

RESPIRATORY EMERGENCY

Acute *Respiratory* Failure

A life-threatening inability of the respiratory system to maintain adequate gas exchange — failure to oxygenate, ventilate, or both. Rapid recognition and ABC prioritization are the difference between rescue and arrest.

System: Pulmonary

NGN Domain: Physiological Adaptation

Priority: HIGH-ACUITY

NCLEX Clusters: ABG • Oxygenation • Shock



SOURCE TRANSPARENCY

This topic is

NOT PRESENT IN DIANE'S UPLOADED REFERENCE NOTES

. Content has been compiled from external NCLEX-aligned sources: *Saunders Comprehensive Review for NCLEX-RN 2026*, *ATI RN Adult Medical-Surgical Nursing*, *Lippincott Illustrated Reviews — Pulmonology*, and *AACN Procedure Manual for High Acuity, Progressive, and Critical Care (2024 edition)*. ABG thresholds reflect current ATS/ERS clinical practice guidelines.



Definition & Overview

WHAT IT IS • WHY IT MATTERS

Acute respiratory failure (ARF) is a **sudden inability of the lungs to perform gas exchange**, leading to inadequate oxygenation, inadequate ventilation, or both. It is a clinical diagnosis confirmed by arterial blood gas (ABG) values.

- **Diagnostic ABG Criteria — "60 / 50 / 7.35" Rule:**
- $\text{PaO}_2 < 60$ mmHg on room air (hypoxemia), *and/or*
 - $\text{PaCO}_2 > 50$ mmHg (hypercapnia) with $\text{pH} < 7.35$ (acidosis)

TYPE I Hypoxemic Failure

The "oxygenation problem." $\text{PaO}_2 < 60$ with normal or low PaCO_2 . Caused by V/Q mismatch, shunting, or diffusion defects.

Classic causes: pneumonia, pulmonary embolism, ARDS, pulmonary edema, atelectasis.

TYPE II Hypercapnic Failure

The "ventilation problem." $\text{PaCO}_2 > 50$ with respiratory acidosis. Caused by alveolar hypoventilation — the lungs can't blow off CO_2 .

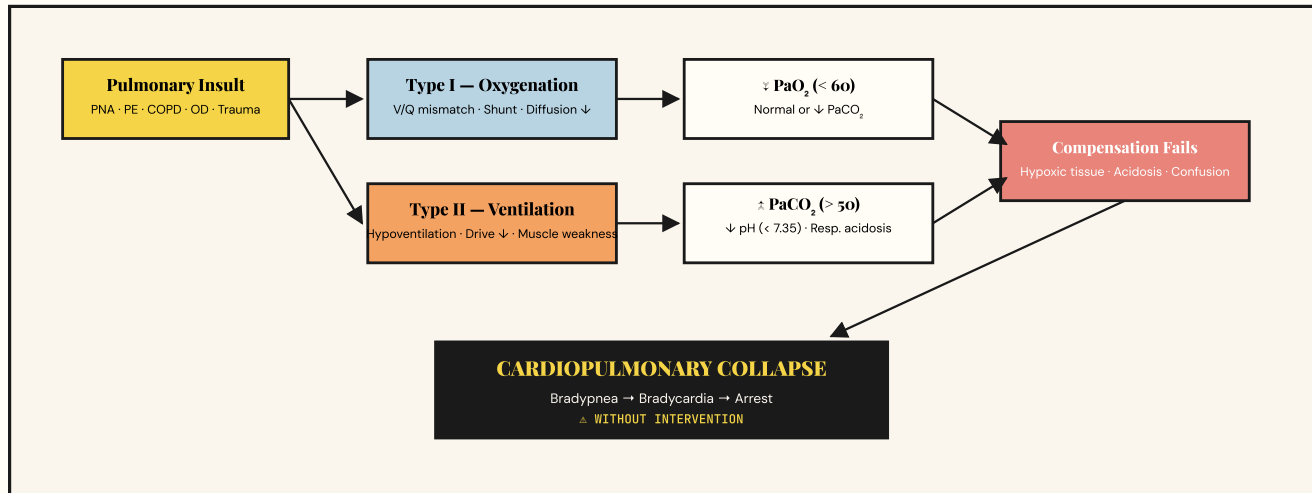
Classic causes: COPD exacerbation, opioid overdose, neuromuscular disease (GBS, MG, ALS), chest wall injury.



