WVEMS 2021 Protocol Update

Introduction

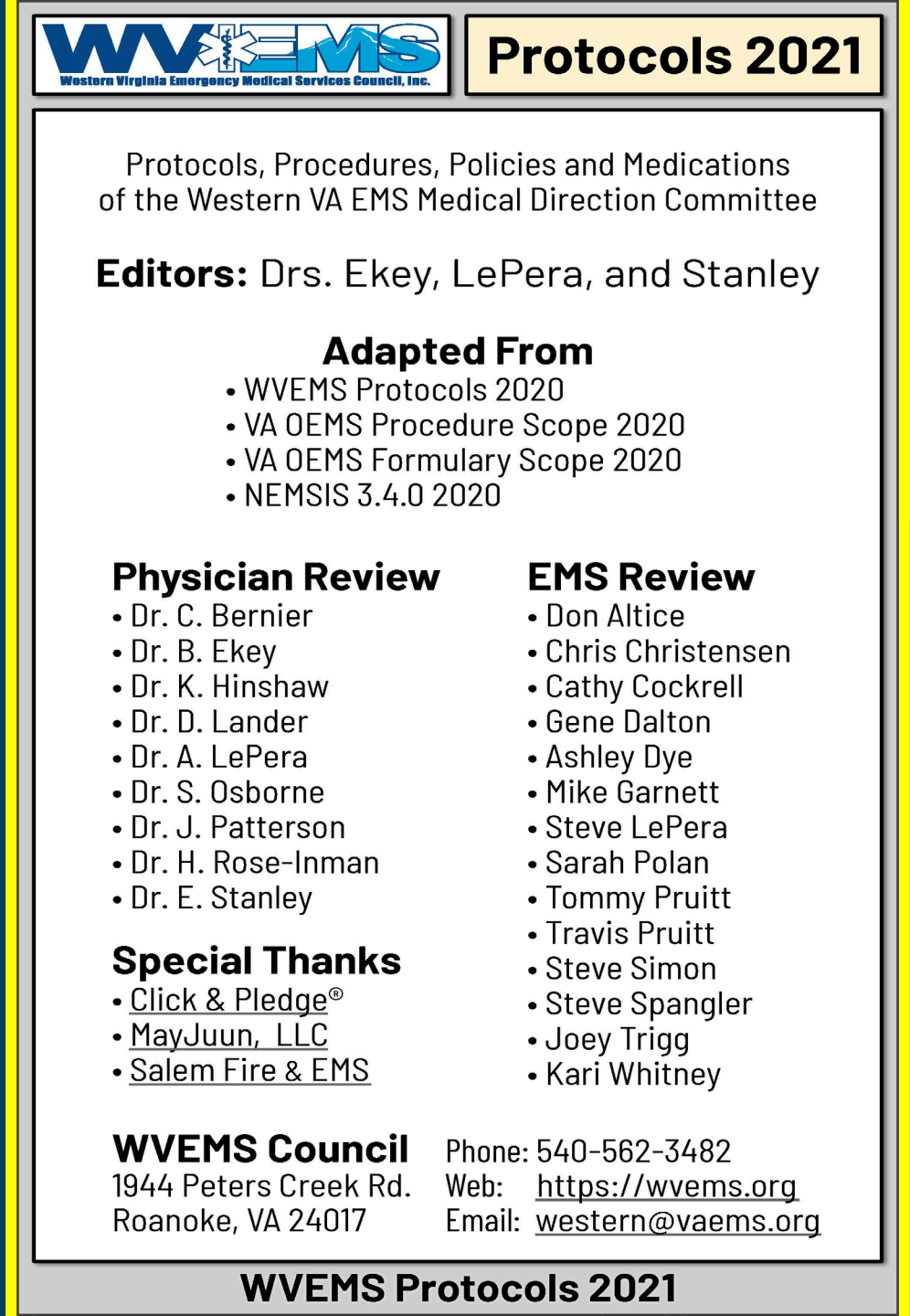
- Welcome
- Housekeeping

** ADD NOTE**

This presentation is for informational purposes only.

Please keep in mind you cannot function under or use the new 2021 protocols until you have been cleared by your agency, agency Operational Medical Director and all required documentation has been submitted to the Western VA EMS Council office.

COMMITTEE MEMBERS



How to Use

Welcome to the WVEMS Protocols **2021**

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

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

Call for online **Medical Direction** at any time for advice on:
- Any questions, problems, or if uncertain for any reason.
- Getting permission to **deviate** from these protocols.
- If unable to contact, remember: **get the patient to the hospital**.

Protocols mean you **can**, but not always that you **should**.
- Use only enough to stabilize and/or improve. Don't follow blindly.
- Skip anything unnecessary. Not every box need to be completed.
- The listed **order suggests importance**, but is not absolute.

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

Presume routine things when appropriate, like:
- SpO_2, EKG, $EtCO_2$, glucometer, phlebotomy, etc.
- Regular layperson **first aid** treatments like splinting & band-aids.
- Note: protocols may also include reminders (like "12-Lead").

Pediatric considerations are **included** in every protocol.
- Patients 13 y/o and over (13+) are generally given **adult** therapy.
- Children (1-12) and Infants (<1) are considered **peds**.
- Use Peds Reference or other approved source for peds dosing.

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

References are included. This text is not comprehensive.
- Medications may appear as **brand name**® or **generic**.

Reviewed: Feb 2021

WVEMS Protocols 2021

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

Editors: Drs. Ekey, LePera, and Stanley

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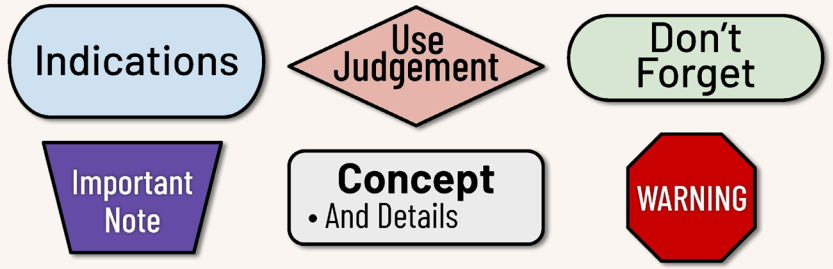
Protocol Flow and Intervention Symbols



Basic Life Support (**BLS**)

