EMT Airway Management Study Guide

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This study guide focuses specifically on Airway, Respiration, & Ventilation for EMTs. It aligns with the NREMT EMT certification exam (updated domains effective April 2025), National EMS Education Standards, National EMS Scope of Practice Model 2019 (with updates), and AHA BLS Guidelines 2025 (current as of 2026). Airway, Respiration, and Ventilation content integrates heavily into the Primary Assessment (39–43%) and Patient Treatment and Transport (20–24%) domains on the NREMT exam. EMTs are limited to basic airway management—no advanced airways (e.g., no endotracheal intubation, supraglottic devices, or cricothyrotomy). Emphasize scene safety, BSI/PPE, rapid assessment, high-quality basic interventions, and prompt transport. Request ALS intercept for patients needing advanced airway support. Key Principle (AHA 2025 BLS): Prioritize a patent airway. Use visible chest rise to guide ventilation volume. Avoid both hypoventilation (too few breaths or too little volume) and hyperventilation (too many breaths or too much volume), as hyperventilation reduces venous return and cardiac output. In trauma with head/neck injury, use jaw thrust first; if ineffective and airway remains obstructed, trained rescuers should use head tilt-chin lift to ensure patency (priority over strict c-spine protection in arrest scenarios).

Disclaimer: This is a study aid, not official. For PDF, copy into a word processor and export. Always cross-reference current NREMT skill sheets, AHA 2025 BLS resources, and local protocols.

Section 1: Basic Airway Anatomy & Physiology (EMT Level)

Upper Airway: Nose/mouth → pharynx → larynx (epiglottis guards trachea).

Lower Airway: Trachea → bronchi → alveoli (site of gas exchange).

Key Differences – Adult vs. Pediatric: Pediatric patients have a proportionally larger tongue/head, higher larynx position, and narrower airways (increased obstruction risk).

Adequate Breathing: Adult RR 12–20 breaths/min; normal depth/effort; SpO&sub2; ≥94% on room air; equal bilateral chest rise; clear speech.

Inadequate Breathing: Signs include apnea, shallow/rapid/slow breathing, accessory muscle use, retractions, nasal flaring, grunting, cyanosis, or altered mental status → requires immediate airway/ventilation intervention.

Section 2: Airway Assessment & Indications for Intervention

Primary Assessment Focus (NREMT Emphasis):

Check responsiveness (AVPU).

Assess breathing: Look/listen/feel for ≤10 seconds (chest rise, rate, effort, sounds).

If no breathing/no pulse → immediate CPR.

If breathing inadequate → open/maintain airway and provide positive pressure ventilation (PPV).

Indications for Immediate Airway/Ventilation Intervention:

Apnea or agonal gasps.

Inadequate tidal volume (minimal/poor chest rise).

Foreign body airway obstruction (FBAO).

Secretions, vomitus, or blood obstructing airway.

Unresponsive or GCS ≤8 (protect airway to prevent aspiration).

Section 3: Basic Airway Opening & Maintenance Techniques

Technique	Indications	Steps	Key Notes (AHA 2025 / NREMT)
Head Tilt-Chin Lift	Non-trauma patients; unconscious/unresponsive	Hand on forehead to tilt head back; lift chin (avoid over-extension).	Preferred for non-trauma; effective for opening airway.
Jaw Thrust	Suspected c-spine injury/trauma	Fingers behind jaw angles; lift forward without head tilt.	Maintains neutral alignment; combine with manual c-spine stabilization. 2025 Update: If jaw thrust + adjunct fails, switch to head tilt-chin lift for patent airway priority.
Recovery Position	Unresponsive but breathing normally (no trauma)	Roll patient to side into stable lateral position.	Prevents aspiration; continue monitoring breathing.

Section 4: Airway Adjuncts (EMT Scope Only)

Adjunct	Indications	Sizing & Insertion Technique	Contraindications & Notes
Oropharyngeal Airway (OPA)	Unconscious patient with no gag reflex; prevents tongue obstruction	Measure: corner of mouth to angle of jaw. Insert inverted, rotate 180° (adults); direct insertion in pediatrics.	Gag reflex present → high vomiting/aspiration risk; too small → worsens obstruction.
Nasopharyngeal Airway (NPA)	Conscious/semi-conscious; facial trauma (if no basilar skull fracture)	Measure: tip of nose to earlobe. Lubricate well; insert bevel toward septum.	Severe facial trauma, suspected basilar skull fracture (e.g., raccoon eyes, Battle's sign), or epistaxis.

Suctioning: Use rigid (Yankauer) for oral secretions/vomitus/blood. Soft catheter for nasal passages. Limit to 10–15 seconds; pre-oxygenate if possible; monitor SpO&sub2; to avoid hypoxia.

Section 5: Oxygen Administration Devices

Device	Flow Rate	Approximate FiO&sub2;	Indications & Notes
Nasal Cannula	1–6 L/min	24–44%	Mild hypoxia; well-tolerated by conscious patients.
Non-Rebreather Mask	10–15 L/min	60–90%	Severe hypoxia/respiratory distress; ensure reservoir bag inflates fully.
Bag-Valve-Mask (BVM)	15 L/min + reservoir	Near 100%	Apnea or inadequate breathing; two-rescuer technique preferred for best seal.

Titration Goal: Maintain SpO&sub2; 94–98% (avoid routine high-flow oxygen in uncomplicated cases per 2025 BLS).

Section 6: Ventilation Techniques (BVM / Positive Pressure Ventilation)

Rate (Apneic Adult): 10–12 breaths/min (1 breath every 5–6 seconds).

Tidal Volume: Deliver enough for visible chest rise only (~500–600 mL adult); avoid excessive volume.

Technique: Two-person preferred (one seals mask, one squeezes bag); maintain open airway; attach high-flow oxygen.

During CPR: Use 30:2 ratio (compressions:ventilations) until advanced airway placed; ventilate during brief pauses.

2025 AHA BLS Emphasis: Visible chest rise guides volume; avoid hypo- or hyperventilation to prevent decreased cardiac output.

Foreign Body Airway Obstruction (FBAO):

Conscious adult/child: Abdominal thrusts.

Conscious infant: 5 back blows + 5 chest thrusts.

Unconscious: Start CPR; finger sweep only if object visible.

Pregnant/obese patients: Use chest thrusts (2025 update).

Section 7: NREMT Skill Emphasis & High-Yield Scenarios

Key Skill: BVM Ventilation of Apneic Adult – Take/verbalize BSI; assess responsiveness/breathing/pulse (≤10 sec); ventilate immediately with high-flow O&sub2;; maintain proper rate/volume; no dangerous maneuvers.

Common Scenarios: Unresponsive overdose → OPA + BVM if inadequate breathing. Trauma patient → Jaw thrust + adjuncts; reassess airway frequently. Pediatric respiratory distress → Evaluate work of breathing (retractions, grunting, flaring); assist with prescribed inhaler if available.

Tips: Minimize interruptions; reassess airway/breathing often; transport all patients with airway compromise promptly.

Example Dosage/Rate Calculation (Math Reasoning):

Question: For an apneic adult, ventilate at a rate of 10 breaths per minute. How many seconds between each breath? **Solution:** 60 seconds ÷ 10 breaths = 6 seconds per breath.**Reasoning:** Divide 60 (seconds in a minute) by the desired breaths per minute to find the interval between ventilations. Review NREMT skill sheets (e.g., BVM Ventilation of Apneic Adult, Oxygen Administration) and practice with manikins. Good luck on your EMT exam—focus on primary assessment priority and BLS fundamentals!