

Free 6-Week RTE Study Plan + 25 Practice Questions

For the 2027 NBRC Respiratory Therapy Examination (the exam that replaces the TMC and CSE). Written and reviewed by a practicing RRT for TidalPrep.

The exam in one box

Launch	January 4, 2027	Items	185 (160 scored + 25 pretest)
Time	4 hours ($\approx$ 78 sec/item)	Credentials	Low cut = CRT · High cut = RRT
Breadth (100)	Patient Data 25 · Devices & Patient Safety 25 · Interventions 50		
Depth (60)	Clinical judgment items by patient condition, judgment type, and setting		

Sources: nbrc.org/rt and the NBRC RT Detailed Content Outline (effective January 2027), checked October 30, 2026. Confirm current details at nbrc.org.

The plan (weighted like the exam)

When	Focus	What to do	Done
Week 1	Baseline + Patient Data	Take a diagnostic (NBRC free practice exam or the TidalPrep free mock). Read the 2027 DCO. Patient Data: assessment, ABGs and labs, PFTs, imaging.	☐
Week 2	Patient Data, continued	Daily ABG drills (classify, check compensation, find mixed disorders); hemodynamics; RSBI, P/F, and A-a gradient.	☐
Week 3	Devices + patient safety	O2 and humidity devices, airway equipment, ventilator setup and troubleshooting, infection control, QA.	☐
Week 4	Interventions I	Ventilator initiation and changes, lung-protective ventilation, NIV, weaning, airway management.	☐
Week 5	Interventions II	O2 therapy, aerosol drugs, airway clearance, neonatal/pediatric care, emergencies. Take an official NBRC SAE, timed.	☐
Week 6	Clinical judgment + full test	Case practice by patient type and setting. One full timed run (185 items, 4 hours). Review every miss; rest the day before.	☐

Every day: 25–40 practice questions in the week's area. Read every rationale and redo your misses. **Twice a week:** one clinical-judgment case.

Free in the app (no account): 50 questions with a rationale for every choice, 3 clinical-judgment cases, and a 50-item mock with a heat map by outline section: tidalprep.app/app

Free calculators: ABG, RSBI, P/F, A–a gradient, and tidal volume at tidalprep.app/tools ·

Guides: tidalprep.app/guides

This schedule is our recommendation, not an NBRC requirement. Also take the NBRC's free RT practice exam and consider its Self-Assessment Exams.

25 practice questions

Original items written to the 2027 content outline. They are not actual or recalled exam questions. Answers are at the end.

1. PFT results: FEV1/FVC 0.55 (below the lower limit of normal), FEV1 50% predicted, TLC 130% predicted, RV 170% predicted. Which interpretation is most appropriate?

- A.** Mixed obstructive-restrictive defect
- B.** Restrictive defect
- C.** Normal study
- D.** Obstructive defect with hyperinflation and air trapping

Pulmonary Function Testing · DCO I. Patient Data

2. A 2-year-old has a barking cough, inspiratory stridor, and a low-grade fever after 2 days of cold symptoms. An AP neck radiograph shows subglottic narrowing ('steeple sign'). Which is the most likely diagnosis?

- A.** Epiglottitis
- B.** Laryngotracheobronchitis (croup)
- C.** Bronchiolitis
- D.** Foreign body aspiration in a mainstem bronchus

Neonatal & Pediatrics · DCO I. Patient Data

3. A trauma patient has sudden severe dyspnea, absent breath sounds and hyperresonance on the right, tracheal deviation to the left, and hypotension. Which condition is most likely?

- A.** Right tension pneumothorax
- B.** Right pleural effusion
- C.** Right lower lobe pneumonia
- D.** Right lower lobe atelectasis

Patient Assessment · DCO I. Patient Data

4. Assessment of the left lower chest shows dull percussion, bronchial breath sounds, and increased tactile fremitus. These findings are most consistent with:

- A.** Pneumothorax
- B.** Consolidation
- C.** Pleural effusion
- D.** Emphysema

Patient Assessment · DCO I. Patient Data

5. An upright PA chest radiograph shows blunting of the right costophrenic angle with a meniscus-shaped density. Which finding does this most likely represent?

- A.** Pulmonary embolism
- B.** Pleural effusion
- C.** Pneumothorax
- D.** Hyperinflation

Patient Assessment · DCO I. Patient Data

6. What cuff pressure range is generally recommended for an adult endotracheal tube?

- A.** 5-10 cm H₂O
- B.** 40-50 mm Hg
- C.** 35-45 cm H₂O
- D.** 20-30 cm H₂O

Airway Management · DCO I. Patient Data

7. An arterial sample from a patient breathing room air (true PaO₂ about 70 mm Hg) is sent with a large air bubble that was not expelled. How will the bubble most likely change the reported values?

