

● NGN NCLEX 2026 • INFOGRAPHIC SERIES

RESPIRATORY

Acute Respiratory Failure & ARDS

When the lungs can no longer keep up — recognize early, intervene faster, and rescue oxygenation before refractory hypoxemia sets in.

CARD • RESP 01

PRIORITY • ABC • HIGH ACUITY

NCJMM • ALL 6 STEPS

EST. REVIEW • 12 MIN

01 Definition & Overview

WHY IT MATTERS

Acute Respiratory Failure (ARF)

A **sudden inability** of the lungs to maintain adequate **oxygenation, ventilation, or both** — resulting in a life-threatening disruption of gas exchange.

Hallmark ABG values: $\text{PaO}_2 < 60 \text{ mmHg}$ · $\text{PaCO}_2 > 50 \text{ mmHg}$ · $\text{pH} < 7.35$

ARDS

A **severe, progressive** form of acute lung injury marked by **non-cardiogenic pulmonary edema, refractory**

◎ BERLIN CRITERIA FOR ARDS

- T** **Timing** — Within 1 week of a known clinical insult
- I** **Imaging** — Bilateral opacities on chest X-ray (not from effusion/collapse)
- O** **Origin** — Not fully explained by cardiac failure or fluid overload
- O** **Oxygenation** — $\text{PaO}_2/\text{FiO}_2$ ratio ≤ 300 (mild · moderate · severe)

hypoxemia, and stiff, non-compliant lungs — often triggered by sepsis, aspiration, trauma, or pneumonia.

TYPE I

Hypoxemic Failure

$\text{PaO}_2 < 60 \text{ mmHg}$ · PaCO_2 normal/low

An **oxygenation** problem — V/Q mismatch.

- ARDS
- Pneumonia · PE
- Pulmonary edema

TYPE II

Hypercapnic Failure

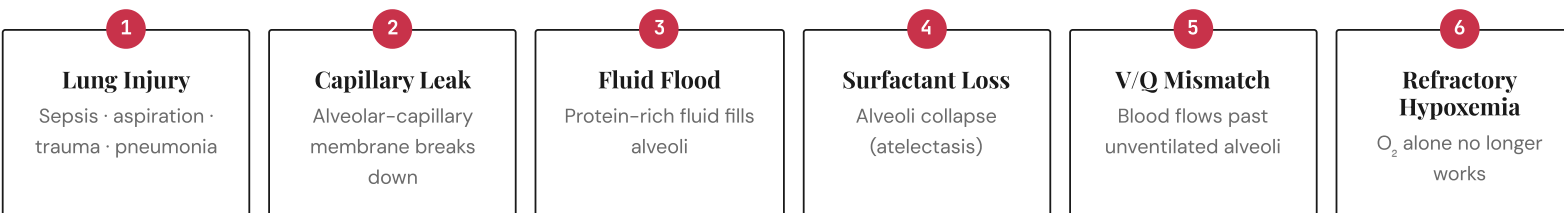
$\text{PaCO}_2 > 50 \text{ mmHg}$ · $\text{pH} < 7.35$

A **ventilation** problem — can't blow off CO_2 .

- COPD exacerbation
- Opioid overdose
- Neuromuscular disease (MG, GBS)

02 Pathophysiology — ARDS Cascade

SIMPLIFIED



Key point: ARDS is **non-cardiogenic** pulmonary edema. The heart is fine — the lungs are failing. This is why diuretics alone won't fix it and why PEEP is essential to splint open collapsed alveoli.

03 Signs & Symptoms

RECOGNIZE THE CUES

EARLY • COMPENSATING

Catch it here.

- **Restlessness & anxiety** — #1 earliest sign of hypoxia
- Tachypnea & dyspnea on exertion
- Tachycardia
- Hyperventilation → respiratory alkalosis
- Mild hypoxemia responsive to O₂
- Clear or mildly abnormal chest X-ray

LATE • DECOMPENSATING

This is a rescue.

- **Refractory hypoxemia** — O₂ no longer fixes it
- Severe dyspnea, retractions, accessory muscle use
- Crackles throughout lung fields
- Cyanosis (late & ominous)
- Respiratory acidosis & fatigue
- Decreased LOC → confusion → coma
- Bilateral "whiteout" on chest X-ray

Red Flag Findings — Act Now



PaO₂ < 60 mmHg despite FiO₂ > 60% · Silent chest (no breath sounds — preceded wheezing stopped) · Rising PaCO₂ in a previously tachypneic patient (exhaustion) · Decreasing LOC in a respiratory patient is respiratory failure until proven otherwise.

