

## Basic Ventilator Management

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### Key Points:

#### 1. VUMC has standardized the type of Mechanical Ventilator Used:

##### a. Servo I

- i. Some of the Servo I have a different front panel noted as Maquet
- ii. Some have a slightly different software loaded
- iii. However, basics are the same for alarms, settings, etc....



##### b. VDR = Developed by Dr. Forest M. Bird – Used successfully since approx. 1967

- c. If your patient is being ventilated with the VDR, an RT will be present as much as possible

#### 2. The Servo I Ventilator Circuit

##### a. Understanding your ventilator circuit

- i. Inspiratory Side
- ii. Expiratory Side
- iii. Filtration
- iv. Humidification System
  1. Can be a heated wire circuit
  2. May have a heated humidifier
  3. Common is a Heat Moisture Exchanger (HME)
    - a. Changed PRN
    - b. RT will manage unless unusual circumstances
- v. Airway Clearance
  1. Standard red rubber
  2. Ballard Closed Suction System – Can be adapted in multiple ways



#### 3. Basic Ventilator Settings

##### a. Tidal Volume (VT)

- i. Amount of inspiratory volume delivered per breath

##### b. Respiratory Rate

- i. Mandatory breaths per minute – regardless of patient effort

##### c. Pressure Support

- i. Augments inspiratory (VT) – Goal to reduce work of breathing

##### d. Oxygen (O<sub>2</sub>) Concentration

- i. Remember Room air is 21%

##### e. Positive End Expiratory Pressure (PEEP)

##### f. Patient Measured Pressures

- i. Peak Inspiratory Effort Displayed on Screen
- ii. Documented in HME by RT

#### 4. Oxygenation Management

- a. 1<sup>st</sup> – When indicated if the patient's O<sub>2</sub> Saturation falls below 90% an O<sub>2</sub> Breath Button – will give 100% for 2 Minutes
- b. Assess patient for signs/symptoms of distress – check circuit, check connection; are there any alarms?
- c. Think about airway maintenance:
- d. Require suction? What are my pressures?
- e. What are my breath sounds? Changed?

#### 5. Ventilator Alarms

- a. Circuit Disconnect – troubleshoot
- b. High Peak Pressure – MOST COMMON**
  - i. Increased mucus or coughing
  - ii. Kink in circuit
  - iii. Patient biting the ET tube
  - iv. Clogged HMR
  - v. Change in patient condition –e.g. pneumothorax
  - vi. Large Airway Problem
  - vii. Compliance Problem
- c. Low Tidal Volume
  - i. Could there be a cuff leak?
  - ii. Lose connection
- d. Check your ET Tube placement? Has it moved? Is it Out?
- e. High Rate
  - i. Patient agitation or fighting mode of ventilation
- f. Apnea
  - i. No spontaneous effort in CPAP/PS Mode