Ventilatory Management

REFERENCE

GOALS & MODE BASICS

- Goals: oxygenation (PaO2/SpO2); ventilation (maintain pH); patient comfort and vent synchrony/sedation; facilitate weaning
- Modes fall into two categories: pressure and volume
- Every mode has three features: Trigger (starts the breath), Cycle (ends it), Limit (stops it early)

KEY SETTINGS

- Respiratory rate: usually 10–20/min
- Tidal volume (VT): 5–15 mL/kg
- FiO2: 21–100%, set to keep PaO2 >60 mmHg or SpO2 >90%
- I:E ratio: usually 1:2 or 1:1.5
- Peak inspiratory pressure: 10–20 cmH2O; maximum 35, target 15

THE THREE MODES

- VC (volume control): every breath the same set volume; ensures minimum minute ventilation, good for lung-protective ventilation; watch pressures (barotrauma). Example: 12/min, 450 cc, +8, 60%
- PC (pressure control): set pressure for a set time; limits pressure, may be more comfortable; watch volumes (volutrauma/hypoventilation). Example: 12/min, 25 cmH2O, 0.9 sec, +8, 60%
- PS (pressure support): all breaths patient-initiated, no backup rate; ideal weaning mode, most comfortable; does not guarantee a rate — monitor ventilation. Example: +10 over +5, 40%

COMMON VENT PROBLEMS

- High pressure alarm: secretions/coughing → suction
- Persistent high pressure: kinked tube or biting → retape, reposition, sedation
- High inspiratory pressure and high PIP: right mainstem, pneumothorax, or bronchospasm → bronchodilator, sedation, reposition tube, needle decompress
- Low pressure alarm: patient breathing over vent or system leak → increase inspiratory flow, find and repair the leak
- Low volume alarm: inhale or exhale disconnected → reconnect

Take Home Message:

Know what triggers, cycles, and limits each breath, set the five key parameters deliberately — and work alarms by cause: suction, reposition, decompress, reconnect.