04 Priority Nursing Interventions

ABC • SAFETY

① AIRWAY

PREPARE • INTUBATE

Secure the Airway

② BREATHING

VENTILATE • PEEP

**Low Tidal Volume +
PEEP**

③ POSITION

PRONE • TURN

Prone Positioning

④ CIRCULATION

MONITOR • SUPPORT

**Hemodynamic
Monitoring**

Anticipate intubation & mechanical ventilation. Have suction, bag-valve-mask, and crash cart at bedside.

4–6 mL/kg predicted body weight. PEEP **5–20 cm H₂O** keeps alveoli open. Accept permissive hypercapnia.

Prone **12–16 hr/day** for severe ARDS. Improves V/Q matching & oxygenation. Protect eyes, face, ETT.

Continuous SpO₂, ABGs, cardiac rhythm, BP. Treat shock.
Conservative fluids — avoid overload.

⑤ SEDATION

SEDATE · PARALYZE

Sedation & Paralysis

Sedate to tolerate vent (Propofol, Versed). Short-term paralytics for severe ARDS (Cisatracurium).

⑥ SAFETY

PREVENT · PROTECT

VAP Bundle

HOB **30–45°**, oral care w/ chlorhexidine q2h, sedation holidays, DVT & stress ulcer prophylaxis.

⑦ NUTRITION

FEED · SUPPORT

Early Enteral Feeding

Start within **24–48 hrs** via NG/OG. Meets metabolic demand, preserves gut integrity, reduces translocation.

⑧ EVALUATE

REASSESS · TITRATE

Serial ABGs & SpO₂

Trend PaO₂/FiO₂ ratio. Goal SpO₂ **88–95%** (do NOT over-oxygenate). Wean FiO₂ as tolerated.

ABC in action

Airway

Patent, secured ETT, suction ready

Breathing

Low Vt · PEEP · prone · SpO₂ 88–95%

Circulation

MAP ≥ 65 · conservative fluids · vasopressors PRN

05 Pharmacology

VENT SUPPORT

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Propofol (Diprivan) SEDATIVE	Rapid-onset sedation for ventilated patients	Hypotension · bradycardia · ↑ triglycerides · propofol infusion syndrome	Monitor BP, triglycerides, lipase. Change tubing q12h (lipid-based — infection risk).
Midazolam (Versed) BENZODIAZEPINE	Sedation, anxiolysis, amnesia	Respiratory depression · hypotension · paradoxical agitation	Titrate to RASS goal. Antidote: flumazenil. Daily sedation holiday.
Fentanyl OPIOID ANALGESIC	Analgesia + adjunct sedation	Respiratory depression · bradycardia · rigidity · ileus	Antidote: naloxone. Assess pain (CPOT). Bowel regimen.

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Cisatracurium (Nimbex) NEUROMUSCULAR BLOCKER	Paralysis for severe ARDS (<48 hr)	Total paralysis · awareness without sedation · prolonged weakness	MUST be given WITH sedation + analgesia. Train-of-four monitoring. Eye care.
Norepinephrine (Levophed) VASOPRESSOR	Maintains MAP $\geq$ 65 in distributive shock	Hypertension · tachyarrhythmias · extravasation → tissue necrosis	Central line only. Continuous BP monitoring. Never stop abruptly.
Inhaled Nitric Oxide PULMONARY VASODILATOR	Selective pulmonary vasodilation → better V/Q match	Methemoglobinemia · rebound hypoxemia on abrupt stop	Rescue therapy only. Wean slowly. Monitor methemoglobin levels.
Corticosteroids ANTI-INFLAMMATORY	Dampen inflammatory cascade (case-by-case)	Hyperglycemia · infection risk · GI bleed · myopathy	Monitor blood glucose q6h. Stress ulcer prophylaxis. Not routine in ARDS.

06 NCLEX Test Traps

AVOID THESE

~~"Restlessness is just anxiety — give Ativan."~~



Restlessness is the earliest sign of hypoxia.

Assess oxygenation first. Sedating a hypoxic patient can mask deterioration and kill them.

~~"ARDS — just give Lasix for the pulmonary edema."~~



ARDS is NON-cardiogenic edema.

Diuretics alone don't fix it. **PEEP + mechanical ventilation** splints open collapsed alveoli.

~~"Higher FiO₂ always = better oxygenation."~~



ARDS hypoxemia is refractory.

