

## **GOALS FOR THE VENTILATOR WEANING PROTOCOL**

- The resolution of illness or disease process causing respiratory failure.
- If a chronic or incurable disease is present, the patient is returned to their previous baseline.
- A PO<sub>2</sub> of  $\geq 65$  mm Hg on room air. If the patient is O<sub>2</sub> dependent or chronic, then return to their baseline.
- O<sub>2</sub> Sat. of  $\geq 92\%$  on room air, within physician specified limits, or their previous baseline.
- To minimize complications of mechanical ventilation.
- To remove the patient from mechanical ventilation as safely and quickly as possible.
- Decreasing the patient's ICU and overall hospital stay.
- Using the hospital's resources and staff effectively.
- To make the ventilator weaning process as easy as possible for all involved personnel.
- To emphasize the hospital mission statement of "Medical Excellence and Compassionate Care".



## VENTILATOR WEANING PROTOCOL

All patients must pass criteria before initiating this protocol. Patients will be assessed, at least every eight hours using the weaning criteria. Patients are eligible for weaning 24 hours a day. If at any point during the weaning process the patient becomes unstable, the patient should be placed back on their original ventilator settings and the doctor notified, when appropriate. **A pulmonary consult is suggested if two unsuccessful weaning attempts occur, or the patient remains on the ventilator more than 24 hours.**

### Initial CPAP Trial

- The patient will be placed on CPAP with 3 - 5 of peep.
- Add enough pressure support to allow spontaneous TV of at least 7 ml / Kg. IBW.
- Minute ventilation should be  $\geq 4$  LPM and  $\leq 14$  LPM.
- Watch the patient at the bedside for at least 5 minutes.
- If the patient tolerates the change, leave on trial for 1 hour and draw ABG's; (clinical judgement may allow a trial for less than 1 hour, additionally may allow ABG's to be optional).
- If ABG's are within acceptable limits, and / or clinical judgement allows, proceed to **Weaning Method #1**.
- If distress occurs or ABG's are mildly out of range, proceed to **Weaning Method #2**.

### Weaning Method #1

- While the patient is on CPAP, wean the pressure support in 2 - 5 increments at least every 1 - 2 hours until 6 - 10 is reached.
- Allow the patient to stay on those settings for 1 - 2 hours then draw ABG's. (Clinical judgement may allow a trial for less than 1 hour, additionally may allow ABG's to be optional).
- If ABG's are in an acceptable range and / or clinical judgement allows, proceed to **Extubation Protocol**.
- If ABG's are not in acceptable range or if the patient develops respiratory distress or fatigue, add pressure support until patient is comfortable or proceed to **Weaning Method #2**.

### Weaning Method #2

- Place the patient on an SIMV rate of 50 - 80% of the CMV rate.
- Add enough pressure support to allow spontaneous TV of at least 7 ml / Kg. of IBW.
- Minute ventilation should be  $\geq 4$  LPM and  $\leq 14$  LPM.
- Wean the rate by two, at least every 1 - 2 hours until zero is reached.
- Switch to CPAP and follow Weaning Method #1.

### Extubation Protocol

- The patient will be extubated to a nasal cannula or mist mask with the FiO<sub>2</sub> settings or flow rate that can be kept titrated to a O<sub>2</sub> saturation of  $\geq 92\%$  or with specified limits.
- Aerosol treatments will continue as previously ordered on the ventilator or q 4 hr. with 2.5 mg. of Albuterol, if not previously ordered.
- If the patient becomes unstable, in respiratory distress or has mental status changes, the physician will be notified immediately.
- After notifying the physician, ABG's will be drawn (Clinical judgement may allow ABG's to be optional).
- If a requirement of  $> 60\%$  FiO<sub>2</sub> is needed, the physician will be notified.

### Acceptable ABG's For Extubation

pH - 7.32 – 7.5

PO<sub>2</sub>  $\geq 60$  on FiO<sub>2</sub> of  $\leq 50\%$

**VENTILATOR WEANING PROTOCOL CRITERIA**

**PASS / FAIL**

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TIME									
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- Resolved or resolving disease process.
- Able to protect airway and responsive on minimal sedation.
- Satisfactory weaning parameters: NI Nif  $\geq$  -30, FVC  $\geq$  10 ml / Kg. IBW with adequate effort. Spontaneous TV  $\geq$  7 ml / Kg. IBW. (If effort is inadequate, use clinical judgement to pass / fail.)
- Acceptable ABG's (Ph 7.35 - 7.5, PO2  $\geq$  60) on most recent set.
- Peep  $\leq$  5, FIO2  $\leq$  40% and PaO2 / FIO2 Ratio  $>$  160 or FIO2  $\leq$  60% and PaO2 / FIO2 Ratio  $>$  200.
- Rapid Shallow Breathing Index (Rate / TV in liters)  $\leq$  100 on pressure support of 6 - 10.
- Work of breathing and accessory muscle use.
- Hemodynamically stable (90  $>$  Systolic BP  $<$  180, 50  $>$  HR  $<$  120 on minimal pressors).
- No surgery requiring general anesthesia for next 48 hours.
- Peak inspiratory pressure  $\leq$  40.

**Ideal Body Weight (IBW) Formula:** Male: 106 + [6 (Ht in inches - 60)]  
 Female: 105 + [5 (Ht in inches - 60)]

If the patient meets all of the above criteria with a passing score and appears ready to wean, using clinical judgement, proceed to the **Ventilator Weaning Protocol.**