Paramedic Medical Study Guide

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This study guide covers Medical Emergencies for paramedics. It aligns with the NREMT Paramedic certification exam, National EMS Scope of Practice Model 2019 (with updates), National EMS Education Standards, AHA ACLS/PALS 2025 Guidelines (current as of 2026), and current evidence-based protocols for prehospital medical care (e.g., NAEMSP position statements, ACEP/NAEMT guidelines). Medical emergencies are a core focus of the NREMT Paramedic exam, heavily tested in Medical, Cardiology/Resuscitation, and Special Patient Populations domains. Paramedic Scope in Medical Emergencies: Advanced airway management (ETT, supraglottic, RSI/DSI), IV/IO access & fluid/medication administration, cardiac monitoring & 12-lead ECG, advanced pharmacology (antiarrhythmics, vasopressors, sedatives, analgesics, antiemetics, etc.), CPAP/BiPAP, needle decompression (in some protocols), and transport to appropriate specialty centers (stroke, STEMI, sepsis). Key Principle: Perform rapid primary survey (ABCs), obtain detailed SAMPLE/OPQRST history, interpret ECG/EtCO&sub2;/capnography, treat reversible causes (Hs & Ts in arrest), and provide time-sensitive interventions (e.g., fibrinolytics in some rural protocols, early antibiotics in sepsis). Always reassess and escalate care as needed.

Disclaimer: This is a study aid, not official. For PDF, copy into a word processor and export. Always follow current local protocols, NREMT skill sheets, and the latest AHA/ACLS/PALS updates.

Section 1: Cardiac / ACS / Arrhythmia Management (ACLS 2025)

Condition	Key Signs/Symptoms & ECG Findings	Paramedic Interventions	Key Notes / 2025 Updates
STEMI / Acute Coronary Syndrome	Chest pain/pressure, radiation, diaphoresis, nausea; ST elevation ≥1 mm in ≥2 contiguous leads	Aspirin 325 mg chewed; nitroglycerin 0.4 mg SL/IV q5min (if BP allows); heparin 60 units/kg IV bolus (max 4,000); morphine or fentanyl for pain; 12-lead ECG transmission; transport to PCI-capable center	Goal: Door-to-balloon <90 min; avoid routine high-dose nitro if inferior MI.
Unstable Bradycardia	Hypotension, altered mental status, shock; HR <50	Atropine 1 mg IV q3–5min (max 3 mg); transcutaneous pacing if unresponsive; dopamine/epinephrine infusion	2025: Atropine dose standardized at 1 mg; escalate to pacing early.
Unstable Tachycardia (Narrow & Wide)	Hypotension, chest pain, AMS, shock	Synchronized cardioversion (narrow regular: 50–100 J; wide: 100 J); adenosine 6 mg → 12 mg rapid IV push for stable narrow-complex SVT	Sedation if conscious; amiodarone/lidocaine for refractory VT. VF / Pulseless VT No pulse, shockable rhythm CPR; defibrillation 120–200 J biphasic; epinephrine 1 mg q3–5min; amiodarone 300 mg → 150 mg Early defibrillation priority; waveform capnography to guide quality.

Section 2: Respiratory Emergencies

Condition	Signs/Symptoms	Paramedic Interventions	Key Notes
Severe Asthma / COPD Exacerbation	Severe wheezing, silent chest, accessory muscles, SpO&sub2; <90%, hypercapnia	Continuous nebulized albuterol + ipratropium; magnesium sulfate 2 g IV over 20 min; CPAP/BiPAP; epinephrine 0.3–0.5 mg IM if anaphylaxis component; ketamine for DSI if needed	Avoid routine antibiotics; monitor for fatigue/hypercarbia.
Pulmonary Edema / CHF	Pink frothy sputum, rales, JVD, SpO&sub2; <90%	CPAP 5–10 cmH&sub2;O; nitroglycerin IV infusion (start 20–50 mcg/min, titrate); furosemide 20–40 mg IV; morphine (cautious); high-flow O&sub2;	Preload/afterload reduction priority; avoid fluid bolus.
Anaphylaxis	Stridor, angioedema, hypotension, bronchospasm	Epinephrine 0.3–0.5 mg IM (repeat q5–15min); diphenhydramine 25–50 mg IV; methylprednisolone 125 mg IV; fluids 500–1,000 mL; albuterol nebulized	Early IM epi is lifesaving; monitor for biphasic reaction.