Pathophysiology *Simplified*

STEP-BY-STEP MECHANISM

Whatever the trigger, ARF follows one of two final pathways — **oxygen can't get IN (Type I)** or **CO₂ can't get OUT (Type II)**. The body's compensation (tachypnea, tachycardia) ultimately fails, and acidosis worsens until cardiopulmonary collapse occurs.



Key concept: In Type II failure, supplemental O₂ does NOT fix the problem — the lungs can't ventilate. These patients need **BiPAP or intubation** to mechanically remove CO₂.



Signs & Symptoms

EARLY VS. LATE • DON'T MISS THE SHIFT

EARLY (Compensating)

- ▶ Restlessness, anxiety, agitation — #1 earliest sign of hypoxia
- ▶ Tachypnea (RR > 24)
- ▶ Tachycardia, hypertension
- ▶ Dyspnea on exertion
- ▶ Use of accessory muscles begins
- ▶ Headache (CO₂ retention)
- ▶ Pale, cool, clammy skin

LATE (Decompensating)

- ▶ Confusion → lethargy → coma
- ▶ Central cyanosis (lips, mucosa)
- ▶ Bradypnea, bradycardia → impending arrest
- ▶ Paradoxical (see-saw) breathing
- ▶ Tripod position, severe retractions
- ▶ Hypotension
- ▶ Cardiac dysrhythmias
- ▶ Decreased LOC, unresponsive

RED FLAG

DECEIVING "improvement": A previously agitated, tachypneic patient who suddenly becomes "calm" and quiet with a slowing respiratory rate is **NOT improving** — they are decompensating. Recognize this as **impending respiratory arrest** and call the rapid response team immediately.

Type I Clues

Severe dyspnea, cyanosis, low SpO₂ that doesn't improve with low-flow O₂. Crackles, wheezing on auscultation.

Type II Clues

Drowsiness, headache, flushed warm skin, "CO₂ narcosis." Slow shallow breathing in OD/neuromuscular.

Tissue Hypoxia

↓ urine output, lactic acidosis, ST changes on ECG, cool mottled extremities, AMS.



Priority Nursing *Interventions*

ABC FRAMEWORK • NCLEX PRIORITIZATION

A AIRWAY

- ▶ Position **High-Fowler's (90°)** or tripod — maximizes lung expansion
- ▶ Suction PRN — but only as needed (suction itself worsens hypoxia)
- ▶ Have intubation equipment at bedside
- ▶ Insert oral airway if obtunded

B BREATHING

- ▶ Apply **O₂ — titrate to SpO₂ 92–96%** (88–92% in COPD)
- ▶ Continuous SpO₂, ETCO₂ monitoring
- ▶ Obtain stat ABG
- ▶ Prepare for BiPAP / mechanical ventilation
- ▶ Encourage cough & deep breathing if able

C CIRCULATION

- ▶ Establish two large-bore IVs
- ▶ Continuous cardiac monitor — watch for dysrhythmias from hypoxia
- ▶ Monitor BP, mental status, urine output q1h
- ▶ Treat shock if present (IV fluids per protocol)

D DECREASE O₂ DEMAND

- ▶ Cluster care to allow rest
- ▶ Treat fever (each 1°C ↑ = 13% ↑ O₂ demand)
- ▶ Manage anxiety calmly (avoid early sedation — may mask hypoxia)
- ▶ Bed rest in semi/high-Fowler's

★ **NCLEX Priority Order: Position → O₂ → Call provider/RRT → ABG → IV access → Continuous monitoring → Prepare for intubation**



Pharmacology

TREAT THE CAUSE • SUPPORT THE PATIENT

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Albuterol <i>Short-acting β_2 agonist</i>	Bronchodilation via β_2 stimulation	Tachycardia, tremor, hypokalemia	First-line for bronchospasm; monitor HR & K ⁺
Ipratropium (Atrovent) <i>Anticholinergic</i>	Bronchodilation by blocking ACh	Dry mouth, urinary retention	Often paired with albuterol (DuoNeb); caution in glaucoma/BPH
Methylprednisolone <i>Corticosteroid</i>	↓ airway inflammation & swelling	Hyperglycemia, immunosuppression, GI bleed	Monitor blood glucose; taper slowly; give with food
Furosemide (Lasix) <i>Loop diuretic</i>	↓ fluid in pulmonary edema	Hypokalemia, hypotension, ototoxicity	Used when CHF/edema cause ARF; monitor K ⁺ , daily weights, I&O
Naloxone (Narcan) <i>Opioid antagonist</i>	Reverses opioid-induced respiratory depression	Acute withdrawal, agitation, HTN	Reverses Type II from OD; short half-life — may need repeat doses
Antibiotics <i>(broad-spectrum)</i>	Treat pneumonia/sepsis	Allergic reactions, C. difficile	Obtain cultures FIRST when possible; give within 1 hr of suspected sepsis
Heparin / Enoxaparin <i>Anticoagulant</i>	Prevent/treat PE clot extension	Bleeding, HIT, thrombocytopenia	For PE-induced ARF; monitor PTT/anti-Xa, platelets, bleeding
Propofol / Fentanyl <i>Sedation for vent</i>	Sedation & analgesia for intubated pts	Hypotension, propofol infusion syndrome	Daily sedation interruption ("sedation vacation"); monitor RASS



