Health Sciences North
Horizon Santé-Nord

RESPIRATORY THERAPY

PROCEDURE

CATEGORY: Corporate Clinical
ISSUE DATE: July 18, 2001 **REVISION DATE:** February 2018
SUBJECT: **BIPAP USE** **ARCHIVE DATE:**

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Approval: Lisa Smith, Executive Sponsor Clinical Policy and Procedures Committee 	**Date:** March 7, 2018

PURPOSE

To ensure the correct and appropriate use and setup of non-invasive ventilation (Bipap).

PROCEDURE

Special Instructions

- Bipap is a high-risk procedure for aerosol transmission and the use of personal protective equipment is essential. Chronic CPAP/BIPAP is excluded.
- Bipap can be initiated and managed by all physicians.
- Bipap is permitted outside of critical care areas (i.e. step-down units, emergency and nursing units).
- Bipap is not intended for use in patients who regularly use non-invasive ventilation at home.
    - Patients may be permitted to use their home units when admitted to hospital. The Registered Respiratory Therapist (RRT) is a resource only for patients with their home units.
- Bipap will have limited use outside of the critical care setting, depending on the severity of illness and the ability to safely monitor the patient by the RRT and nursing staff. The patient must meet the following criteria when non-invasive ventilation is used outside of the critical care unit:
    - Able to protect their airway.
    - FIO_2 requirements less than or equal to 0.50.
    - Patients requiring greater than 0.50 FIO_2 and/or Bipap-dependent must have Level of Treatment orders completed and reflect the following categories:
        - No critical care transfer
        - No CPR
        - No further escalation in medical management
    - Hemodynamically stable and does not require vasopressor support.
    - Not in imminent need of invasive ventilation.
    - Demonstrating improvement in their respiratory status.

- Able to sustain spontaneous ventilation for a minimum of 15 minutes if the mask apparatus should accidentally become disconnected.
- If the patient is non-compliant with non-invasive ventilation, the physician must reassess the need for invasive ventilation, sedation or discontinuation of non-invasive ventilation.

Method

Setup

1. Upon the physician's order, the RRT will initiate non-invasive ventilation.
2. Where initial parameters are not specified, the RRT will initiate non-invasive ventilation according to **Appendix A**.
3. If the patient's systolic blood pressure is less than 100, expiratory pressure will be held at 5 until blood pressure is restored.
4. Add a heated circuit if use is greater than 12 hours or prior to 12 hours if secretions are thick.
5. Perform frequent skin assessment to determine presence of pressure, skin irritation or skin breakdown.
6. The RRT or nurse will notify the physician if:
   A. FiO_2 requirements increase by 0.15.
   B. Patient's clinical status deteriorates.
   C. Parameters cannot be maintained.
   D. SpO_2 cannot be maintained greater than 90% on non-invasive ventilation, unless otherwise ordered.
7. The physician, in conjunction with the RRT, will determine when it is appropriate to wean the patient.

RRT Responsibilities

1. Setup and maintain Bipap.
2. Parameter changes.
3. Critical Care monitoring Q2H and PRN.
4. CMU monitoring Q2H to Q4H and PRN.
5. Inpatient units monitoring Q4H to Q6H and PRN. The initial setup will be monitored twice within the first 4 hours.
6. For patients with obstructive sleep apnea (OSA) who do not have their own unit and are using a hospital Bipap machine, the RRT will setup the unit each night and then be a resource only and available PRN.

Nursing Responsibilities

1. Monitor the patient for increased oxygen requirements, desaturation or worsening respiratory status.
2. Refer to the laminated sheets on the side of the Bipap machine when the patient must be removed from Bipap for eating, washroom, oral medications, etc. **(Appendix B, C and D)**
3. Notify the RRT if greater than 1 hour on standby and Bipap resumed by nursing.
4. Anytime the power to the Bipap has been turned off, nursing **MUST** call the RRT to resume Bipap and ensure all parameters have been reset.

EDUCATION AND TRAINING

References and Related Documents

Perry and Potter, Clinical Nursing Skills & Techniques, Care of a Patient Receiving Noninvasive Positive Pressure Ventilation, 2014.

Sean P. Keenan et al, Clinical practice guidelines for the use of noninvasive positive-pressure ventilation and noninvasive continuous positive airway pressure in the acute care setting. *CMAJ*, 2011.