	EMR	E	EMT	A	AEMT

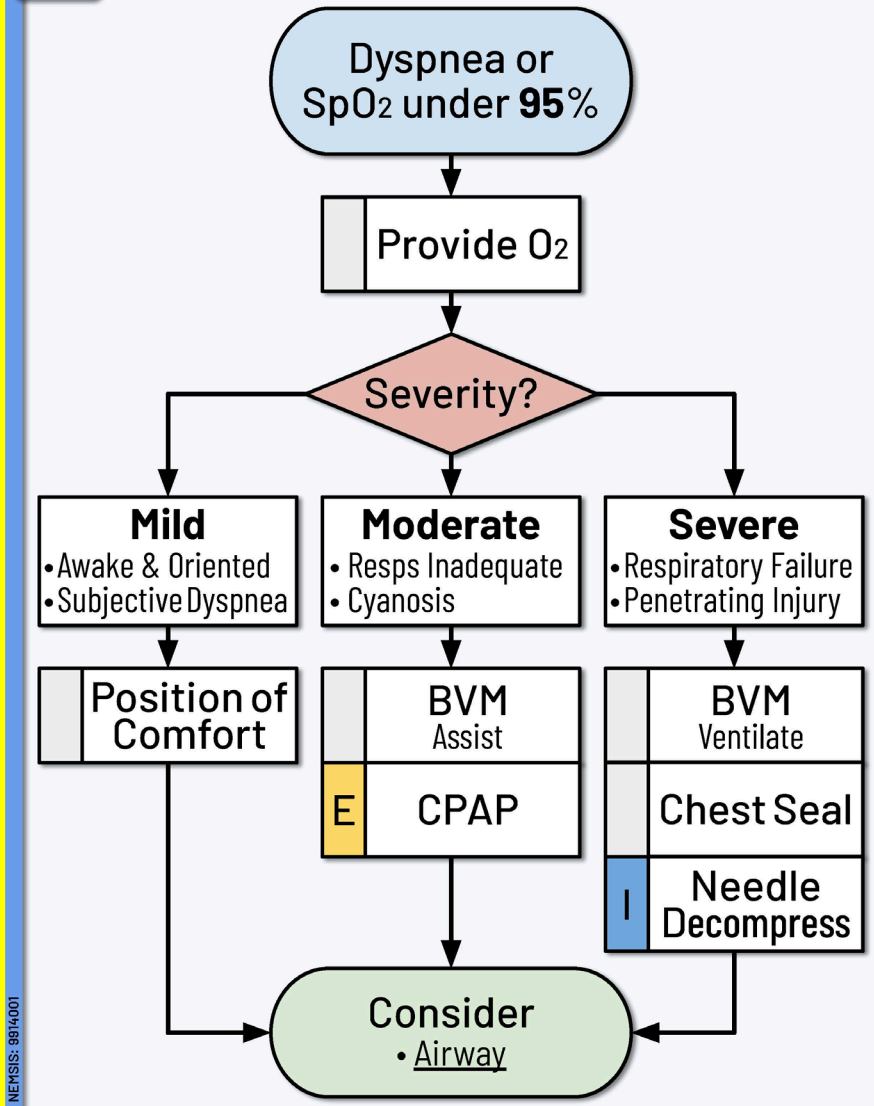
Advanced Life Support (**ALS**)

I	Intermediate	P	Paramedic	P	Critical Care Paramedic

Reviewed: Jul 2021

UNIVERSAL Section

Breathing



NEMSIS: 9914001
Reviewed: Apr 2021

AKA: Hypoxia, Oxygenation, O_2, Pneumothorax (PTX), PE

Breathing Imperatives

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

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, **especially COPD**.
  - Target SpO_2 of 88-92% for adults with isolated **COPD**.
- If SpO_2 unavailable or machine fails: use good clinical judgment.

Pediatrics

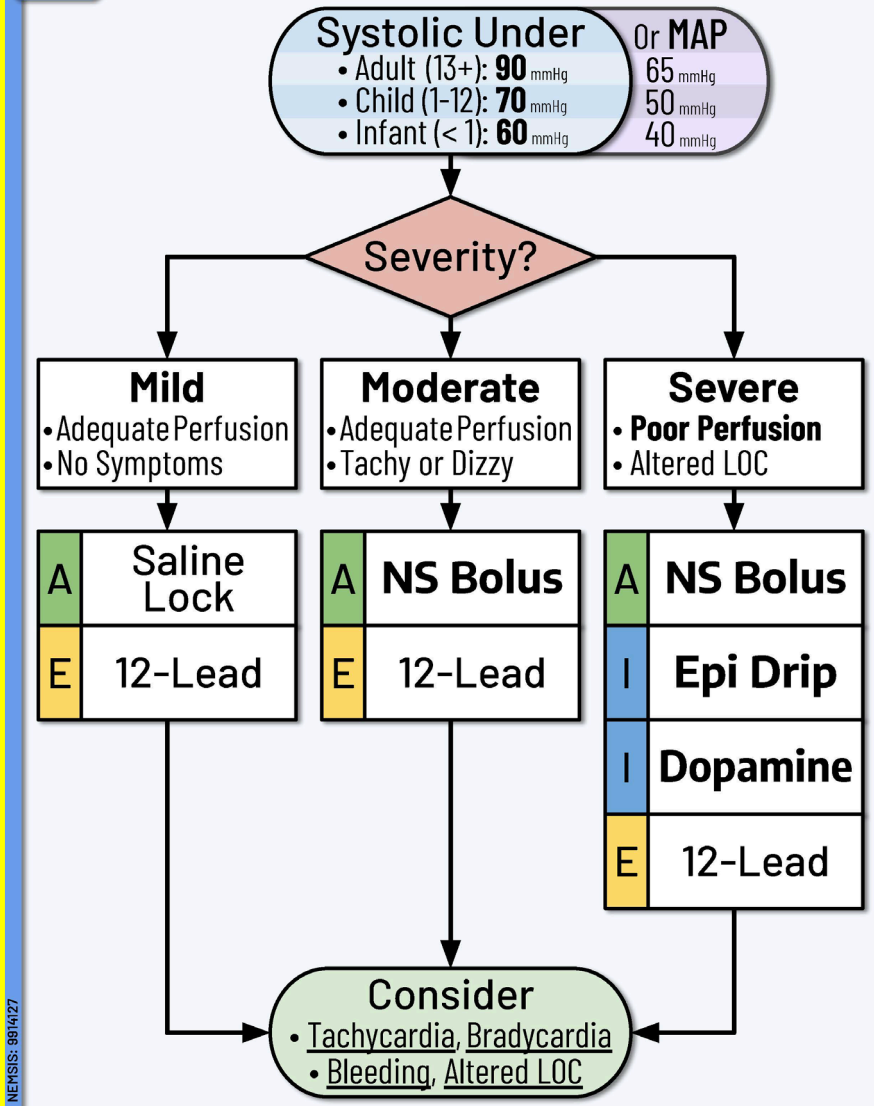
- Refer to Neonate for any peds **under 1 month** (< 31 days) old.
- Use caution to prevent barotrauma from BVM.

References

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

NEMSIS: 9914001
Reviewed: Apr 2012

Circulation (SHOCK)



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	

NEMSIS: 9914127
Reviewed: Apr 2021

AKA: Hypotension

Shock Imperatives

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

Poor Perfusion

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

Medication

- **NS Bolus** (0.9% Saline): indicated for **poor perfusion**.
  - 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+ y/o): Use a macro drip (10 or 15 per mL) set.
  - Peds (0-12 y/o): Use a micro drip (60 per mL) set.
  - Start at 1 drop per second and **titrate as needed**.
- **Dopamine** (Intropin®): 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.
- Mean Arterial Pressure (**MAP**) is a better indicator when available.

Pediatrics

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

References

- ACLS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916 [Ver: 2020]
- PALS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901 [Ver: 2020]
- Medscape Vitals: https://emedicine.medscape.com/article/2172054 [Ver: 11/18]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7, 29

NEMSIS: 9914127
Reviewed: Apr 2021

Bradycardia

Bradycardia

Pulse Under
- Adult (13+): **60** /min
- Child (1-12): **70** /min
- Infant (< 1): **80** /min

Severity?

Mild	Moderate	Severe
• Adequate Perfusion • No Symptoms	• Adequate Perfusion • Chest Pain, Weak	• **Poor Perfusion** • Unresponsive
E 12-Lead	E 12-Lead	I Pacing
A Saline Lock	I **Atropine**	I **Epi** (Peds) E 12-Lead

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

Atropine: 1 mg	IV/IO	Q 5 min x3	Adult
Epi: Use Peds Reference	IV/IO	Q 5 min	Peds

Reviewed: Apr 2021 NEMSIS: 9814115

AKA: Slow Heart Rate, Heart Block

Bradycardia Imperatives
- Slow, wide complex bradycardia may be due to Hyperkalemia.
- Consider Overdose if appropriate (many meds cause brady).
- I May try **pacer magnet** to improve rate. Do **not** use on AICD.

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

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

Notes
- Pacing: Start at **80 bpm / 80 mA**. Escalate mA as needed.
  - Alternate: follow manufacturer's or OMD's dosing guideline.
  - Treat Pain and/or Agitation from pacing as soon as appropriate.