- A.** PaO₂ falsely decreased and PaCO₂ falsely increased
- B.** No meaningful change if analyzed within 30 minutes
- C.** Both PaO₂ and PaCO₂ falsely increased
- D.** PaO₂ falsely increased and PaCO₂ falsely decreased

ABGs · DCO I. Patient Data

8. Before drawing an arterial blood gas, which method correctly identifies the patient?

- A.** Confirm the room and bed number listed on the order
- B.** Ask, "Are you Mr. Lee?" and wait for a yes
- C.** Check two identifiers, such as name and birth date
- D.** Match the patient's face to the name sign on the door

Ethics & Professional Practice · DCO I. Patient Data

9. A patient's FEV₁ is 1.80 L before and 2.20 L after an inhaled bronchodilator. Predicted FEV₁ is 3.00 L. How should this be interpreted?

- A.** No significant bronchodilator response
- B.** The change indicates a restrictive defect
- C.** Cannot be interpreted without DLCO
- D.** A significant bronchodilator response

Pulmonary Function Testing · DCO I. Patient Data

10. An adult breathing room air has these arterial blood gas results: pH 7.25, PaCO₂ 60 mm Hg, HCO₃⁻ 26 mEq/L. Which interpretation is most accurate?

- A.** Metabolic acidosis, partially compensated
- B.** Combined respiratory and metabolic acidosis
- C.** Acute (uncompensated) respiratory acidosis
- D.** Chronic respiratory acidosis, fully compensated

ABGs · DCO I. Patient Data

11. At sea level (PB 760 mm Hg) on room air, a patient has PaO₂ 60 mm Hg and PaCO₂ 40 mm Hg. Assuming a respiratory quotient of 0.8, what is the approximate P(A-a)O₂, and what does it suggest?

- A.** About 10 mm Hg; the hypoxemia is caused by hypoventilation
- B.** About 0 mm Hg; the PaO₂ equals the alveolar PO₂
- C.** About 90 mm Hg; the patient has a pure diffusion defect
- D.** About 40 mm Hg; the hypoxemia is not explained by hypoventilation alone

ABGs · DCO I. Patient Data

12. A patient on volume-controlled ventilation has: VT 480 mL, PIP 34 cm H₂O, plateau pressure 26 cm H₂O, PEEP 6 cm H₂O. What is the static compliance (ignore tubing compliance)?

- A.** 18 mL/cm H₂O
- B.** 15 mL/cm H₂O
- C.** 17 mL/cm H₂O
- D.** 24 mL/cm H₂O

Ventilator Management · DCO I. Patient Data

13. A patient rescued from a house fire has a headache and confusion. The pulse oximeter reads SpO₂ 98% on a nonrebreather mask. Which is the most appropriate way to assess oxygenation?

- A.** Monitor end-tidal CO₂ with capnography
- B.** Accept the SpO₂ of 98% as an accurate measure of oxygenation
- C.** Measure SaO₂ and carboxyhemoglobin with CO-oximetry
- D.** Move the pulse oximeter probe to the earlobe and recheck

ABGs · DCO I. Patient Data

14. An air-entrainment (Venturi) mask is set to deliver FiO₂ 0.40 with an oxygen flow of 8 L/min. About what total flow reaches the patient?

- A.** About 8 L/min
- B.** About 32 L/min
- C.** About 24 L/min
- D.** About 64 L/min

Oxygen Therapy · DCO II. Management of Devices and Patient Safety Procedures

15. An adult has an 8.0 mm ID endotracheal tube. Using the rule that the catheter should occlude no more than half of the tube's lumen, which is the LARGEST suction catheter that should be used?

- A.** 8 Fr
- B.** 14 Fr
- C.** 16 Fr
- D.** 12 Fr

Airway Management · DCO II. Management of Devices and Patient Safety Procedures

16. An E cylinder (factor 0.28 L/psi) reads 1,800 psi. A patient will be transported on 4 L/min. If the cylinder is used until empty, about how long will it last?

- A.** About 126 minutes
- B.** About 450 minutes
- C.** About 63 minutes
- D.** About 252 minutes

Oxygen Therapy · DCO II. Management of Devices and Patient Safety Procedures

17. A pulse oximeter on a patient's finger reads SpO₂ 82%, but the patient is alert, comfortable, and pink. The hands are cold, and the plethysmographic waveform is low and irregular. What is the best next step?

