

DISEASE / PATHOLOGY

- Ventilator strategy allowing higher PaCO₂ to reduce lung injury from aggressive ventilation.
- Used mainly with lung-protective ventilation in ARDS; mild respiratory acidosis may be accepted if pH remains safe.

RISK FACTORS

- ARDS or severe obstructive disease requiring low tidal volumes or prolonged exhalation time.
- Caution with increased ICP, severe acidosis, unstable dysrhythmias, pulmonary hypertension, or pregnancy.

SIGNS AND SYMPTOMS

- Expected: rising PaCO₂ with lower tidal volume strategy; monitor pH and patient synchrony.
- Concerning: severe acidosis, decreased LOC, dysrhythmias, hypotension, signs of increased ICP.

DIAGNOSTIC TESTING

- Serial ABGs/VBGs, ventilator settings, end-tidal CO₂, pH, electrolytes, hemodynamics.
- Trend PaCO₂ with pH, not in isolation; assess sedation and neuromuscular blockade orders.

TREATMENT

- Maintain ordered ventilator strategy, oxygenation goals, PEEP, sedation comfort, and airway safety.
- Report unsafe pH, neuro changes, dysrhythmias, or hemodynamic instability promptly.

PATIENT EDUCATION

- Explain that allowing CO₂ may protect injured lungs from high ventilator pressures.
- Family teaching: ventilator settings are adjusted to balance oxygenation, CO₂, and lung protection.

ADDITIONAL NOTES:

- NCLEX: permissive hypercapnia is intentional only when ordered and closely monitored.
- Do not independently increase tidal volume for a high CO₂ if lung-protective ventilation is ordered.