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

References

- ACLS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916 [Ver: 2020]
- PALS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901 [Ver: 2020]
- Medscape Vitals: https://emedicine.medscape.com/article/2172054 [Ver: 11/18]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 13, 20

Reviewed: Apr 2021 NEMSIS: 9814115

Hyperkalemia

Hyperkalemia

Suspected or Confirmed K^+ Over **5.5** mEq/L

- E 12-Lead
- E **Albuterol**

Severity?

Minor
- Few EKG Changes
- 6.9 mEq/L or Less

- A Saline Lock

Major
- **Overt** EKG Changes
- 7.0 mEq/L and Over

- A **NS Bolus**
- I **Calcium**
- I **Bicarb**

Consider
- Bradycardia
- Medical CODE

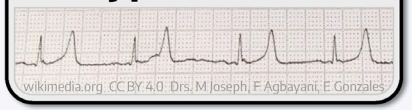
Adult Doses			
Albuterol: 10 mg	NEB	(4 nebs) x1
NS Bolus: 1,000 mL	IV/IO	x2
Calcium: 1 gram	IV/IO	over 10 min
Bicarb: 50 mEq	IV/IO	x1

Reviewed: May 2021 NEMSIS: 9914089

AKA: Renal Failure, High K^+, Elevated Potassium

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

Hyper K^+ EKG



K^+ EKG Changes
- From minor to life threat:
  - Peaked T-waves
  - Long PRI / Loss of P-wave
  - Wide QRS (over 120 ms)
  - Slow V-Tach (**sine wave**)

Medications
- **Albuterol** (Ventolin®): May give without an EKG if hyperkalemic.
  - Give **four** (4x) standard nebulizer treatments back-to-back.
- **NS Bolus** (0.9% Saline): Aggressive fluids help dilute potassium.
  - Consider aggressive fluids even without Hypotension.
  - Avoid aggressive/prophylactic fluids for **dialysis** patients.
- **Calcium** (Chloride): **Avoid** with **Rocephin** or Digoxin® (fatal).
- **Bicarb** (Sodium Bicarbonate): Use for widening QRS on EKG.
- Flush line well between **Calcium** and **Bicarb** (do **not** mix).

Notes
- Consider hyperkalemia in any **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 any Crush or suspension injury.

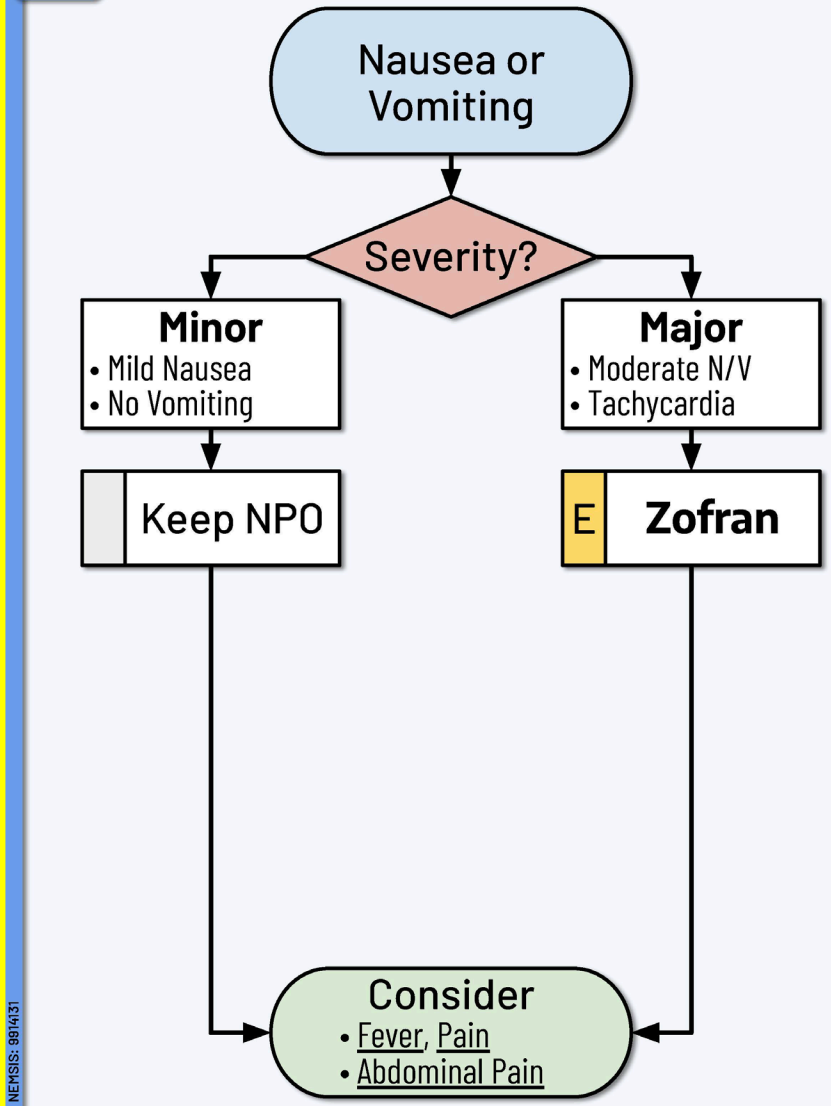
Pediatrics
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916 [Ver: 2020]
- PALS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901 [Ver: 2020]
- Medscape Hyperkalemia: https://emedicine.medscape.com/article/240903 [Ver: 4/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 28

Reviewed: May 2021 NEMSIS: 9914089

Nausea Vomiting



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

Reviewed: Jun 2021 NEMSIS: 9914131

AKA: Emesis, Hyperemesis, Cyclic Vomiting

Nausea / Vomiting Imperatives

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

Medications

- **Zofran®** (Ondansetron): Use for all causes of nausea & vomiting.
  - Use caution with Bradycardia, and Overdose / Tox.
  - Consider 12-Lead if hx/risk of long QT or electrolyte imbalance.
  - E May only give PO - use **Orally Disintegrating Tabs** (ODTs).