- A.** Document the SpO₂ of 82% as accurate
- B.** Move the sensor to a better-perfused site, such as the earlobe
- C.** Increase the FiO₂ to 1.0
- D.** Tape the finger sensor more tightly to reduce motion

Equipment & Infection Control · DCO II. Management of Devices and Patient Safety Procedures

18. An older adult using an albuterol MDI cannot coordinate pressing the canister with inhaling. Which is the best recommendation?

- A.** Add a valved holding chamber (spacer)
- B.** Spray the MDI into the mouth and then hold the breath
- C.** Increase the number of puffs per treatment
- D.** Switch to a dry powder inhaler that requires a fast, forceful inhalation

Pharmacology & Aerosols · DCO II. Management of Devices and Patient Safety Procedures

19. After touching a ventilator circuit, a therapist's hands are not visibly soiled. The patient does not have *C. difficile*. Which hand hygiene method is preferred?

- A.** Putting on gloves without hand hygiene
- B.** Wiping hands with a disinfectant surface wipe
- C.** Alcohol-based hand rub
- D.** Soap and water for at least 5 seconds

Ethics & Professional Practice · DCO II. Management of Devices and Patient Safety Procedures

20. A unit is reviewing its ventilator circuit change policy to reduce ventilator-associated pneumonia (VAP). What practice is supported by evidence?

- A.** Change circuits only when visibly soiled or malfunctioning
- B.** Change circuits every 24 hours
- C.** Change circuits every 48 hours
- D.** Change circuits after every suctioning procedure

Equipment & Infection Control · DCO II. Management of Devices and Patient Safety Procedures

21. Immediately after an adult is intubated, which bedside method is most reliable for confirming and continuously monitoring endotracheal (not esophageal) tube placement?

- A.** Observing chest rise
- B.** An improving SpO₂
- C.** Auscultation of breath sounds alone
- D.** Continuous waveform capnography

Airway Management · DCO III. Initiation and Modification of Interventions

22. Using the common estimate for a nasal cannula in an adult with a normal breathing pattern, about what FiO₂ does 4 L/min provide?

- A.** About 0.60
- B.** About 0.44
- C.** About 0.36
- D.** About 0.28

Oxygen Therapy · DCO III. Initiation and Modification of Interventions

23. A patient without chronic CO₂ retention is on volume-control A/C: VT 450 mL (6 mL/kg PBW), set rate 10/min, not triggering above the set rate, P_{plat} 24 cm H₂O. ABG: pH 7.29, PaCO₂ 56 mm Hg. The goal PaCO₂ is 40 mm Hg. Which change is most appropriate?

- A.** Increase the VT to 650 mL
- B.** Increase the rate to 14/min
- C.** Decrease the rate to 8/min
- D.** Increase the rate to 20/min

Ventilator Management · DCO III. Initiation and Modification of Interventions

24. A patient with asthma has acute wheezing and chest tightness. Which inhaled medication is the most appropriate quick-relief (rescue) bronchodilator?

- A.** Albuterol
- B.** Tiotropium
- C.** Salmeterol
- D.** Fluticasone

Pharmacology & Aerosols · DCO III. Initiation and Modification of Interventions

25. A previously healthy 4-month-old has mild-to-moderate bronchiolitis during RSV season, with nasal congestion, mild retractions, and SpO₂ 93% on room air. According to the AAP bronchiolitis guideline, which approach is recommended?

- A.** Systemic corticosteroids to reduce airway inflammation
- B.** Routine chest physiotherapy to clear secretions
- C.** Supportive care with nasal suctioning, hydration, and monitoring
- D.** Scheduled albuterol nebulizers every 4 hours

Neonatal & Pediatrics · DCO III. Initiation and Modification of Interventions

Answer key

1. Answer D. A reduced FEV1/FVC ratio (below the LLN) defines airflow obstruction. An elevated TLC and RV indicate hyperinflation and air trapping, typical of emphysema-predominant COPD. Restriction requires a reduced TLC.

Source: ERS/ATS technical standard on interpretive strategies for routine lung function tests (2022)

2. Answer B. Croup is usually viral and causes subglottic edema. It presents with a barking ('seal-like') cough, stridor, and a gradual onset after a URI; the steeple sign on an AP neck film is classic. Epiglottitis has an abrupt onset, high fever, drooling, and a 'thumb sign' on a lateral neck film.

