



Rancho Los Amigos National Rehabilitation Center
DEPARTMENT OF NURSING
INTENSIVE CARE UNIT
POLICY AND PROCEDURE

**SUBJECT: ADULT CRITICAL CARE VENTILATOR
WEANING PROTOCOL**

Policy No.: ICU09
Supersedes: July 2016
Review Date: July 2020
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BACKGROUND

Prospective, randomized, controlled studies suggest the use of systematic mechanical ventilator management protocols by respiratory therapists and nurses can decrease the length of mechanical ventilation, and reduce costs when compared to traditional methods.

RESPONSIBILITY

The Service Manager and or designee will be responsible for the review and maintenance of this policy. All RCP's are responsible for competently and safely carrying out the requirements outlined in the protocol.

PURPOSE

The purpose of this protocol is to:

1. Establish a systematic approach to weaning patients from the mechanical ventilator and finally the discontinuation of ventilatory support.
2. Expedite the weaning process and decrease associated ventilator length of stays.
3. Establish physician ordered mechanical ventilation weaning algorithms.

PROCEDURE

PATIENT ASSESSMENT

Once a day all mechanically ventilated patients in ICU will be assessed by the RCP to determine if they meet the minimum criteria to obtain weaning parameters and initiate weaning trials. Ideally, the assessment should be completed by 0800 hrs. The following are the minimal criteria to be assessed in determining if the patient is stable and has a high potential for tolerating spontaneous breathing weaning trials:

1. Improvement or resolution of underlying cause of respiratory failure that required intubation.
2. Patient requires minimal ventilator support ($F_{iO_2} \leq 0.4$ with $S_pO_2 > 90\%$ or $PaO_2 > 60\text{mmHg}$; $PEEP < 5\text{ cm H}_2\text{O}$, Pressure Support $\leq 8\text{ cm H}_2\text{O}$).
3. Cough and gag reflexes are intact.
4. Systolic blood pressure >90 and <180 .
5. $HR < 120$.
6. Temperature < 102 degrees Fahrenheit or, ≤ 38.8 degrees Celsius.

Obtain Weaning Parameters

1. $RR < 25$ spontaneous and greater than set ventilator rate.
2. $V_t(\text{spont}) \geq 4\text{ml/kg}$ ideal body weight.

EFFECTIVE DATE: June 10, 2013

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

APPROVED BY:
Critical Care
Committee

3. Respiratory Rate/Tidal volume ratio < 105. (Rapid Shallow Breathing Index)
 4. VC \geq 8 ml/kg ideal body weight.
 5. NIF \geq -20 cm H₂O or greater.
 6. Minute ventilation < 10 L/min.
 7. Patients unable to meet the minimum weaning parameters will be reassessed in 24 hours.
 8. Proceed to the weaning patient off all support when all measured parameters are met by the patient.
- *Patients with parameter values that fall below those described above may still be weaned according to protocol with MD approval.**

FiO₂ WEAN

1. If the baseline F_IO₂ is > 0.4, then begin decreasing by 0.05 - 0.10 every 20 minutes until a F_IO₂ of 0.4 is achieved.
2. Closely monitor the SaO₂ during each 20 minute interval to establish that the SaO₂ remains \geq 92% before proceeding to PEEP WEANING.
3. If at anytime the SaO₂ falls to < 92% after a change, then increase the F_IO₂ by 0.10 until the SaO₂ is \geq 92%. DO NOT PROCEED TO PRESSURE SUPPORT / PEEP WEANING. Document and inform RN and MD. Trial can be resumed in 24 hrs.
4. See FiO₂ Wean Algorithm

PEEP WEAN

1. If baseline PEEP is > 5 cmH₂O, then begin decreasing by 2 cmH₂O every hour until 5 cmH₂O PEEP is achieved.
2. Closely monitor the SaO₂ during each 1 hour interval to establish that the SaO₂ remains \geq 92% before proceeding to Spontaneous Breathing Trial
3. If at anytime the SaO₂ falls to < 92% after a decrease in PEEP, then increase the PEEP by 2 cmH₂O every 10 minutes until the SaO₂ is \geq 92%.
4. If the SaO₂ is \leq 85% even after returning to the baseline or 10 cmH₂O PEEP whichever is greater then increase the F_IO₂ to 1.0, notify the RN and MD.
5. DO NOT PROCEED TO SPONTANEOUS BREATHING WEANING TRIAL. Document and inform RN and MD.
6. See PEEP Wean Algorithm