Notes

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

Pediatrics

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

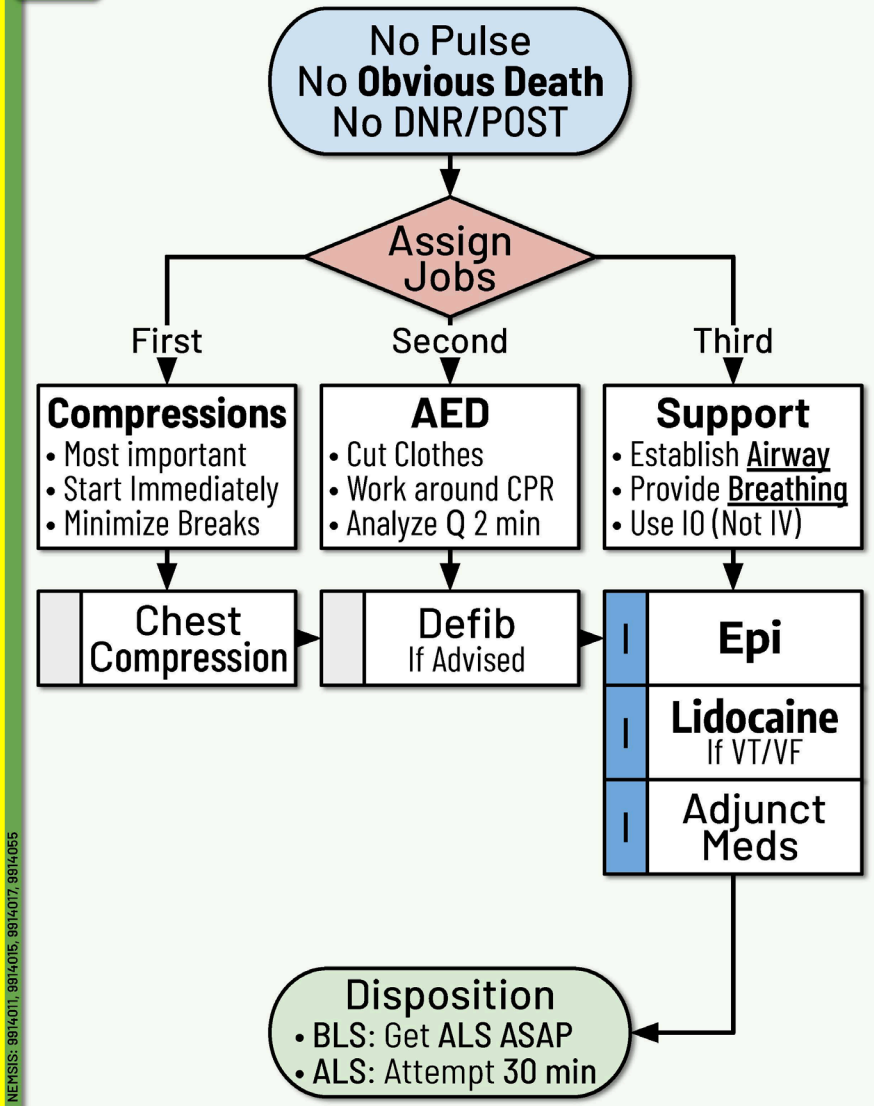
References

- Medscape Vomiting: https://emedicine.medscape.com/article/933135 [Ver: 10/18]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 7, 29

Reviewed: Jun 2021 NEMSIS: 9914131

MEDICAL Section

Medical Code



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

NEMSIS: 9914011, 9914015, 9914017, 9914055
Reviewed: Feb 2021

AKA: Cardiac Arrest, CPR, VT/VF, PEA, Asystole

CODE Imperatives

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

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

Medications

- **Lidocaine**: Adult doses OK for any patient 50-100 kg (**110-220** lbs)
  Otherwise: 1st 1 mg/kg → 2nd 0.5 mg/kg
- If no response to initial therapy, consider **adjunct medications**:

Obvious Death
- Pooling Lividity or
- Rigor Mortis or
- Body Decomposition

	Amiodarone: 300→150 mg	IO x2	Persistent VT/VF
	Bicarb: 50 mEq	IO x1	Persistent VT/VF
	Calcium: 1 gram	IO x1	Persistent VT/VF
	Magnesium: 2 grams	IO x1	Torsades

- Flush line well between **Calcium** and **Bicarb** (**do not mix**).

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

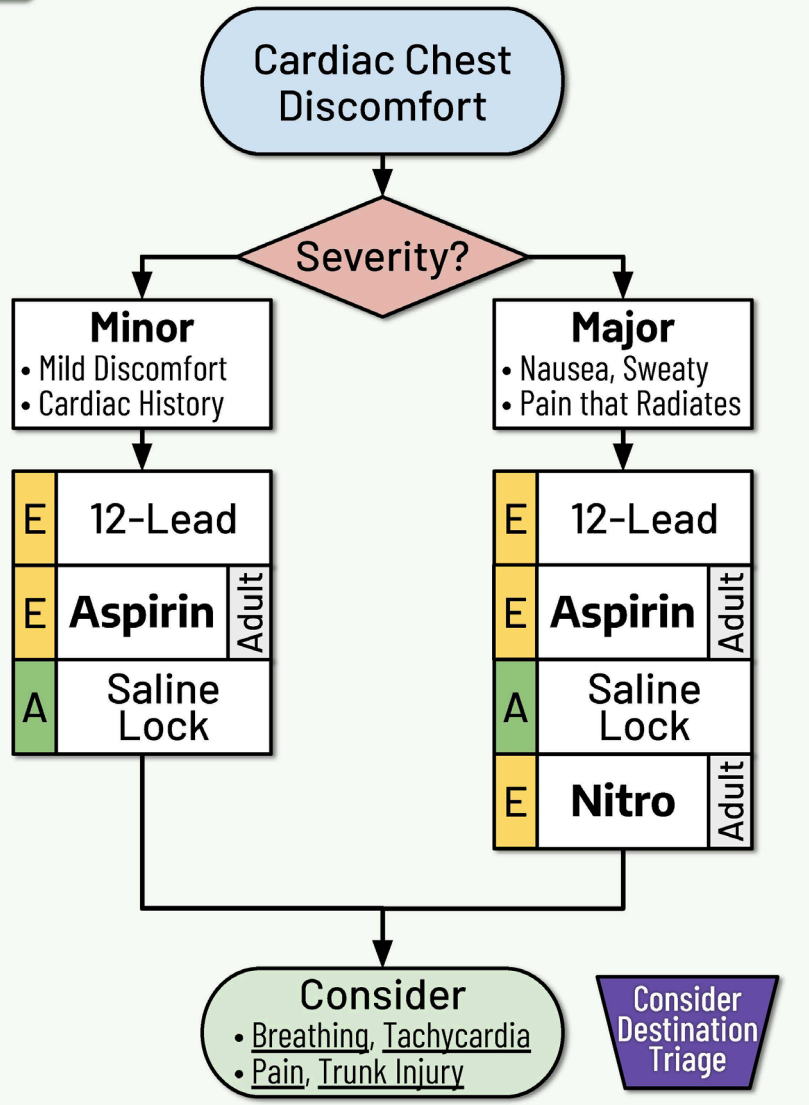
- Use 15:2 compression ratio for dual rescuer BLS resuscitation.
- Refer to Neonate for any peds **under 1 month** (< 31 days) old.
- Use Peds Reference or other approved source for peds dosing.

References

- ACLS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000916 [Ver: 2020]
- PALS: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000901 [Ver: 2020]
- Medscape CPR: https://emedicine.medscape.com/article/1344081 [Ver: 9/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 21

NEMSIS: 9914011, 9914015, 9914017, 9914055
Reviewed: Feb 2021

Chest Pain



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

Reviewed: Jun 2021 NEMSIS: 9914117, 9914143

AKA: Heart Attack, Acute MI, Cardiac, Chest Discomfort

Chest Pain Imperatives

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

Medications

- **Aspirin** (Baby ASA): Contraindicated with GI bleeding or peds.
  - Have patient **chew four** (4) 81mg tabs (not enteric coated).
- **Nitro** (Nitroglycerin): May cause Hypotension.
  - Contraindicated if Hypotensive or inferior STEMI.
  - Contraindicated if recent (36 h) use of Viagra, Cialis, or Levitra.
  - Contraindicated if SBP under 110 mmHg **without IV/IO** access.

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

Call ER

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.

