HACKETTSTOWN REGIONAL MEDICAL CENTER

ICCU/PCU/ED/Respiratory
(Scope)

TITLE: THE CARE AND MANAGEMENT OF THE PATIENT REQUIRING MECHANICAL VENTILATION

PURPOSE: To outline the collaborative management of the patient requiring mechanical ventilation.

LEVEL: ____ Dependent ____ Independent __x__ Interdependent

SUPPORTIVE DATA:

- The care of the patient requiring mechanical ventilation is a share responsibility of the medical staff, nursing and respiratory staff.
- Both the nursing and respiratory staff will respond safely, effectively and quickly to respiratory complications and emergencies.
- The standard of care for mechanical ventilator dependent patient also focuses on decreasing the patient's opportunity to acquire ventilator associated pneumonia. HRMC supports the VAP (ventilator associated pneumonia) bundles of the IHI campaign and the recommendations of CDC and Healthcare infection Control Practices Advisory Committee (MMWR 2004:53)
- An oral care program is recommended by CDC to reduce VAP.
- The incidence of ventilator associated pneumonia is increased in patients intubated for longer than 24 hours.
- The VAP bundle for reducing the occurrence of ventilator associated pneumonia is defined as:
  - ⇒ Daily assessment of readiness for ventilator discontinuation
  - ⇒ Daily wake up from sedation (sedation vacation)
  - ⇒ Head of the bed elevated > 30 degrees at all times
  - ⇒ Prevention of Peptic ulcer disease (PUD) and deep venous thrombosis (DVT)
- All bundle components will be followed unless there is a patient contraindication.
- Preprinted orders for mechanical ventilation and sedation are available.
- When the subglottic secretion removal extension system is added to the endotracheal tube , it will connected to low continuous suction, not to exceed -20mmHg.

CONTENT:

A. Immediately post intubation

1. Assess endotracheal position by observing bilateral chest excursion, auscultation of both sides of chest and abdomen.
2. Use CO2 detector
3. Final confirmation with STAT portable chest x-ray.
4. Note depth of tube

B. Patient Education

1. Explain the following to the patient and assess for level of understanding:
   a. Inability to speak
   b. Discomfort from artificial airway
   c. Inability to eat
   d. Pain and sedation management
   e. Orient the patient/significant other its' need for mechanical ventilation.
   f. Provide means of communication if needed (pad and pencil)
   g. Oral Care protocol

C. Orders:

1. Review orders for implementation of VAP bundle
2. Clarify orders if and of the VAP bundle is not ordered
3. Review orders for appropriate sedation and analgesic management

D. Ongoing assessment:

1. The following are assessments, monitoring and observations completed by the primary nurse of the patient every 2 hours and documented. More frequent assessments may be warranted as per patient condition:
    a. Respiratory rate, depth, and rhythm
    b. Observe for dyspnea, tachypnea and document if present
    c. Continuous pulse oximetry with documentation q2h
    d. Signs/Symptoms of hypoxia , document if present
    e. Vital signs
    f. Monitor for arrhythmias during and after suctioning.

2. The following are assessments, monitoring and/or observation completed by the primary nurse of the patient every 4 hours and documented. More frequent assessments may be warranted as per patient condition.
    a. Breath sounds (every 4 hours unless patient condition warrants increase frequency)
    b. Color of skin and mucous membranes
    c. Response to suctioning and sputum type and amount if obtained
    d. Endotracheal tube size placement at lip line and/or nares opening in cm. As well as patency issues of the subglottic secretion removal extension system if attached.
    e. GI function
    f. Ventilator settings. If any change in the settings occurs between the 4 hour check, record when the change occurred.
    g. Skin assessment of mouth and nose: signs of skin breakdown from pressure of the endotracheal tube.
    h. Skin assessment of pressure prone areas for breakdown due to decreased mobility.

3. Ventilator settings and set up:
   The respiratory therapist is responsible for ventilator set up, including setting of parameters as ordered by the physician.
    a. Record ventilator settings and alarms at the beginning of each shift then at a minimum of every three hours.
    b. Respiratory status is documented with each treatment given.