Source: StatPearls: Croup

3. Answer A. Air under pressure in the right pleural space causes hyperresonance and absent breath sounds, pushes the mediastinum and trachea AWAY (to the left), and impairs venous return, causing hypotension. This is an emergency that needs immediate decompression.

Source: StatPearls: Tension Pneumothorax

4. Answer B. Consolidated (fluid- or exudate-filled) lung transmits sound and vibration better than air-filled lung, so you get increased fremitus and bronchial breath sounds over a dull area, the classic picture of lobar pneumonia.

Source: StatPearls: Vocal Fremitus

5. Answer B. In an upright film, pleural fluid collects in the most dependent area, blunting the costophrenic angle and forming a meniscus that curves up the lateral chest wall. Lateral decubitus films or ultrasound can confirm free-flowing fluid.

Source: StatPearls: Pleural Effusion

6. Answer D. Keeping cuff pressure at about 20-30 cm H₂O (about 15-22 mm Hg) balances sealing the airway (and reducing aspiration around the cuff) against tracheal mucosal injury from excess pressure. Check it with a manometer periodically and after repositioning.

Source: StatPearls: Ventilator Safety (cuff pressure 20-30 cm H₂O)

7. Answer D. Room air in the bubble has a PO₂ of about 150-160 mm Hg and almost no CO₂. Gas equilibrates between the bubble and blood, pulling the sample PaO₂ toward the bubble's PO₂ (up, in this case) and lowering PaCO₂. (If the true PaO₂ were above ~150, a bubble would pull it DOWN.) Expel bubbles immediately and analyze promptly.

Source: Preanalytical considerations in blood gas analysis (Biochem Med 2013)

8. Answer C. Joint Commission performance goals require at least two person-specific identifiers (for example, name and date of birth or medical record number). Room number or location is never an identifier. Ask the patient to state the information rather than asking a yes/no question.

Source: Joint Commission National Performance Goals 2026 (NPG.01.01.01 patient identification)

9. Answer D. The FEV1 increased by 400 mL (22% of baseline, 13% of predicted). This meets both the older criterion (at least 12% AND at least 200 mL from baseline) and the 2022 ATS/ERS criterion (more than 10% of the predicted value). A significant response supports reversible airflow obstruction, as in asthma, though it does not diagnose asthma on its own.

Source: ERS/ATS technical standard on interpretive strategies for routine lung function tests (2022)

10. Answer C. The pH is low (acidemia) and the PaCO₂ is high, so the primary problem is respiratory. In acute respiratory acidosis HCO₃⁻ rises only about 1 mEq/L per 10 mm Hg rise in PaCO₂, so a PaCO₂ of 60 predicts an HCO₃⁻ of about 26. That matches, so there is no meaningful metabolic compensation yet.

Source: StatPearls: Respiratory Acidosis

11. Answer D. $PAO_2 = FiO_2 \times (PB - 47) - PaCO_2/0.8 = 0.21 \times 713 - 40/0.8 = 149.7 - 50 =$ about 100 mm Hg. $P(A-a)O_2 = 100 - 60 =$ about 40 mm Hg. On room air a normal gradient is roughly 5-20 mm Hg (it increases with age). A widened gradient with a normal PaCO₂ points to V/Q mismatch, shunt, or diffusion impairment rather than hypoventilation.

Source: StatPearls: Alveolar Gas Equation

12. Answer D. Static compliance = $VT / (P_{plat} - PEEP) = 480 / (26 - 6) = 480 / 20 = 24$ mL/cm H₂O. Plateau pressure (measured during an inspiratory hold with no flow) reflects the elastic load of the lungs and chest wall, not airway resistance.

Source: StatPearls: Physiology, Airflow Resistance

13. Answer C. Standard two-wavelength pulse oximeters cannot tell carboxyhemoglobin (COHb) from oxyhemoglobin, so SpO₂ can be falsely normal in CO poisoning. CO-oximetry (multi-wavelength analysis of a blood sample) measures COHb and the true fractional saturation. Keep the patient on 100% oxygen while you get it.

Source: StatPearls: Carbon Monoxide Toxicity

14. Answer B. For FiO₂ 0.40, the air:O₂ entrainment ratio is about 3:1 (calculated: $(100 - 40) / (40 - 21) = 3.2$). Total parts = 3 + 1 = 4. Total flow = 8 L/min x 4 = 32 L/min. If the patient's peak inspiratory flow exceeds the total flow, room air is drawn in and the delivered FiO₂ drops for that device.