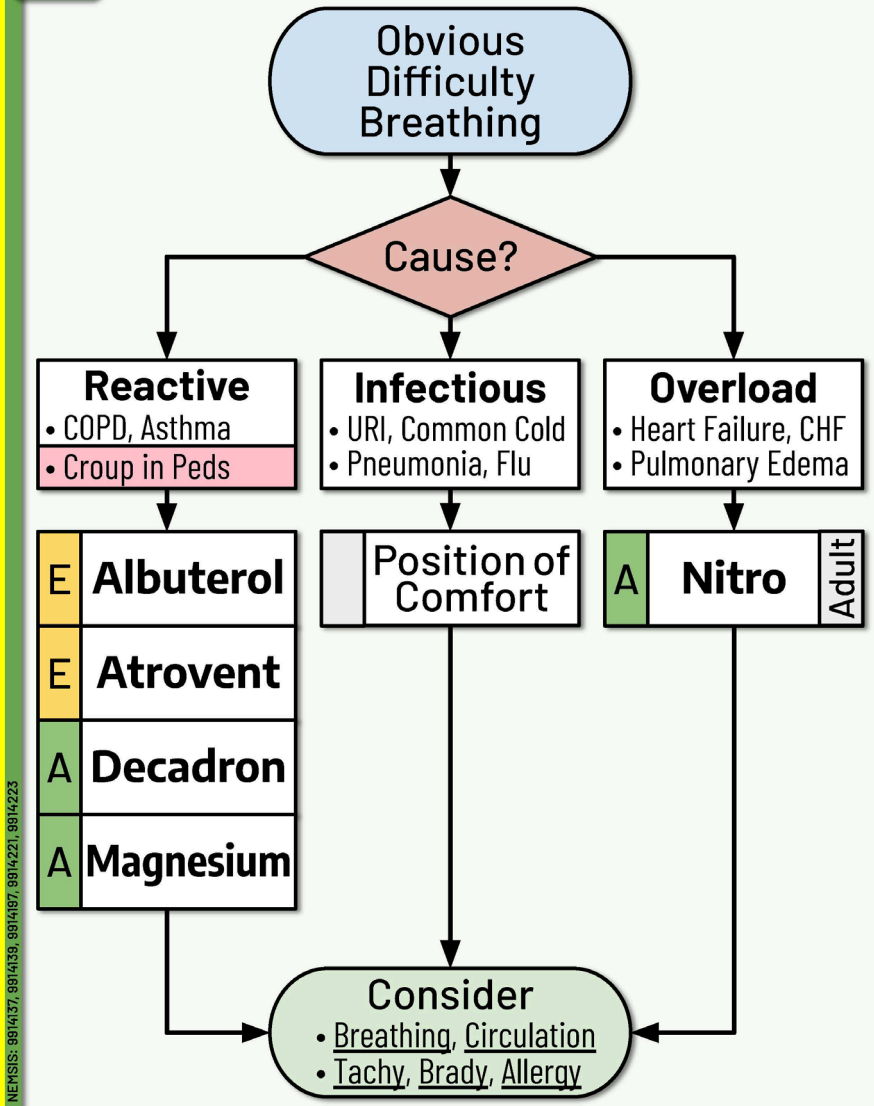
Pediatrics

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

References

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

Dyspnea



Adult Doses			
Albuterol: 2.5 mg	NEB	Q 5 min x4
Atrovent: 0.5 mg	NEB	x1
Decadron: 8 mg	IM, IV/IO, PO	x1
Magnesium: 2 grams	IV/IO	over 10 min
Nitro: 0.4 mg	SL	Q 5 min x3

Reviewed: Aug 2020 NEMSIS: 9914137, 9914139, 9914197, 9914221, 9914223

AKA: SOB, Wheezing, Asthma, COPD, CHF, Resp. Distress

Dyspnea 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 IV formulation PO.
  - May mix the IV solution with juice or drink it straight.
  - PO is not appropriate for patients in extremis. Use IM or IV/IO.
- **Nitro** (Nitroglycerin): May cause Hypotension.
  - May use **double dose** (0.8 mg) if hypertensive & requiring CPAP.
  - Contraindicated if Hypotensive or Inferior STEMI.
  - Contraindicated if recent (36h) use of Viagra, Cialis or Levitra.
- **Albuterol** (Ventolin®) & **Atrovent®** (Ipratropium bromide):
  - May combine in same nebulizer. May cause palpitations.

Notes

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

Pediatrics

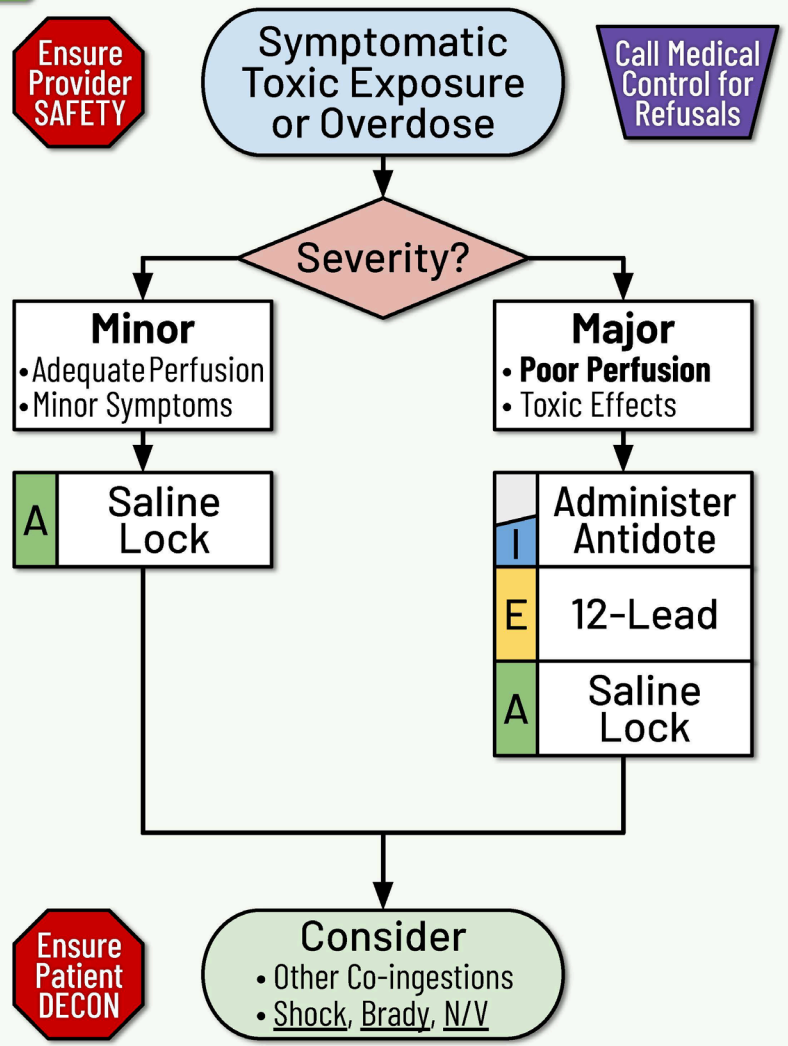
- Defer aggressive evaluation if any concern for **epiglottitis**.
  - Agitation can make it much worse.
  - Epiglottitis is unlikely in fully vaccinated patients.
- **Croup** is an infection that is best treated like a reactive cause.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape COPD: https://emedicine.medscape.com/article/297664 [Ver: 9/20]
- Medscape Asthma: https://emedicine.medscape.com/article/296301 [Ver: 9/20]
- Medscape CHF: https://emedicine.medscape.com/article/163062 [Ver: 5/18]
- Medscape Croup: https://emedicine.medscape.com/article/962972 [Ver: 10/19]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 10, 19

Reviewed: Aug 2020 NEMSIS: 9914137, 9914139, 9914197, 9914221, 9914223

Overdose Toxicology



	Toxin	Adult Antidote Doses		
	Opiates	**Narcan: 0.4-4** mg		IM/IN, IV/IO
I	ß-blocker	**Glucagon: 1** mg		IM/IN
I	Organophos	**Atropine: 2** mg		IM, IV/IO
I	Ca-blocker	**Calcium: 1** g	over 10 min	IV/IO
I	Tricyclic	**Bicarb: 50** mEq		IV/IO

NEMSIS: 9914043, 9914135, 9914215, 9914217, 9914219, 99104225
Reviewed: May 2021

AKA: Poisoning, Ingestion, Intoxicated (Drunk)