4. Subglottic Secretion Removal Extension System Maintenance
    a. Both the nursing and respiratory staff is responsible to assess function of the system with ventilator checks.
    b. The Respiratory staff will perform maintenance to this subglottic suction line when in place by checking for blockages. This includes:
        i. Visually check the suction lumen for secretions
        ii. If lumen show little or no secretions this could indicate there are no secretions or the evacuation port is blocked
        iii. If blockage is suspected, remove it by using a syringe to administer a bolus of 3-5 cc of air into the suction lumen. DO NOT PUT SALINE or OTHER LIQUIDS into the suction lumen. May also increase the continuous suction to -100cm for 10-15 minutes to clear secretions then immediately resume low continuous suction at -20cm.
        iv. The suction lumen is to be capped when the patient is not utilizing suction such as when being transported off the unit for testing. The cap prevents contaminants from entering the lumen.
        v. Subglottic suctioning may create a sound that resembles that of a cuff lead. This suctioning sound does not indicate a cuff leak. If cuff leak suspected disconnect the subglottic suction source to determine if there is still an audible noise. If not, and suspicion for cuff leak is resolved, reconnect suction. If sound does not go away and suspicion for cuff leak still remains, refer to complication/emergencies section of policy.

E. Sedation/Analgesia

1. Daily assessment includes:
    a. Daily wake up from sedation. Refer to PN manual policy PN 004a for medications used for sedation and recommended titration.
    b. A modified Ramsey scale is used to evaluate the effects of sedation.
        i. A Ramsey scale is documented at the beginning of each shift and with any titration up or down in sedation.
        ii. Reassess Ramsey scale one hour after changes in titration
        iii. Ramsey scale is defined as:
            1. = Anxious and agitated or restless or both
            2. = Cooperative, oriented and tranquil
            3. = Responds to commands only
            4. = Brisk response to a light glabellar tap or loud auditory stimulus
            5. = Sluggish response to a light glabellar tap or auditory stimulus
            6. = No response to a light glabellar tap or auditory stimulus

** Glabellar tap: tap with finger 2-3 times, smooth surface between eyebrows just above the bridge of the nose. Do not use this technique if the frontal bone or sinuses are fractured or patient is awake.

F. Ventilator Discontinuation

1. Assessment for readiness of ventilator discontinuation will be done daily by the respiratory therapist in collaboration with the primary nurse.
2. Exception to this daily assessment are:
    a. Physician order not to complete daily assessment for readiness with reason why
    b. Patient is giving a paralytic agent in conjunction with sedation and analgesia management.
    c. Patient recently intubated (less than 24 hours)

G. Plan of Care

1. Plan of care will be updated to reflect mechanical ventilation.
2. Nursing diagnosis/problem list frequently associated with ventilator dependent patients include, but limited to:
    a. Impaired Gas exchange
    b. Ineffective airway clearance
    c. Impaired verbal communication
    d. Risk for imbalanced Nutrition
    e. Risk for injury
    f. Risk for falls
    g. Risk for infection
3. Respiratory therapy will collaborate with nursing daily on the plan of care.
4. Care plan will address nutritional status when applicable to the patient. Collaborate with nutritionist and physician to provide nutritional/metabolic support when needed.
5. Goal of the plan of care is safe extubation.

H. Other interventions:

1. Provide oral hygiene as per oral care protocol for the intubated patient.
2. Maintain sedation to appropriate sedation level ordered. Daily wake up unless ordered otherwise or patient on a paralytic.
3. Suction as required to patient's need. Use closed suction system. Provide pre and post suction oxygenation with BMV at 100% 0_2 or via ventilator demand.
4. Discuss nutritional status with physician and obtain Nutrition consult. If patient is receiving tube feedings, hold feedings during suctioning and when repositioning patient. Restart when suctioning is completed and when patient is repositioned with HOB elevated to at least 30 degrees.

5. Encourage communication (gestures and written-- provide pad and pencil).
6. Maintain proper position and patency of airway.
7. Turn every two (2) hours unless contraindicated. Position to promote maximal alveolar ventilation and mobilization of secretions. Head of bed elevated 30°.
8. Continuous orientation to person, place, and time.
9. The primary nurse or CNA can assist the respiratory therapist with changing /securing of the endotracheal tube (E.T.) and moving the tube from one side of the mouth to another daily. Document in cm the level of the tube at the corner of the mouth as a reference point.
10. Cuff care: appropriate cuff care helps prevent major pulmonary aspiration. Cuff pressures are monitored during the shift by the respiratory therapist.