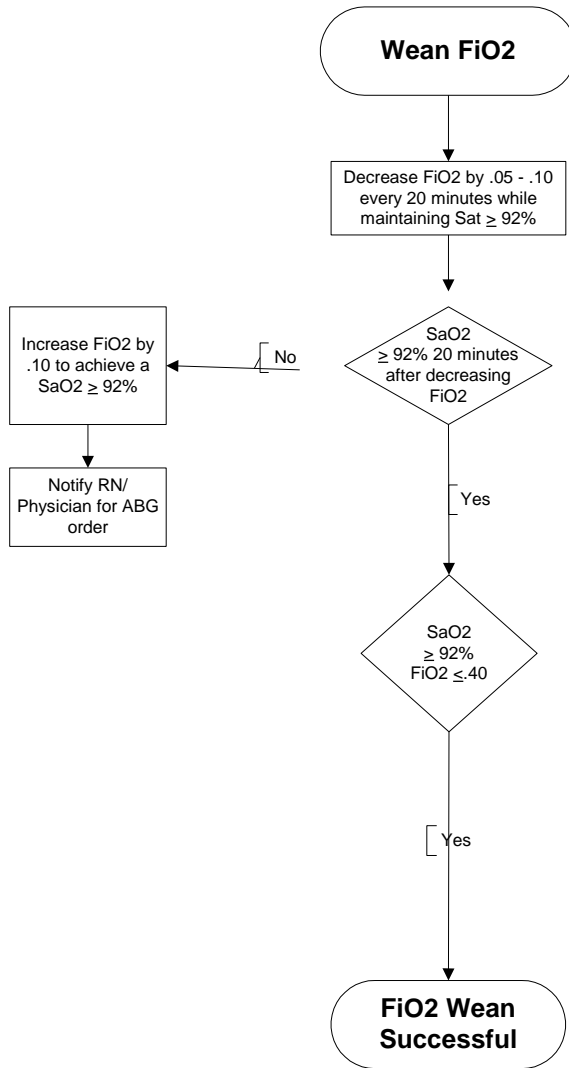
PRESSURE SUPPORT WEAN:

1. If patient already on pressure support mode, decrease pressure support by 2 cmH₂O every 30 minutes to a level that allows the patient to maintain spontaneous tidal volume > 4ml/kg of ideal body weight or until a pressure support level of \leq 8 cmH₂O is reached.
2. See Pressure Support Wean Algorithm

SPONTANEOUS BREATHING TRIAL (SBT)