NCLEX Test Traps

WHERE STUDENTS LOSE POINTS

✗ WRONG THINKING

"The COPD patient is hypoxic, so I'll crank up O₂ to 6 L/min via NC."

✓ RIGHT THINKING

Start at **1–2 L/min NC**, titrate to SpO₂ **88–92%**. High-flow O₂ can suppress the hypoxic drive → apnea.

✗ WRONG THINKING

"The patient is restless and anxious — give the PRN lorazepam."

✓ RIGHT THINKING

Restlessness is the #1 EARLIEST sign of hypoxia — assess oxygenation **FIRST**. Sedating hypoxia can be lethal.

✗ WRONG THINKING

"The RR dropped from 32 to 12 — they're improving."

✓ RIGHT THINKING

In an unstable patient, slowing RR with decreased LOC = **impending respiratory arrest**. Call RRT/code immediately.

✗ WRONG THINKING

"SpO₂ is 90% — that's fine, no action needed."

✓ RIGHT THINKING

SpO₂ 90% ≈ PaO₂ 60 (the edge of ARF). **Intervene:** reposition, deep breathing, O₂, notify provider.

✗ WRONG THINKING

"The patient has Type II failure on BiPAP — they look comfortable, I'll leave them alone."

✓ RIGHT THINKING

Reassess in **30–60 min with ABG**. If pH/CO₂ don't improve, escalate to intubation. BiPAP is a time-limited trial.

✗ WRONG THINKING

"Position the patient flat to rest."

✓ RIGHT THINKING

Position **High-Fowler's or tripod**. Supine increases work of breathing and worsens V/Q mismatch.



Patient & Family Education

PREVENTION • RECOVERY • HOME CARE



Prevention

- ▶ **Smoking cessation** — #1 modifiable risk factor
- ▶ Annual influenza vaccine + pneumococcal vaccines
- ▶ COVID-19 vaccination per CDC schedule
- ▶ Avoid known triggers (allergens, pollutants)
- ▶ Hand hygiene to prevent respiratory infections



Medication Adherence

- ▶ Take inhalers/maintenance meds **even when feeling well**
- ▶ Demonstrate proper inhaler & spacer technique
- ▶ Rinse mouth after inhaled corticosteroids (thrush prevention)
- ▶ Never abruptly stop steroids
- ▶ Keep rescue inhaler accessible at all times



When to Call 911

- ▶ Severe shortness of breath at rest
- ▶ Blue lips/fingertips (cyanosis)
- ▶ Confusion or extreme drowsiness
- ▶ Rescue inhaler not working
- ▶ Chest pain with breathing
- ▶ SpO₂ < 90% at home (if monitor available)



Lifestyle & Recovery

- ▶ **Pursed-lip breathing** (esp. for COPD) — exhale 2× longer than inhale
- ▶ Diaphragmatic breathing exercises
- ▶ Pulmonary rehabilitation referral
- ▶ Energy conservation: cluster activities, rest periods
- ▶ Adequate hydration (thin secretions)
- ▶ High-protein, small frequent meals (eating tires)



Memory Boosters & Mnemonics

PATTERN RECOGNITION • QUICK RECALL

R A T

EARLY HYPOXIA SIGNS

Restless

Anxious

Tachycardia / Tachypnea

B E D

LATE HYPOXIA SIGNS

Bradycardia

Extreme restlessness → unresponsive

Dyspnea, cyanosis, Dropping SpO₂

60 / 50 / 7.35

ABG ARF CRITERIA

PaO₂ < 60 mmHg (hypoxemia)

PaCO₂ > 50 mmHg (hypercapnia)

pH < 7.35 (acidosis)

