Glucose: 15 g
Ibuprofen: 260 mg
Ketamine (pain): 6 mg
Narcan: 2 mg
Tylenol: 320 mg
Zofran: 2 mg

Misc

IV Cath: 20 g
King Airway: Orange (2.5)
iGel Airway: White (2.5)
Pacing Rate: 90 bpm
Cardioversion: 25 ▶ 50 J

Less Common

Adenosine: 2.5 ▶ 5 mg
Amiodarone: 125 mg
Atropine: 0.5 mg
Bicarbonate: 25 mEq
Calcium: 500 mg
Dopamine: 125 mcg/min
Epi (brady): 0.025 mg
Glucagon: 1 mg
Haldol: 1.25 mg
Ketamine (rosc): 6 mg
Labetalol: 5 ▶ 10 mg
Magnesium: 1 g
TXA: 200 mg
Versed: 2 mg

24 - 29 kg **52 - 64 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

A8 Peds Dosing: 7 - 9 years

GREEN

Resuscitation
Defib: 60 ► 120 J
Epi (code): 0.3 mg
Lidocaine: 30 mg

Common
NS Bolus: 600 mL
Afrin: 1 spray
Albuterol: 2.5 mg
Atrovent: 0.5mg
Benadryl: 25 mg
D10: 100 mL
Decadron: 10 mg
Epi (allergy): 0.3 mg
Epi (neb): 0.5 mL
Fentanyl: 40 mcg
Glucose: 15 g
Ibuprofen: 300 mg
Ketamine (pain): 8 mg
Narcan: 2 mg
Tylenol: 320 mg
Zofran: 2 mg

Misc
IV Cath: 18 g
King Airway: Orange (2.5)
iGel Airway: White (2.5)
Pacing Rate: 90 bpm
Cardioversion: 30 ► 60 J

Less Common
Adenosine: 3 ► 6 mg
Amiodarone: 150 mg
Atropine: 0.5 mg
Bicarbonate: 30 mEq
Calcium: 600 mg
Dopamine: 150 mcg/min
Epi (brady): 0.03 mg
Glucagon: 1 mg
Haldol: 2.5 mg
Ketamine (rosc): 8 mg
Labetalol: 5 ► 10 mg
Magnesium: 1 g
TXA: 300 mg
Versed: 2.5 mg

30 - 36 kg **65 - 80 lbs**

- Refer to the adult dosing for route and frequency.
- Emergent peds dosing by its nature cannot be an exact science.
  - Weight based dosing is best. Match actual weight if available.
  - Length based tape is second best. These are Broselow™ colors.
  - Age ranges are least accurate, but are better than guessing wt.

Page Revised: Jan 2019

B1 Index: A - C

D

E

F

G

H

Page Revised: Feb 2019

Q

R

S

T

U

V

W

X

Y

Z

Page Revised: Dec 2017