Up To Date, Protocol For Initiation of Non-Invasive Positive Pressure Ventilation, 2016

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APPENDIX A

BIPAP INITIATION (NON-INVASIVE VENTILATION)

1. Head of bed > 30°
2. Select correct size mask
3. Initial settings:
   - IPAP: 10 – 12 cmH_20 (maximum 20 cmH_20)
   - EPAP: 5 – 6 cmH_20 (maximum 10 cmH_20)
   - $FI0_2$: Adjust to keep $Sp0_2$ > 90%
   - Rate: 4 - 10/min
4. Titration:
   - Increase IPAP by 2 – 3 cmH_20 Q5min, to reduce WOB
   - Increase $FI0_2$ and EPAP to improve oxygenation
     - When $FI0_2$ at 0.60, consider ↑EPAP
   - Increase EPAP in increments of 2 cmH20
     - When ↑ EPAP, ↑IPAP by same amount, to maintain the same level of support
     - Keep difference between IPAP and EPAP ≥ 5 cmH_20

IPAP: Inspiratory Positive Airway Pressure
EPAP: Expiratory Positive Airway Pressure

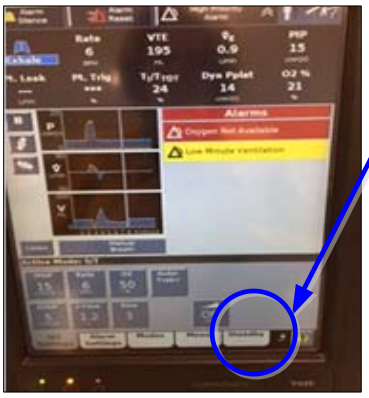
Note: NPO while mask is on

APPENDIX B

BIPAP V680

DO NOT TOUCH THE POWER BUTTON

If the power has been shut off, you **MUST** page RT (0146) to resume Bipap



DEPRESS STANDBY to remove patient from Bipap for: eating, washroom, oral medications, nebulizer tx's.

This screen will appear

BIPAP WILL RESTART WHEN THE MASK IS RE-APPLIED AND THE PATIENT STARTS BREATHING

If GREATER THAN 1 HOUR ON STAND BY:

- **RESUME BIPAP**
- **NOTIFY THE RT (PAGER 0146)**

Ensure exhalation port is not covered. (I.e. blankets)

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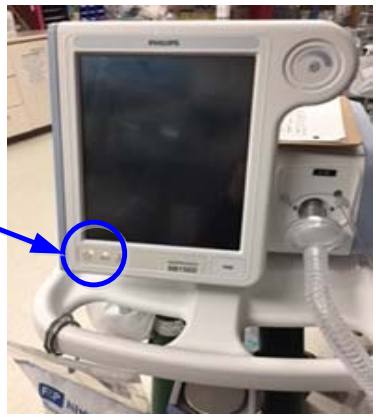
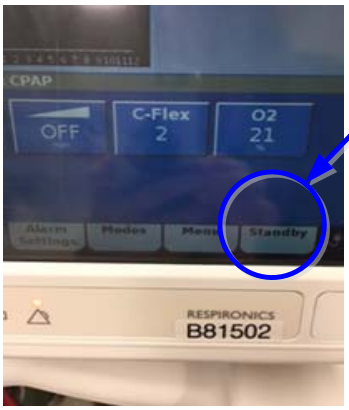
APPENDIX C

BIPAP V60

DO NOT TOUCH THE POWER BUTTON

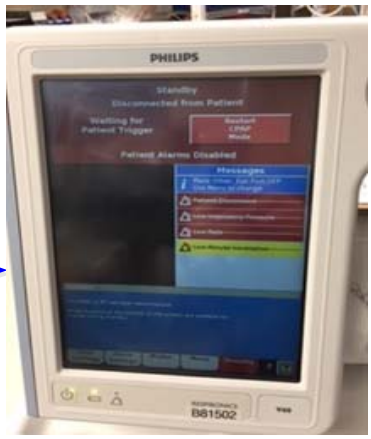
If the power has been shut off, you **MUST** page RT (0146) to resume Bipap





DEPRESS STANDBY to remove patient from Bipap for: eating, washroom, oral medications, nebulizer tx's.

This screen will appear



BIPAP WILL RESTART WHEN THE MASK IS RE-APPLIED AND THE PATIENT STARTS BREATHING

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APPENDIX D

BIPAP VISION

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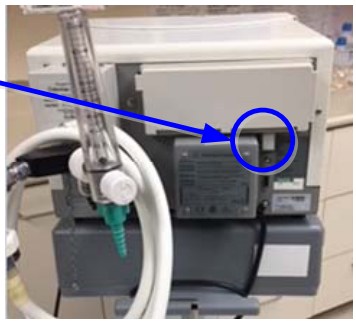

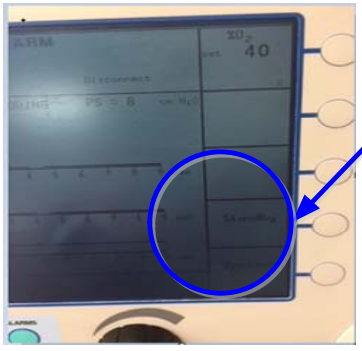

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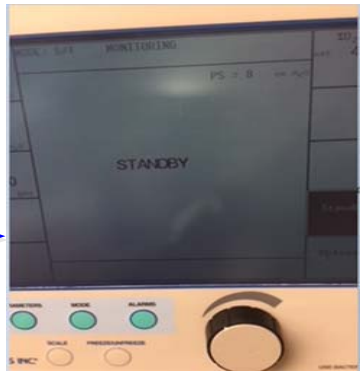
This screen will appear



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If GREATER THAN 1 HOUR ON STAND BY:
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Ensure exhalation port is not covered. (I.e. blankets)