

## Ventilator Terminology

Modes of Ventilation – Method or way a breath is delivered.

**Control mode** - Every breath delivered to patient is a mechanical breath. The breath may be triggered by a timing mechanism or patient effort. May be volume or pressure controlled. Examples: AC, VC/IMV, PC/IMV, PRVC.

**Supported or spontaneous mode** - Every breath is spontaneous, patient triggered, and supported by ventilator.

Example: PS, CPAP

**Combination mode.** Combination of both controlled and supported breaths. Example - SIMV/PS is a combination of a set number of volume controlled breaths and pressure supported breaths.

VC/AC - **Volume Control/Assist Control** - the ventilator is set to deliver a specific volume each breath, regardless of the amount of pressure required to deliver the volume. The clinician can set a high-pressure limit.

SIMV – **Synchronized Intermittent Mandatory Ventilation** – tidal volume and rate are set, but the ventilator senses patient effort and “reschedules” mandatory (set) breaths.

PS – **Pressure Support** is a patient-initiated breathing mode in which the ventilator supports patient effort. Provides a set amount of pressure during inspiration to help patient draw in a spontaneous breath. The patient regulates the breath rate. The inspiratory time and/or volume of each breath may vary.

PC - **Pressure control** is an alternative to volume control. A pressure level is preset. Breaths are delivered at a preset frequency rate and inspiratory time. Pressure is constant throughout the delivered breath. Tidal volume can be variable. Patient can breathe above set rate.

PEEP – **Positive End Expiratory Pressure** maintains small end-expiratory pressure to help prevent alveolar collapse and improve oxygenation. Patients are often started on 5 cmH<sub>2</sub>O of PEEP.

CPAP – **Continuous Positive Airway Pressure** is positive pressure maintained in the airway to prevent alveolar collapse, but is generally used to describe positive pressure set in spontaneous mode.

Settings – in addition to the mode of ventilation, the following are physician ordered and/or set by the clinician.

V<sub>T</sub> - **Tidal Volume** – Volume of air delivered per breath. Pressure to deliver the breath may vary depending on lung mechanics.

RR/F - **Respiratory Rate/Frequency** – Set frequency of ventilator delivered breaths per minute.

I-Time – **Inspiratory Time**, expressed in seconds, is the amount of time spent in inspiration during the total respiratory cycle. Example: RR is 12, total cycle time is 5 seconds (60/12 = 5 seconds). If I-time set at 1 second, then 1 second is spent in inspiration, 4 seconds are available for exhalation.

FI<sub>O2</sub> – **Fraction of Inspired Oxygen.** the amount of oxygen the ventilator delivers, expressed as a percentage. Room air is 21%.

**Sensitivity** – The level of effort from the patient needed to “trigger” the ventilator to deliver a breath from the ventilator. Increase sensitivity to decrease patient effort.

Measured – The following parameters are measured by the ventilator and displayed on the ventilator monitor.

Exhaled Tidal Volume – amount of air exhaled each breath

Exhaled Minute Volume – amount of air exhaled in one minute

Peak Inspiratory Pressure – maximum amount of pressure reached during inspiration

RR/F – Total respiratory rate includes set rate and patient initiated breaths

Alarm Settings –

High and low pressure

High and low exhaled tidal volumes

High respiratory rate