Overdose / Tox Imperatives

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

Medications

- **Narcan®** (Naloxone): Should only be used to treat **Hypoxia**.
  - May provide premeasured **intranasal** doses only.
  - A Avoid rapid reversal. Titrate to oxygenation.
  - May repeat PRN. Call **Medical Control** for refusal w/ **Narcan**.
- **Glucagon, Atropine**: Likely will need **multiple doses**.
- **Calcium** (Chloride): **Avoid** with **Rocephin** or Digoxin® (fatal).
- **Bicarb** (Sodium Bicarbonate): Use for any EKG changes.
- Flush line well between **Calcium** and **Bicarb** (do **not** mix).
- **Mark 1™** (Atropine/2-PAM): May use if MCI / nerve agent
- I **Cyanokit®** (Cyanide antidote): May use kit if indicated

Notes

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

Pediatrics

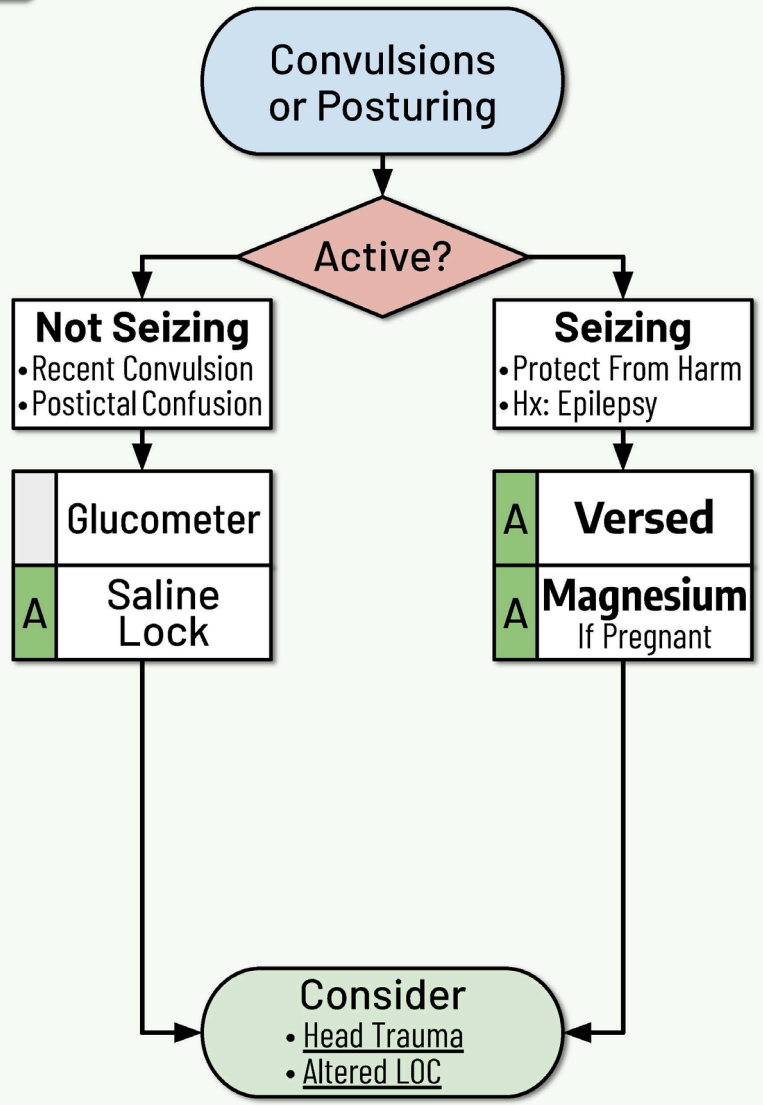
- Just a **single pill** of some adult meds can cause major symptoms.
  - Be prepared to treat Shock if overdose is suspected.
  - Ingested **cigarettes or vape fluid** (nicotine) can be **fatal**.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Opioids: https://emedicine.medscape.com/article/815784 [Ver: 6/20]
- Medscape Tricyclics: https://emedicine.medscape.com/article/819204 [Ver: 5/20]
- Medscape Organophosphate: https://emedicine.medscape.com/article/167726 [Ver: 12/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 25

NEMSIS: 9914043, 9914135, 9914215, 9914217, 9914219, 99104225
Reviewed: May 2021

Seizure



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

Reviewed: Jun 2021 NEMSIS: 9914141, 9914157

AKA: Epilepsy, Eclampsia, Febrile Seizure, Withdrawal

Seizure 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.
- **Use caution with needles** - increased risk of provider injury.

Medications

- **Versed**® (Midazolam): Only appropriate for active convulsions.
  - May double when admin IM/IN to limit risk (5 mg IM Q 5 min x2)
- **Magnesium** (sulfate): May cause Hypotension and Dyspnea.
  - Only useful for seizures in **late Pregnancy** (20 weeks & over).
  - Do not provide in early pregnancy. Eclampsia is unlikely.

Notes

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

Pediatrics

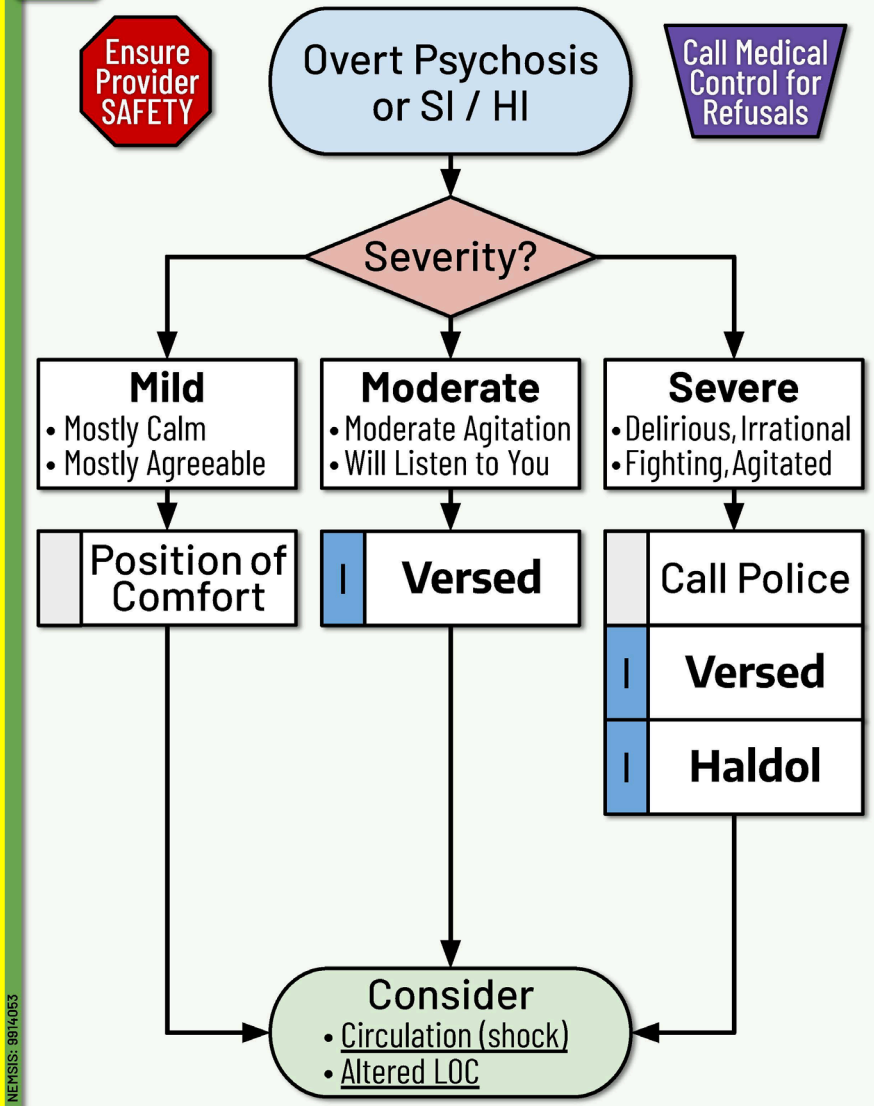
- Peds under 5 y/o may have a seizure caused by Fever.
  - It is usually self limiting and does not require intervention.
  - Consider medication if longer than 5 min or seizure reoccurs.
  - Aggressively treat any peds seizure not associated with Fever.
- Use Peds Reference or other approved source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

References

- Medscape Seizure: https://emedicine.medscape.com/article/1184846 [Ver: 10/20]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 22

Reviewed: Jun 2021 NEMSIS: 9914141, 9914157

Psychiatric



Adult Doses				
Versed:	**2.5** mg	IV/IO, IM/IN	Q 2 min x4	
Haldol:	**5** mg	IM	x1	

Reviewed: Jun 2021 NEMSIS: 9914053

AKA: Restraint, Suicidal, Behavioral, Dementia, Delirium

Psychiatric Imperatives

- **Do not assume** psychosis. Evaluate and treat for other causes.
- Psychiatric patients may not have the capacity to Refuse.
  - Involve Police and call **Medical Control** for any psych refusal.
- Use of any restraint presents significant medical (and legal) risk.
  - 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.
- **Use caution with needles** - increased risk of provider injury.