I. Reportable: Significant events to be reported to the physician:

a. Deterioration of respiratory status
b. Agitation, restlessness and other signs of hypoxia
c. Lack of appropriate orders to follow VAP initiative
d. Sedation and analgesia that is ineffective
e. Self Extubation
f. All ABG"s results

J. Infection Control:

1. Intubation bypasses normal upper airway defense mechanisms. Patients usually have indwelling catheters, making them at risk of infection.
2. Practice standard hand washing technique before and after all patient contact.
3. Position patient to avoid aspiration, Head of bed (HOB) at least 30 degrees when tolerated
4. Change ventilator tubing and humidifier per policy
5. Use sterile technique when suctioning.
6. Obtain sputum specimens for C and S at the time of intubation or admission and whenever changes in color and consistency as per a physician order.
7. Notify physician of any abnormality in assessment.
8. Administer fluids, antibiotics, and/or antipyretic as ordered.
9. Evaluate ongoing monitoring for presence of infection and patient's response to therapy.

K. Complications/ Emergencies

A. Accidental Extubation in a Breathing Patient

1. Remain with the patient
2. Call Rapid Response Team. Have intubation tray brought to bedside and notify attending physician.
3. Turn off all continuous IV sedation medication. Re-evaluate need for IV continuous analgesia if applicable.
4. Immediately place an O_2 mask on the patient and adjust the O_2 percent to correspond to what the patient was receiving prior to extubation.

5. Observe the patient closely for signs of respiratory decompensation.

6. Document assessment of patient, type of intervention, and response to intervention.

7. Complete Incident report online.

B. Accidental Extubation in a patient without spontaneous breathing

1. Remain with the patient.

2. Call Rapid Response Team and notify treating physician stat.

3. Ventilate the patient with the BMV at 100%.

4. Turn off all continuous sedation/paralytic agents.

5. Assist with reintubation and attach subglottic secretion removal extension system

6. Reassess risk factors and plan for intervention post intubation:

   a. Administer prescribed sedation and analgesia
   b. Consider family or other means of companionship for patient
   c. Orient and reassure the patient and family of the need for reintubation
   d. Revaluate equipment set up

7. Complete incident report online.

C. Respiratory Distress--Intubated Patient (E.T. Tube Still In)

1. Determine the tube placement:
   a. Attach the BMV and attempt to ventilate, if not in place:
   b. Call Rapid Response Team and notify treating physician stat.
2. If the tube is partially dislodged and the patient can speak, **DO NOT** push the tube in or if completely dislodged:
   a. Deflate the cuff
   b. Cut the tape
   c. Use reintubation stylet
   d. Remove the tape and E.T. tube
   e. Reintubate with hi-lo evac ET tube
   f. Proceed as below with respiratory assessment and interventions.
3. If tube is in place:
   a. Check connection: tubing attached, secure, no kinks. Confirm settings are correct.
   b. Suction patient if indicated
   c. Assess respiratory status, vital signs and assess for pain and appropriate sedation.
   d. Administer sedation and analgesia if indicated.
   e. Notify physician.

L. Alarm Conditions/ Malfunction of ventilator

1. Respond immediately to audible alarms.

2. Assess the patient for respiratory distress.

3. Perform one of the following based on assessment of patient/ventilator

   a. Reattach the ventilator tubing
   b. Suction the patient if indicated
   c. Attach the patient to the ambu bag with O_2 source
   d. Ventilate with BMV patient until help arrives

M. Documentation:

1. All nurses in ICU will document assessment findings, patient response to intervention and ventilator settings, suctioning and sedation levels in the ICU flowsheet.
2. Document plan of care on the Interdisciplinary care plan and patient education.
3. Medications/respiratory treatments will be documented on the eMAR by both nursing and respiratory when applicable.
4. Respiratory Therapist will document assessment findings in the electronic health record.
5. Daily screening for extubation and patient's toleration to any spontaneous breathing trial will be documented on the Ventilator discontinuation flowsheet.
6. Ventilator settings and changes will be documented by respiratory therapy on the Ventilator flowsheet.

References:

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5. Teleflex Medical, Research Triangle Park, North Carolina. www.teleflexmedical .com, 2010. Subglottic secretion system brochure.