Source: StatPearls: Fraction of Inspired Oxygen

15. Answer D. The standard rule: catheter size (Fr) = $ETT\ ID\ (mm) \times 3 / 2 = 8 \times 3 / 2 = 12$ Fr. Fr measures outer circumference (Fr / 3 = about OD in mm), so a 12 Fr catheter is about 4 mm OD, about half the 8 mm lumen, leaving room for air to enter around it and limiting negative-pressure atelectasis.

Source: AARC CPG: Artificial Airway Suctioning (2022)

16. Answer A. Duration (min) = gauge pressure (psi) x cylinder factor / flow (L/min) = $1,800 \times 0.28 / 4 = 504 / 4 = 126$ minutes (about 2 hours). Unless the item states a safety reserve, calculate to empty; if a reserve (e.g., 200 psi) is given, subtract it from the gauge pressure first.

Source: StatPearls: Gas Cylinders

17. Answer B. Poor perfusion (cold extremities), motion, and some nail polishes cause inaccurate SpO₂ readings. A poor pleth waveform signals a poor-quality reading. Fix the signal or move the probe, and confirm with an arterial sample (SaO₂/PaO₂) if the reading doesn't fit the clinical picture. Also note that pulse oximeters can overestimate saturation in patients with darker skin pigmentation (FDA 2021).

Source: FDA: Pulse Oximeters (accuracy and limitations)

18. Answer A. A valved holding chamber holds the aerosol briefly, so precise hand-breath coordination is less critical. It also reduces oropharyngeal deposition and increases lung delivery. A breath-actuated device or a nebulizer may be alternatives if needed.

Source: StatPearls: Inhaled Corticosteroids

19. Answer C. CDC prefers alcohol-based hand rub in most clinical situations when hands are not visibly soiled. Soap and water (for at least 20 seconds) is used when hands are visibly soiled and in certain situations such as *C. difficile* outbreaks.

Source: CDC: Hand Hygiene for Healthcare Workers

20. Answer A. Studies show no VAP benefit from scheduled circuit changes. Frequent breaks in the circuit may increase contamination risk and add cost. Guidance (AARC; SHEA/IDSA) supports changing circuits only when visibly soiled or malfunctioning (or per manufacturer guidance).

Source: SHEA/IDSA/APIC: Strategies to prevent VAP/VAE, 2022 update

21. Answer D. Resuscitation guidelines recommend continuous waveform capnography, together with clinical assessment, to confirm and monitor ETT placement. A sustained CO₂ waveform with each breath indicates tracheal placement. A chest radiograph confirms DEPTH (tip position), not tracheal vs. esophageal placement in real time.

Source: AHA 2025 Guidelines, Part 9: Adult Advanced Life Support

22. Answer C. The standard textbook estimate: FiO₂ = 0.21 + about 0.04 per L/min, roughly 0.24 at 1 L/min, rising about 4% per liter. 4 L/min is about 0.36. Nasal cannula is a low-flow device, so actual FiO₂ varies with the patient's rate, tidal volume, and inspiratory flow.

Source: StatPearls: Fraction of Inspired Oxygen

23. Answer B. PaCO₂ is inversely proportional to alveolar ventilation. New rate = current rate x (current PaCO₂ / desired PaCO₂) = 10 x 56/40 = 14/min. Because VT is already at a lung-protective 6 mL/kg PBW, adjust rate rather than volume. Recheck the ABG and watch for auto-PEEP after the change.

Source: Breathe Easy (open RT text): How much do I change ventilation settings by?; NBRC: Setting the Tidal Volume in Adults Receiving Mechanical Ventilation (2017)

24. Answer A. Albuterol is a short-acting beta2-agonist (SABA) with an onset within minutes, which is why it has long been the standard rescue medication. (Current asthma guidelines also endorse ICS-formoterol as a reliever for some patients.)

Source: StatPearls: Albuterol

25. Answer C. The 2014 AAP guideline recommends supportive care for bronchiolitis. It recommends AGAINST routine albuterol, systemic corticosteroids, and chest physiotherapy because they don't improve outcomes. Supplemental oxygen may be withheld if SpO₂ stays above 90%. Nasal suctioning can relieve congestion (the guideline discourages deep suctioning).

Source: AAP Clinical Practice Guideline: Bronchiolitis (2014)

Want the rationale for every answer choice, plus 3 full clinical-judgment cases? Practice these and 25 more free at tidalprep.app/app. Pro unlocks all 312 items and the full 185-item, 4-hour mock (\$14.99/month or \$79 once).