Medications

- **Versed**® (Midazolam): Use with caution with peds and elderly.
  - May double when admin IM/IN to limit risk (5 mg IM Q 5 min x2)
- **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.
- Use Peds Reference or other approved source for peds dosing.

References

- Medscape Suicide: https://emedicine.medscape.com/article/2013085 [Ver: 8/19]
- Medscape Aggression: https://emedicine.medscape.com/article/288689 [Ver: 6/17]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 27

Reviewed: Jun 2021 NEMSIS: 9914053

TRAUMA Section

Trauma Code

No Pulse
No **Mortal Injury**
No DNR/POST

Assign Jobs

First	Second	Third
Compressions • Most important • Start Immediately • Minimize Breaks	**Trauma Care** • Control Bleeding • Aggressive Fluids • Airway / Breathing	**Medical Care** • Try Medical CODE • Analize Q 2 min • Start with IO
Chest Compression	Tourniquet I Needle Decompress A **NS Bolus**	Defib If Advised I **Epi** I **Lidocaine** If VT/VF

Disposition
• Transport ASAP

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

Reviewed: Feb 2021 NEMSIS: 9914087

AKA: Traumatic Arrest

CODE Imperatives

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

Compressions

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

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

Call ER

Mortal Injuries

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

Medications

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

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

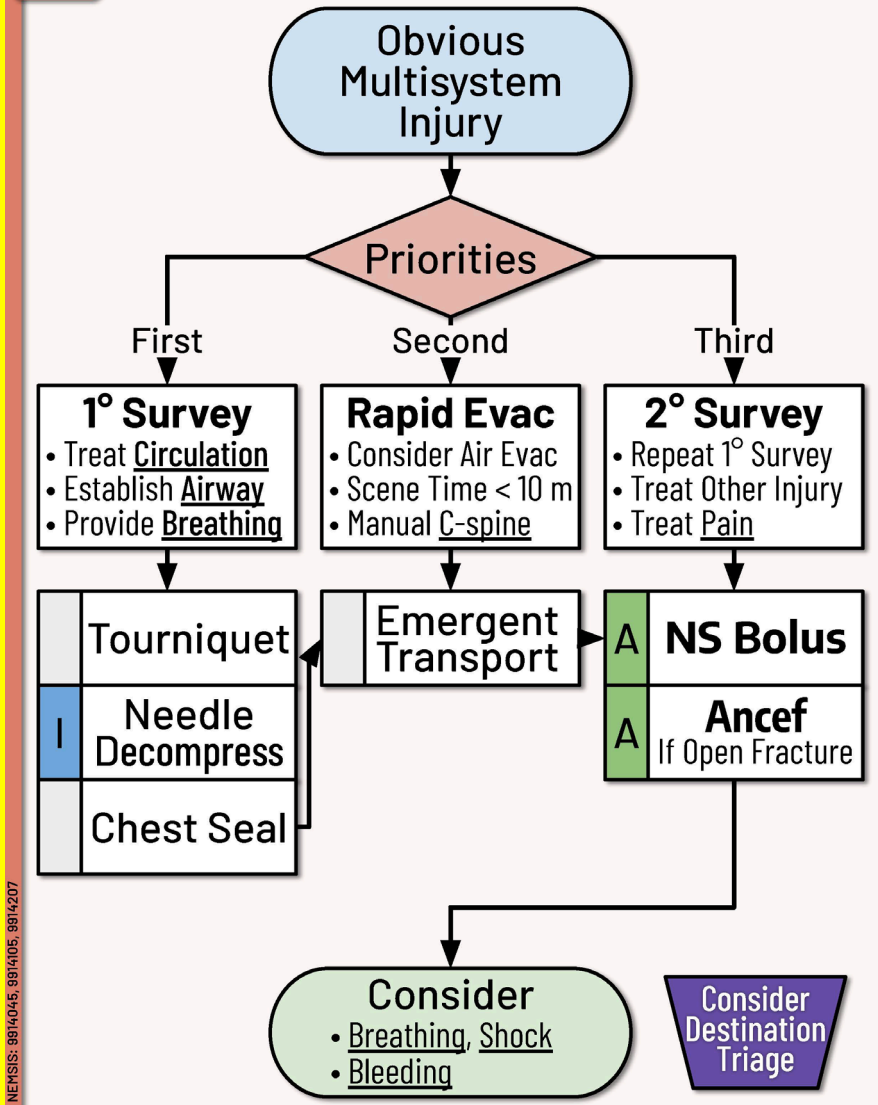
- Use Peds Reference or other approved source for peds dosing.

References

- ATLS®: https://viaaerearcp.files.wordpress.com/2018/02/atls-2018.pdf [Ver: 2018]
- NAEMSP Mortal Injuries: https://doi.org/10.3109/10903127.2012.755586 [Ver: 1 / 13]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 34

Reviewed: Feb 2021 NEMSIS: 9914087

Major Trauma



Adult Doses			
NS Bolus: 1,000 mL	IV/IO	x2
Ancef: 1 gram	IV/IO, IM	x1

NEMSIS: 9914045, 9914105, 9914207
Reviewed: Jun 2021

AKA: Multisystem Trauma, Explosion / Blast Injury

Major Trauma Imperatives

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

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

Call ER

Poor Perfusion

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

Medications

- **NS Bolus** (0.9% Saline): Appropriate use in trauma is critical.
  - Be aggressive with fluid for Hypotension or **poor perfusion**.
  - Avoid aggressive fluids once SBP above **90** mmHg.
- **Ancef®** (Cefazolin): Provide if an open fracture is suspected.
  - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
  - Reconstitute powder with 2-3 mL of NS and **shake well**.

