Table 8: Guidelines for Ventilator Settings According to Diagnosis and Clinical Circumstances

Clinical Setting (Examples)	Clinical Objectives	Mode*	Tidal Volume	Target pH/PCO_2	Target PO_2/SpO_2	PEEP	Comments
Routine (postoperative ventilation; drug overdose)	Prevent atelectasis; maintain normal acid-base balance; avoid hypoxemia; avoid O_2 toxicity	Volume	10-12 mL/kg	Normal	Normal	0-5 cm H_2O	These settings are appropriate for the majority of patients requiring mechanical ventilation
Obstructive lung disease (COPD; asthma)	Unload ventilatory muscles; prevent further hyperinflation; maintain acid-base balance appropriate for patient; facilitate weaning	Either volume or pressure	5-8 mL/kg	Permissive hypercapnia and acidemia (avoid acute alkalosis)	Normal	0-5 cm H_2O; more if auto-PEEP present (see Figure 11-29)	Noninvasive ventilation is preferable if not contraindicated (see Chapter 12)
Acute lung injury (ALI) and acute respiratory distress syndrome (ARDS)	Support oxygenation (FIO_2 vs PEEP); preserve circulatory function; avoid ventilator-induced lung injury and clinical barotraumas	Either pressure or volume	$\leq$ 6 mL/kg (predicted body weight) to achieve goals for Vt and Pplat	Permissive hypercapnea and academia (if not contra-indicated)	PaO_2 55-70 mm Hg; SpO_2 88-94%	Sufficient to maintain target oxy-genation without impairing cardiac function	This “lung-protective” ventilatory strategy requires appropriate sedation
Focal or unilateral Pulmonary disease (lobar pneumonia or atelectasis)	Avoid worsening hypoxemia; avoid clinical barotrauma; avoid circulatory compromise	Volume	10-12 mL/kg	Normal	Normal; may not be achievable in presence of large shunt effect	Avoid or use cautiously (see Figure 11-13)	PEEP may worsen hypoxemia by over-distending uninvolved areas of lung and increasing shunt effect

Table 8, continued:

Acute neuro-muscular disease without acute lung injury (Guillain-Barré syndrome; cervical spinal cord injury)	Avoid atelectasis; minimize dyspnea	Volume	12-16 mL/kg (if not contra-indicated)	Normal or mild acute respiratory alkalosis	Normal (avoid even mild hypoxemia)	0-5 cm H_2O unless required for oxygenation	Such patients usually prefer high inspiratory flows and large tidal volumes, and often maintain a respiratory alkalosis
Acute brain injury (head trauma)	Avoid compromising cerebral perfusion pressure; decrease intracranial pressure	Volume	10-12 mL/kg	Normal or acute respiratory alkalosis (PCO_2 25-30 mm Hg)	Normal	Avoid	Value of acute respiratory alkalosis disputed except for emergent, short-term reduction of very high intracranial pressure
Flail chest	Maintain adequate Lung inflation and Gas exchange	Volume	10-12 mL/kg unless acute lung injury also present	Normal	Normal	5 or as needed for support of oxygenation	Ventilatory support usually unnecessary unless acute lung injury also present

*Acceptable volume modes include assist/control and synchronized intermittent mandatory ventilation; acceptable pressure modes include pressure control or (in patients with intact ventilatory drive and ability to initiate breaths) pressure support