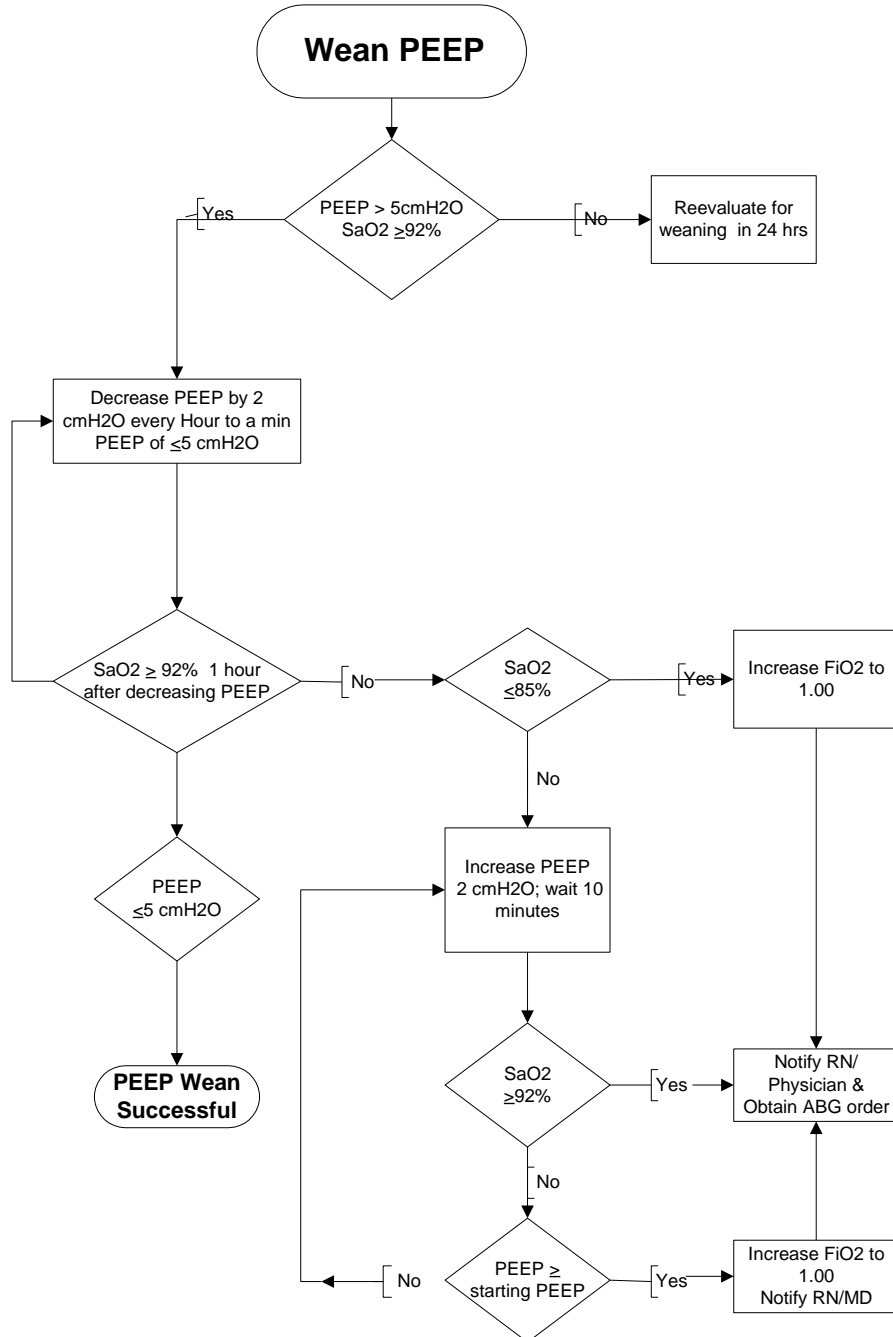
1. Once the patient is on minimal settings of FiO₂, PEEP, PS monitor closely for 1 hour, noting any signs of distress.
2. Patients who are unable to tolerate the minimal ventilator settings for 1 hour will be placed back on their previous settings and reevaluated in 24 hours.
3. Patients who are able to tolerate the minimal ventilator settings for one hour will proceed to spontaneous breathing trial on a T-tube and closely monitored for 30 minutes.
4. If the patient does not tolerate the trial place the patient back on previous ventilator settings and inform the RN/MD. Patient can be reassessed after 24 hours.
5. If the patient tolerates the trial for >30 minutes, contact the RN/MD for extubation orders.
6. Extubate as outlined in department policy.
7. See SBT Algorithm

RANCHO LOS AMIGOS NATIONAL REHABILITATION CENTER
ADULT CRITICAL CARE MECHANICAL VENTILATION WEANING FLOW DIAGRAM
RESPIRATORY CARE SERVICES



DISCLAIMER STATEMENT
"The algorithm/care described in this document does not represent the only medically acceptable approach. Each clinician caring for the patient is responsible for determining the most appropriate care."