Notes

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

Pediatrics

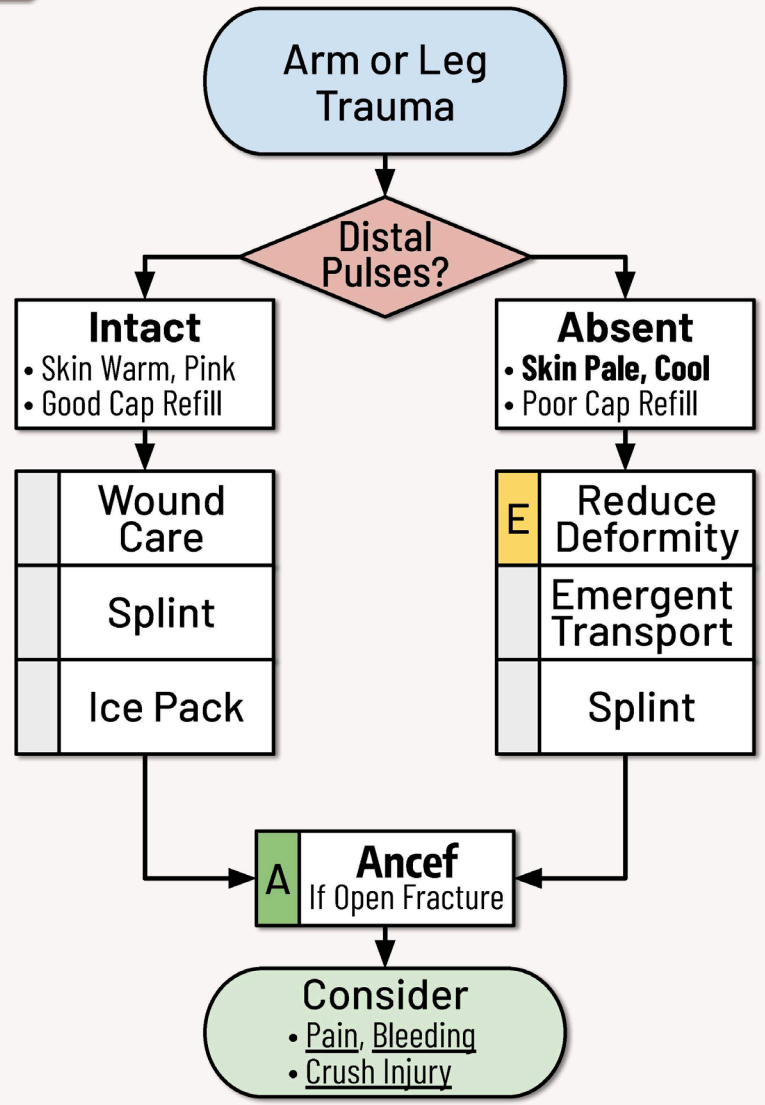
- Use Peds Reference or other approved source for peds dosing.

References

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

NEMSIS: 9914045, 9914105, 9914207
Reviewed: Jun 2021

Extremity Trauma



Ancef: 1 gram	IV/IO, IM	x1	Adult

Reviewed: Jun 2021 NEMSIS: 9914077, 9914097

AKA: Amputation, Long Bone Fx, Splinting, Sprain / Strain

Extremity Injury Imperatives

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

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

Call ER

Medications

- **Ancef®** (Cefazolin): Provide if an **open fracture** is suspected.
  - Avoid if pt allergic to Keflex, PCN or other cephalosporins.
  - Reconstitute powder with 2-3 mL of NS and **shake well**.

Notes

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

Pediatrics

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

References

- Medscape Fracture Care: https://emedicine.medscape.com/article/1270717 [Ver: 3/20]
- Medscape Vascular Trauma: https://emedicine.medscape.com/article/462752 [Ver: 11/19]
- Limmer D, O'Keefe MF. *Emergency Care* 14th Ed. Chapter 29, 30

Reviewed: Jun 2021 NEMSIS: 9914077, 9914097

Notable Changes:

- 8. Circulation - added reference ranges for MAP
- 10. Hypertension - Labetalol removed
- 12. Bradycardia - Atropine and Peds Epi doses increased (per ACLS)
- 14. Tachycardia - Adenosine 1st dose increased (12mg)
- 22. Nausea/Vomiting - Zofran ODTs for EMTs and above (added to drug box)
- 24. Medical CODE - Lidocaine dosing reduced (per ACLS)
- 28. Chest pain - SL Nitro from the drug box moved to EMT level
- 30. Dyspnea - Lasix removed
- 40. OD/Tox - Antidote table added
- 42. Seizure - Versed (2.5mg) and Mag moved to AEMT level
- 46. Psyc - Versed dose standardized to match seizure (2.5mg)
- 52. Trauma CODE - Lidocaine dosing reduced (per ACLS)
- 56. Major Trauma - Ancef added for open fracture (added to drug box)
- 66. Extremity Injury - Ancef added for open fracture (added to drug box)
- 80. Critical Care - Intubation/RSI, etc. added
- 112. Drug Reference - pictures and info on all WVEMS meds
- 132. Peds Reference - Vital sign ranges and all WVEMS drugs included

Critical Care Protocols

- Intubation / RSI
- Sedation
- DKA / HHS
- Immunization
- Sepsis

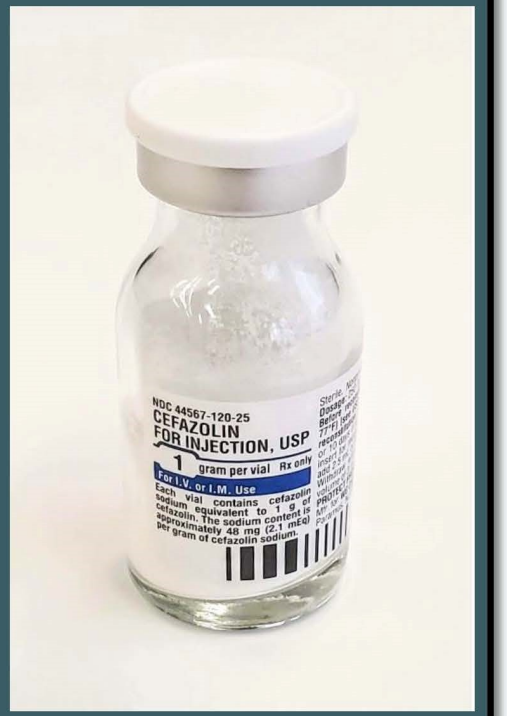
Medications

114 Drug Reference

Ancef® — Cefazolin

Use

- Tx: Open Fractures
- Adults: **1 gram** IV/IO, IM
- Peds: 10-30 mg/kg IV/IO, IM



Caution

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

Notes

- Protocols: Major Trauma, Extremity Injury
- **Reconstitute**: with 3 mL NS for IV/IO (give slow) or IM
- Antibiotic: 1st Gen Ceph -Onset: minutes -Duration: hours
- https://reference.medscape.com/drug/342492

Epi Drip — Epinephrine, Adrenalin

Use

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

Caution

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

Notes

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

Reviewed: Apr 2021

Lopressor® — Metoprolol

Use

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

Caution

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

Notes

- Protocols: <*none*>
- ß-blocker - Onset: minutes - Duration: hours
- https://reference.medscape.com/drug/342360

Reviewed: Jun 2021

126 Drug Reference

Magnesium — Magnesium Sulfate

Use

- Tx: VT/VF, Dyspnea, Eclampsia
- Adults: **2 grams** IV/IO
- Peds: 25 - 50 mg/kg

Caution

- PMH: DKA, AV block
- Do not mix: **Digoxin®**
- May cause: **hypotension**
- May cause: hypoxia, edema
- **Preg D**: known risks

Notes

- Protocols: Tachycardia, Medical CODE, Dyspnea, Seizure
- Consider diluting and **give over 10 min if non-emergent**
- Electrolyte - Onset: seconds - Duration: hours
- https://reference.medscape.com/drug/344444

127 Drug Reference

Nitro — Nitroglycerin, Nitrostat®

Use

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

Caution

- PMH: erectile dysfunction meds
- PMH: ergot (pain/migraine) med
- May cause: **HA**, hypotension
- **Preg B**: likely safe

Notes

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

131 Drug Reference

Versed® — Midazolam

Use

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

Caution

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

Notes

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

132 Drug Reference

Zofran ODT® — Ondansetron ODT

Use

- Tx: Nausea, Vomiting
- Adults: **4 mg PO**
- Peds: 0.1 mg/kg

Caution

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

Notes

- Protocols: Nausea / Vomiting
- **Use ODT for PO** (use Zofran injectable for IV/IO, IM/IN)
- 5-HT3 antagonist - Onset: seconds - Duration: hours
- https://reference.medscape.com/drug/342052

Ancillary Medications in Drug-Box

- Furosemide
- Lopressor

Questions?

Thank You for what you do!