

# Paramedic OB/Pediatrics Study Guide

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This study guide covers Obstetrics (OB) and Pediatrics for paramedics, aligned with NREMT paramedic certification standards (National EMS Scope of Practice Model 2019 with updates), AHA BLS/ACLS/PALS 2025 Guidelines (current as of 2026), and national EMS education standards. OB/Peds represents about 10-15% of NREMT exam content in categories like Cardiology/Resuscitation, Resuscitation, and Medical/OB/GYN. Key focus: Anatomical/physiological differences in peds/pregnant patients, assessment triangles, emergency deliveries, resuscitation, and common pathologies. Always prioritize ABCs, use length-based resuscitation tape (e.g., Broselow) for peds dosing/equipment, and consider family-centered care. For pregnant patients >20 weeks, transport on left lateral side to avoid vena cava compression. AHA 2025 Updates: Emphasis on early recognition of shock in peds (e.g., compensated vs. hypotensive); refined neonatal resuscitation (e.g., delayed cord clamping if possible); integration of capnography in peds ventilation; no routine use of high-flow O<sub>2</sub> in uncomplicated deliveries.

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## Section 1: Obstetrics (OB) Overview

### Pregnancy Physiology:

Uterus displaces organs; Increased blood volume (40-50%); Respiratory changes (higher RR, lower PaCO<sub>2</sub>); Supine hypotension syndrome >20 weeks.

**Gestational Age:** Term: 37-42 weeks; Preterm: <37 weeks; Viability ~24 weeks.

**Assessment:** Gravida/Para (G/P), last menstrual period (LMP), prenatal care, complications (e.g., preeclampsia: HTN + proteinuria/edema).

### Common OB Emergencies

Emergency	Signs/Symptoms	Management	Notes/AHA 2025
Ectopic Pregnancy	Lower abdominal pain, vaginal bleeding, shoulder pain (rupture).	ABCs; IV access; Fluid bolus if shock; Rapid transport.	Suspect in reproductive-age females with abdominal pain; Surgical emergency.
Preeclampsia/Eclampsia	HTN (>140/90), headache, visual changes, seizures (eclampsia).	Left lateral position; Mag sulfate 4-6 g IV load (eclampsia); BP control (labetalol/hydralazine if severe).	2025: Monitor for HELLP syndrome; Seizure prophylaxis priority.
Placental Abruption	Painful vaginal bleeding, uterine tenderness, fetal distress.	IV fluids; Monitor fetal HR; Transport.	Trauma common cause; DIC risk.
Placenta Previa	Painless bright red	Avoid vaginal exam; IV fluids;	Cesarean needed.

Emergency	bleeding. Signs/Symptoms	Transport. Management	Notes/AHA 2025
Prolapsed Cord	Cord visible/palpable; Fetal bradycardia.	Knee-chest position; Manual cord elevation; Urgent transport.	Keep cord warm/moist.
Postpartum Hemorrhage	>500 mL blood loss; Uterine atony, lacerations.	Fundal massage; Oxytocin 10-40 units IV/IM; TXA 1 g IV if trauma.	2025: Early TXA in massive bleed; Bimanual compression if needed.

## Normal/Abnormal Delivery

**Stages of Labor:** 1st (cervical dilation), 2nd (delivery), 3rd (placenta).

**Indications for Field Delivery:** Crowning, urge to push, contractions <2 min apart.

**Steps for Normal Delivery (NREMT Skill):** BSI/PPE; Prepare OB kit. Support perineum; Guide head (control expulsion). Check for nuchal cord (slip over head or clamp/cut if tight). Deliver shoulders (anterior first, gentle traction). Clamp/cut cord (2 clamps, 4-6 inches from baby). Dry/stimulate/warm newborn; Assess APGAR at 1/5 min. Deliver placenta; Fundal massage.

### Abnormal Deliveries:

**Breech:** Support body; If head trapped, Mauriceau maneuver or suprapubic pressure.

**Shoulder Dystocia:** McRoberts maneuver (knees to chest); Suprapubic pressure; Woods screw (rotate posterior shoulder).

**Multiple Births:** Clamp each cord; Expect postpartum bleed.

## Section 2: Neonatal Resuscitation (AHA 2025 NRP Integration)

**Initial Assessment:** Term? Tone? Breathing/crying?

**Routine Care (Uncomplicated):** Dry, warm, stimulate; Skin-to-skin if stable; Delayed cord clamping (30-60 sec if vigorous).

**Resuscitation Algorithm:** Warm/dry/stimulate (tactile: Back rub, foot flick).

If HR <100 or apnea/gasping: PPV at 40-60/min (BVM or T-piece).

If HR <60 after 30 sec PPV: Chest compressions (3:1 ratio, thumbs encircling or 2-finger).