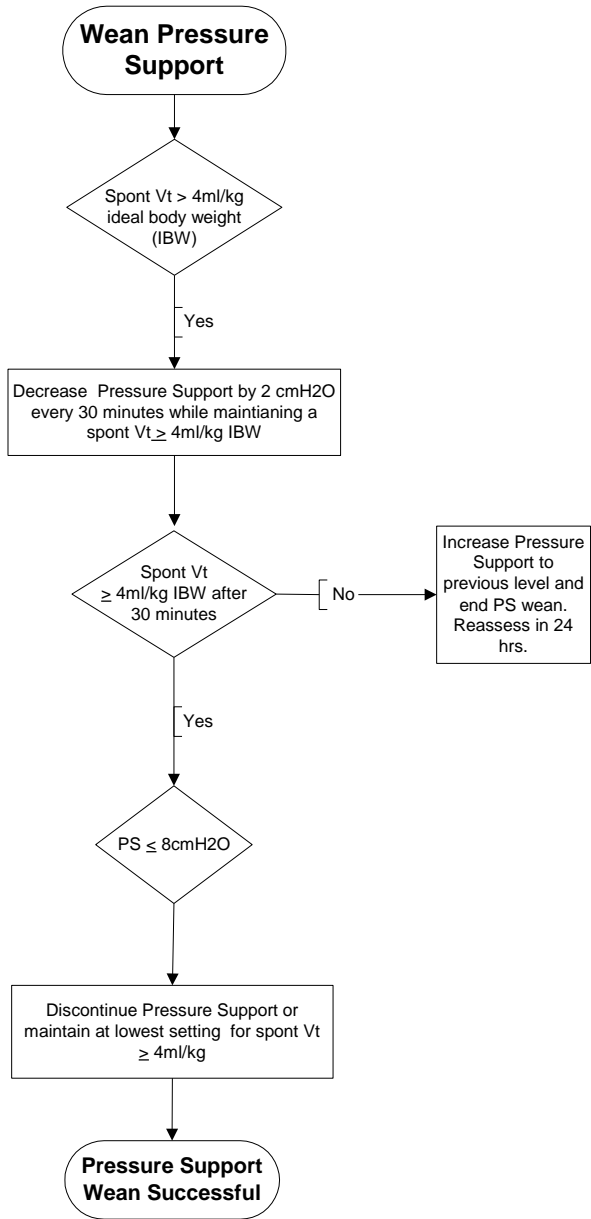
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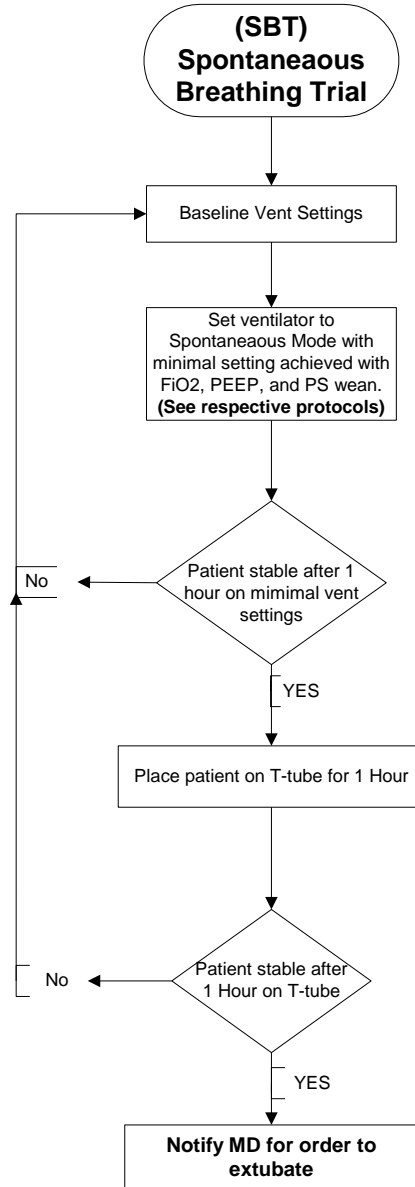
 Male IBW = 50kg + 2.3kg for every inch over 5 feet.
 Female IBW = 45.5kg + 2.3kg for every inch over 5 feet



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ADULT CRITICAL CARE MECHANICAL VENTILATION WEANING FLOW DIAGRAM
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Weaning Parameters
*Spont RR < 25 min
*Spont Vt ≥ 4ml/kg ideal BW
*f/Vt < 105
*VC ≥ 8ml/kg ideal BW
*NIF ≥ -20 cmH2O
*P100 < 2



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