Common EMS Medications

Class, use, typical adult dose and key cautions for 21 prehospital drugs, with EMT-scope drugs marked

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medicbasics.com · checked Oct 2026

READ THIS FIRST

Typical adult exam doses; follow your protocols. (EMT) marks national EMT scope; others are paramedic (some AEMT); states vary. EMTs also give oral glucose if the patient can swallow: NASEMSO 25 g adult, 0.5-1 g/kg child (the ADA 15-15 self-treatment rule is 15 g); follow your protocol.

CHEST PAIN AND BREATHING

DRUG (CLASS)	USE	DOSE	CAUTIONS
Aspirin (EMT), antiplatelet	Suspected ACS	162–325 mg chewed, non-enteric	Aspirin/NSAID allergy, active GI bleed
Nitroglycerin (EMT: own Rx), nitrate	Ischemic chest pain, pulmonary edema	0.4 mg SL q5 min, up to 3 doses	SBP <90 (<100 in many protocols), RV infarct
Oxygen (EMT)	Hypoxemia, respiratory distress	SpO_2 94–98%; COPD 88–92%	Routine use in ACS with SpO_2 ≥90%
Albuterol (EMT), beta-2 agonist	Bronchospasm	2.5–5 mg nebulized, repeat	Allergy; tachydysrhythmias
Ipratropium (EMT), anticholinergic	Asthma, COPD, with albuterol	0.5 mg nebulized, up to 3 doses	Allergy to it or atropine

SAFETY Ask about PDE-5 inhibitors: no nitro within 24 h of sildenafil or vardenafil, or 48 h of tadalafil (ACC/AHA 2025); many protocols use 48 h for all. Avoid with IV epoprostenol or treprostinil.

EPINEPHRINE (ALPHA/BETA AGONIST): FOUR DOSES

USE	STRENGTH	ADULT DOSE
Anaphylaxis (EMT: auto-injector)	1 mg/mL (1:1,000)	0.3–0.5 mg IM, anterolateral thigh; repeat q5–15 min
Cardiac arrest	0.1 mg/mL (1:10,000)	1 mg IV/IO q3–5 min
Push-dose (hypotension, bradycardia)	10 mcg/mL (mixed)	10–20 mcg (1–2 mL) about q2 min
Bradycardia infusion	Diluted drip	2–10 mcg/min

No absolute contraindication in anaphylaxis. Push-dose mix: 1 mL of 0.1 mg/mL + 9 mL saline = 10 mcg/mL.

SAFETY 1 mg/mL is the IM strength, never an IV push with a pulse. AHA 2025 warns of push-dose errors: label syringes, read back doses.

ARREST AND RHYTHM DRUGS

DRUG (CLASS)	USE	DOSE	CAUTIONS
Amiodarone, class III	Shock-refractory VF/pVT; stable VT	Arrest 300 mg, then 150 mg; VT 150 mg over 10 min	If pulse: 2nd/3rd-degree block, cardiogenic shock
Lidocaine, class Ib	VF/pVT (amiodarone alternative)	1–1.5 mg/kg, then 0.5–0.75 mg/kg	High-grade block without pacer; amide allergy
Adenosine, AV nodal blocker	Stable regular narrow-complex tachycardia	6 mg rapid push + flush, then 12 mg	AV block, sick sinus, asthma, irregular wide QRS
Atropine, anticholinergic	Symptomatic bradycardia; organophosphates	1 mg q3–5 min, max 3 mg	Heart transplant; weak in hypothermia, wide-QRS block
Magnesium sulfate, electrolyte	Torsades, severe asthma, eclampsia	Torsades 1–2 g; asthma 2 g; eclampsia 4–6 g (IV)	Fast push drops BP; toxicity: lost reflexes, apnea

Bradycardia: HR usually <50 with symptoms; pace if atropine fails. Organophosphates: atropine 1–2 mg, doubled q5 min until secretions dry.

EXAM TIP AHA 2025: asystole/PEA, epinephrine as soon as feasible; VF/pVT, epinephrine after the 2nd shock, amiodarone or lidocaine after the 3rd. No routine magnesium, calcium or bicarbonate in arrest.

GLUCOSE, OVERDOSE AND ELECTROLYTES

DRUG (CLASS)	USE	DOSE	CAUTIONS
Naloxone (EMT: IN, auto-injector), opioid antagonist	Opioid respiratory depression	0.4–2 mg IV/IM, 4 mg IN; repeat q2–3 min	Withdrawal, pulmonary edema; re-sedation
Dextrose 10%, carbohydrate	Glucose <60 (or <70) mg/dL, cannot swallow	Titrate IV, max 25 g (250 mL)	Check glucose first
Glucagon, hormone	Low glucose, no IV; beta-blocker OD (CCB unclear)	1 mg IM (3 mg nasal); OD 2–10 mg IV	Pheochromocytoma; weak if glycogen depleted
Calcium chloride 10%, electrolyte	High K with ECG changes, CCB OD, Mg toxicity	1 g over 5 min (= 3 g gluconate); CCB 2 g	Digoxin toxicity, hypercalcemia; necrosis if it leaks
Sodium bicarbonate, alkalinizer	TCA OD with wide QRS; hyperkalemia	1 mEq/kg IV (TCA 50–150 mEq)	Alkalosis; flush between it and calcium

EXAM TIP Naloxone goal: breathing, not waking. BVM first; never pause CPR. Those who wake need hospital observation.

PAIN, SEDATION, NAUSEA AND BLEEDING

DRUG (CLASS)	USE	DOSE	CAUTIONS
Fentanyl, opioid	Moderate to severe pain	1 mcg/kg, first dose ≤100 mcg; IV/IO/IN/IM	Hypotension, hypoventilation, MAOI in 14 days
Ketamine, dissociative (NMDA)	Pain; severe agitation	Pain 0.25 mg/kg (max 25 mg); agitation 4 mg/kg IM	Dangerous BP rise; laryngospasm, emergence
Midazolam, benzodiazepine	Seizures; agitation	Seizure 0.2 mg/kg IM/IN, max 10 mg; agitation 5 mg IV/IM/IN	Severe respiratory depression
Ondansetron, 5-HT3 antagonist	Nausea, vomiting	4 mg IV/IM or ODT	Long QT, apomorphine use
TXA, antifibrinolytic	Trauma with hemorrhagic shock	1 g IV over 10 min, or 2 g IV/IO	>3 h since injury

SAFETY Opioid plus benzodiazepine deepens hypoventilation; $ETCO_2$ shows it first.

Sources (12) are listed with links at medicbasics.com/sheets/ems-pharmacology.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. Medic Basics is an independent study aid not affiliated with any certifying body.