**Epinephrine:** 0.01-0.03 mg/kg IV/IO (1:10,000) if HR <60 after compressions + ventilation.

**Volume:** 10 mL/kg NS if blood loss.

**APGAR Score:** Appearance, Pulse, Grimace, Activity, Respiration (0-2 each; Total 0-10). Not for guiding resuscitation.

**2025 Updates:** PPV first for most; Intubate if prolonged PPV needed; EtCO<sub>2</sub> for confirmation; Therapeutic hypothermia for HIE if indicated (hospital).

## Section 3: Pediatrics Overview

**Anatomical Differences:** Larger head/tongue; Compliant chest wall; Higher metabolic rate; Smaller airways (obstruction risk).

### Vital Signs by Age:

Age	HR	RR	SBP
Newborn	120-160	40-60	>60
Infant (<1y)	100-160	30-40	>70
Toddler (1-3y)	90-150	24-30	>80

Age Group	RR120	RR24	SO2
School Age (6-12y)			
Adolescent	60-100	12-20	>100

## Pediatric Assessment Triangle (PAT):

Appearance (tone/interactivity), Work of Breathing (retractions/stridor), Circulation (color/cap refill).

## Section 4: Common Pediatric Emergencies

Emergency	Signs/Symptoms	Management	Notes/AHA 2025
Respiratory Distress/Failure	Retractions, grunting, nasal flaring, hypoxia.	O <sub>2</sub> ; (titrate to 94-99%); Nebulized albuterol/epi for wheeze/stridor; CPAP if severe.	Causes: Asthma, bronchiolitis, croup, FBAO. 2025: Early capnography; Avoid over-oxygenation.
Shock	Compensated: Tachycardia, delayed cap refill; Hypotensive: Late sign in peds.	20 mL/kg NS bolus (repeat x2); Vasopressors if needed (epi 0.1-1 mcg/kg/min).	Types: Hypovolemic, distributive (sepsis), cardiogenic. 2025: Recognize compensated shock early.
Seizures	Tonic-clonic, febrile common.	Protect airway; Midazolam 0.1-0.2 mg/kg IV/IM/IN; Check glucose.	Status: Benzodiazepines first; Then levetiracetam/phenytoin. Altered Mental Status.
Altered Mental Status	Hypoglycemia, infection, trauma.	Glucose check; D10 2-4 mL/kg IV if low; Support ABCs.	AEIOU-TIPS mnemonic.
SIDS/ALTE/BRUE	Unexplained apnea/irritability in infant.	Full assessment; Transport all.	2025: BRUE (Brief Resolved Unexplained Event) low-risk criteria for discharge (hospital).
Child Abuse	Inconsistent history, patterned bruises.	Report; Treat injuries; Document.	Mandatory reporting.

## Section 5: Pediatric Resuscitation (AHA PALS 2025)

**BLS Differences:** 15:2 compression:ventilation if 2 rescuers (infant/child); Lone rescuer: 30:2.

Compression Depth: Infant: 1.5 in; Child: 2 in; Rate 100-120/min.

**Defibrillation:** 2-4 J/kg (initial); 4 J/kg subsequent.

**ACLS Adaptations:** IO access preferred if IV difficult; Weight-based dosing.

### Algorithms:

**Bradycardia:** Epi 0.01 mg/kg if unstable.

**Tachycardia:** Vagal maneuvers; Adenosine 0.1 mg/kg (max 6 mg) for SVT.

**Arrest:** Epi 0.01 mg/kg every 3-5 min; Amiodarone 5 mg/kg for VF/pVT.

**2025 Updates:** Emphasis on team dynamics; Post-arrest care (targeted temperature management 32-36°C for comatose); IO first in arrest if needed.

## Section 6: Special Considerations

**Transport:** Secure in age-appropriate device; Involve parents; Minimize separation.

**Pain Management:** Use FLACC/ Wong-Baker scales; Fentanyl 1 mcg/kg IN/IV for severe pain.

**Fever:** Acetaminophen 15 mg/kg PO/PR; Avoid routine cooling.

**NREMT Skills:** Peds airway (OPA/NPA/BVM); IO insertion; Spinal immobilization.

## Example Dosage Calculation (Math Reasoning)

**Question:** Calculate epinephrine infusion rate for a 20 kg pediatric patient in shock (0.2 mcg/kg/min).

**Solution:**  $0.2 \text{ mcg/kg/min} \times 20 \text{ kg} = 4 \text{ mcg/min}$ . **Reasoning:** Multiply dose per kg by weight to get total per min. For setup (e.g., 1 mg in 100 mL = 10 mcg/mL), rate =  $4 \text{ mcg/min} \div 10 \text{ mcg/mL} = 0.4 \text{ mL/min}$  (or 24 mL/h).

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