Section 3: Neurological Emergencies

Condition	Signs/Symptoms	Paramedic Interventions	Key Notes
Acute Ischemic Stroke	Sudden focal deficit (FAST); last known normal <4.5 h; Cincinnati Prehospital Stroke Scale; glucose check; high-flow O&sub2; if hypoxic; rapid transport to stroke center; avoid BP meds unless >220/120	Time is brain; note exact onset time; no aspirin if stroke suspected.	
Status Epilepticus	Continuous or recurrent seizures >5 min	Midazolam 0.2 mg/kg IV/IM/IN (max 10 mg); lorazepam 0.1 mg/kg IV; second-line: levetiracetam 20–60 mg/kg IV or fosphenytoin	Protect airway; check glucose; RSI if airway compromise.
Altered Mental Status	AMS of unknown etiology	Fingerstick glucose; naloxone 2 mg IN/IV; thiamine 100 mg IV before dextrose; check temperature; 12-lead ECG; rapid transport	AEIOU-TIPS mnemonic; broad differential.

Section 4: Metabolic / Toxicological Emergencies

Condition	Signs/Symptoms	Paramedic Interventions	Key Notes
Diabetic Ketoacidosis / HHS	Hyperglycemia (>250), Kussmaul respirations, dehydration, AMS	IV fluids (NS 500–1,000 mL bolus then 250–500 mL/h); check K+; transport	Insulin only in hospital; focus on fluids.
Opioid Overdose	Respiratory depression, pinpoint pupils, AMS	Naloxone 0.4–2 mg IV/IN titrated; ventilate with BVM; advanced airway if needed	2025: Titrate to respiratory effort; avoid large bolus if chronic user.
Acetaminophen Overdose	Nausea, vomiting; later hepatic failure	Activated charcoal if <1–2 h ingestion & alert; transport for N-acetylcysteine	Bring medication containers.

Section 5: Infectious / Sepsis

Sepsis Recognition: Suspected infection + ≥2 qSOFA criteria (RR ≥22, altered mentation, SBP ≤100).

Management: High-flow O&sub2;; IV fluids 30 mL/kg crystalloid; broad-spectrum antibiotics if protocol allows (e.g., ceftriaxone + vancomycin); norepinephrine if refractory hypotension; rapid transport to sepsis center.

Section 6: NREMT Paramedic Skill Emphasis & High-Yield Scenarios

12-Lead ECG Acquisition & Interpretation – Identify STEMI, right-sided leads if inferior MI suspected.

Advanced Airway / RSI – Ketamine + succinylcholine/rocuronium; waveform capnography mandatory.

Scenarios: 62 y/o with crushing chest pain & inferior STEMI → aspirin, nitro, heparin, rapid PCI transport. 45 y/o in status epilepticus → midazolam IM/IV; protect airway; transport. Hypotensive septic patient → fluids + vasopressors; antibiotics if available.

Example Math (Fluid Bolus Calculation):

Question: 70 kg adult in sepsis. Protocol: 30 mL/kg crystalloid bolus. How many mL total?**Solution:** 30 mL/kg × 70 kg = 2,100 mL (2.1 L). **Reasoning:** Multiply weight-based dose by patient weight for total volume. Review NREMT Paramedic skill sheets (e.g., Cardiac Arrest Management, Intravenous Therapy, 12-Lead ECG), ACLS/PALS algorithms, and practice medical scenarios with ECG interpretation and medication titration. Good luck on your paramedic certification—assess thoroughly, treat aggressively, and transport smartly!