If SpO₂ doesn't rise with O₂, escalate to **PEEP, prone, and ventilator support** — not just more FiO₂.

~~"Give IV fluids liberally for the low BP."~~



Use conservative fluid strategy.

Excess fluid worsens pulmonary edema. Support BP with **vasopressors** before aggressive fluids.

"Silent chest = the patient is finally calm."



Silent chest = impending respiratory arrest.

No breath sounds after noisy distress means **no air movement**. Call rapid response / code.

"COPD patient is drowsy — just turn up the O₂."



Drowsiness in COPD = CO₂ narcosis.

High-flow O₂ can blunt the hypoxic drive. Target SpO₂ **88–92%**. Prepare for BiPAP / intubation.

"Paralytic ordered — start it now."



NEVER paralyze without sedation + analgesia.

A paralyzed, un-sedated patient is **awake and terrified**. Confirm both infusions before Nimbox.

"Lay the ARDS patient flat for comfort."



HOB 30–45° + prone scheduled.

HOB elevation reduces VAP. Prone positioning recruits dependent alveoli — evidence-based for severe ARDS.

07 Patient & Family Education

COMMUNICATION • RECOVERY

During Ventilation

- Explain inability to speak with ETT — use writing board / picture board
- Orient to time, place, person frequently despite sedation
- Teach alarm meaning & reassure before any procedure
- Reinforce weaning plan & SBT (spontaneous breathing trials)

For Family

- Prognosis is serious — mortality 30–40% in severe ARDS
- Explain purpose of tubes, lines, sedation, prone turning
- Encourage presence, touch, and voice — patients often hear
- Support decision-making around advance directives & goals of care

Recovery & Post-ICU

- Expect **post-ICU syndrome**: weakness, cognitive fog, PTSD
- Pulmonary rehab, energy conservation, breathing exercises
- Smoking cessation, vaccines (flu + pneumococcal)
- Follow-up for pulmonary function tests at 3, 6, 12 months
- Recognize early warning signs — call HCP for dyspnea, fever, ↓ exercise tolerance

08 Memory Boosters

MNEMONICS

MNEUMONIC

A · R · D · S

- A** **Assault** to the lung (trigger: sepsis, aspiration, trauma)
- R** **Respiratory distress** & refractory hypoxemia
- D** **Decreased compliance** (stiff, non-compliant lungs)
- S** **Surfactant** deficit → alveolar collapse

BERLIN CRITERIA

"T · I · O · O"

- T** **Timing** — within 1 week of insult
- I** **Imaging** — bilateral infiltrates
- O** **Origin** — not cardiac
- O** **Oxygenation** — P/F ratio ≤ 300

EARLY HYPOXIA

"R · A · T"

- R** **Restlessness** — earliest sign
- A** **Anxiety** — "something is wrong"
- T** **Tachycardia** & tachypnea

Late hypoxia = "BED": Bradycardia, Extreme restlessness, Dyspnea → cyanosis → coma.

VENTILATOR CARE

"F · A · S · T · H · U · G"

- F** **Feeding** — start early enteral
- A** **Analgesia** & sedation titrated
- S** **Sedation** holidays daily
- T** **Thromboprophylaxis** — DVT risk
- H** **HOB** 30–45°
- U** **Ulcer** prophylaxis (PPI/H2)
- G** **Glucose** control (140–180)

NCJMM — Clinical Judgment in Action

A 62-year-old post-op patient with sepsis develops sudden dyspnea, SpO₂ 84% on 4 L NC, RR 32, bilateral crackles, and anxiety. Walk through the clinical judgment model.

Step 1

Recognize Cues

Tachypnea, hypoxemia despite O_2 , crackles, restlessness, recent sepsis trigger.

"What sticks out?"

Step 2

Analyze

Cluster: refractory hypoxemia + bilateral infiltrates + sepsis = ARDS vs cardiogenic edema.

"What's happening?"

Step 3

Prioritize

Airway/Breathing first. Call RRT. Prepare intubation. Elevate HOB. Serial ABGs + CXR.

"What first?"

Step 4

Generate Solutions

Non-invasive trial vs intubation + low Vt ventilation + PEEP; treat sepsis; conservative fluids.

"What can I do?"

Step 5

Take Action

Intubate, initiate lung-protective vent, begin prone protocol, antibiotics, vasopressors PRN.

"Do it now."

Step 6

Evaluate Outcomes

Reassess SpO_2 , ABG, P/F ratio, hemodynamics q1h. Trend improvement & adjust vent / FiO_2 .

"Did it work?"