I & II

TYPE I vs TYPE II

Type I = **One** problem → OXYGEN

Type II = **Two** problems → OXYGEN + CO₂

Type I needs O₂ · Type II needs VENTILATION
(BiPAP/intubation)

🔑 Quick Pattern Recognition

- ▶ "Anxious + low SpO₂" → always think hypoxia FIRST (never sedate)
- ▶ "COPD + high-flow O₂ + decreased LOC" → loss of hypoxic drive
- ▶ "Sudden quiet calm after agitation" → decompensation, not improvement
- ▶ "Tripod position + accessory muscles" → severe respiratory distress
- ▶ "Pinpoint pupils + RR < 8" → opioid OD → Naloxone
- ▶ "Ascending paralysis + dyspnea" → GBS → Type II failure



NCJMM Clinical Judgment *Scenario*

SIX-STEP NEXT GEN NCLEX WALKTHROUGH



Case Stem

A 68-year-old male with a history of COPD and CHF arrives at the ED via EMS. Family states he became increasingly short of breath over the past 24 hours and is now "barely awake." Vital signs: T 38.2°C, HR 124, RR 32 labored, BP 96/58, SpO₂ **82% on RA**. He is tripodding, using accessory muscles, with coarse crackles bilaterally. ABG on RA: **pH 7.24 / PaCO₂ 68 / PaO₂ 48 / HCO₃ 28 / SaO₂ 80%**. He responds only to painful stimuli.

STEP 1 • RECOGNIZE CUES

What stands out?

SpO₂ 82% on RA, RR 32 labored, accessory muscle use, tripod, crackles, decreased LOC, ABG showing combined hypoxemia (PaO₂ 48) + hypercapnia (PaCO₂ 68) + respiratory acidosis (pH 7.24). History of COPD + CHF. Fever suggests infectious trigger.

STEP 2 • ANALYZE CUES

What do the cues mean together?

This patient meets criteria for **acute-on-chronic respiratory failure — Type II** (hypercapnic with acidosis). His decreased LOC indicates CO₂ narcosis. Crackles + fever suggest pneumonia as the trigger of his COPD exacerbation. He is decompensating rapidly — RR 32 will fatigue.

STEP 3 • PRIORITIZE HYPOTHESES

Most urgent problem?

#1 Impaired gas exchange / impending respiratory arrest — must address immediately. Secondary: infection (pneumonia), fluid status (CHF). The respiratory failure is the immediate life threat.

STEP 4 • GENERATE SOLUTIONS

What interventions are needed?

- ▶ Position high-Fowler's immediately
- ▶ Apply controlled O₂ (Venturi 24–28%) to target SpO₂ 88–92%
- ▶ Prepare for **BiPAP trial** — if not improving or LOC continues to decline → intubation
- ▶ IV access × 2, draw labs & cultures, give broad-spectrum antibiotics within 1 hr
- ▶ Nebulized bronchodilators + IV corticosteroids
- ▶ Notify provider/rapid response; transfer to ICU

STEP 5 • TAKE ACTION

Execute in priority order

Position → controlled O₂ → call RRT → IV access → ABG/labs/cultures → antibiotics → bronchodilators/steroids → prepare BiPAP/intubation kit at bedside → continuous monitoring → transfer to ICU.

STEP 6 • EVALUATE OUTCOMES

Reassess in 30–60 min

- ▶ **Improvement:** SpO₂ 88–92%, RR < 24, LOC returning, ABG trending toward pH > 7.30 and PaCO₂ < 60
- ▶ **No improvement / worsening:** persistent acidosis, worsening LOC, fatigue → **intubation & mechanical ventilation**
- ▶ Document response, adjust plan, communicate via SBAR to ICU team



One-Page Takeaway

IF YOU REMEMBER NOTHING ELSE



Top 5 NCLEX Pearls

- ▶ **Restlessness = early hypoxia** — never sedate first
- ▶ **ABG "60/50/7.35"** — memorize the thresholds
- ▶ **COPD = low-flow O₂** (1–2 L NC, target 88–92%)
- ▶ **Quiet + slowing RR + ↓ LOC = arrest is imminent**
- ▶ **Position High-Fowler's**, never supine



First Actions Cheat Sheet

- Suspected ARF → **Position + O₂ + Call RRT**
- Suspected opioid OD → **Naloxone + bag-valve-mask**
- Type II decompensation → **BiPAP or intubate**
- Anxious + low SpO₂ → **Assess O₂, NOT sedate**
- Pulm edema → **Sit up + O₂ + Lasix + Morphine**