Respironics V60 BiPAP (Respiratory Therapy)

Site Applicability

St. Paul's Hospital
Mount Saint Joseph Hospital

Practice Level

Respiratory Therapist

Need to Know

The Respironics V60 BiPAP may be used to provide non-invasive ventilation for acute situations in patient care areas where continuous patient monitoring is possible.
F&P RT040 vented full-face mask is the preferred patient interface. Vented full-face masks are equipped with an anti-asphyxiation valve to allow for breathing in the event of ventilator failure; additionally, there is a quick release incorporated into the "free motion glider" component of the mask for emergency removal.

Equipment and Supplies

- Respironics V60 BiPAP with MR850 humidifier
- Sterile water for inhalation (1 or 2L)
- F&P RT219 Bilevel-CPAP heated single-limb circuit, including MR290 humidifier chamber and extension tubing
- Temperature probe/flow sensor
- Inspiratory filter
- F&P RT040 vented full-face mask (small/medium/large)
- Mask sizing guide

Procedure

Indications

- Hypoxemia
- Obstructive sleep apnea
- Impending ventilatory failure

Contraindications

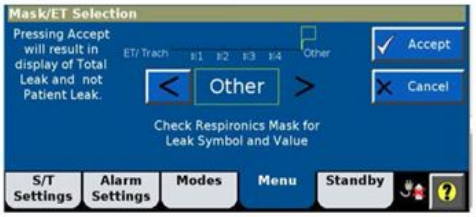
- Inability to maintain a patent airway
- Inability to adequately clear secretions
- At risk for aspiration
- Decreased or altered level of consciousness
- Inability to maintain spontaneous respiration in the event of a circuit disconnection or loss of therapy
- Hypotension

- Pneumothorax
- Epistaxis
- Non-cooperative or non-compliant
- Uncontrolled dysrhythmias
- Acute sinusitis or otitis media
- Hypersensitivity to mask material

Steps

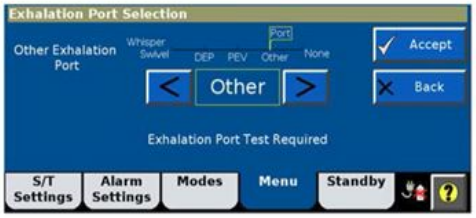
1. Verify need for therapy.
2. Set up the equipment:
   a. Assemble the BiPAP circuit and connect to the machine.
   b. Place the inspiratory filter between the machine and circuit.
   c. Ensure humidifier is turned on and set to non-invasive mode. If the humidifier is turned OFF for any reason, it will default to invasive mode when turned back on. The humidifier mode must then be reset for non-invasive.
3. Enter the mask settings and circuit exhalation port type into the device:

From the same Mask/Port screen as before, touch the forward arrows until Other is selected.
Touch Accept.



The Exhalation Port Selection screen is automatically displayed

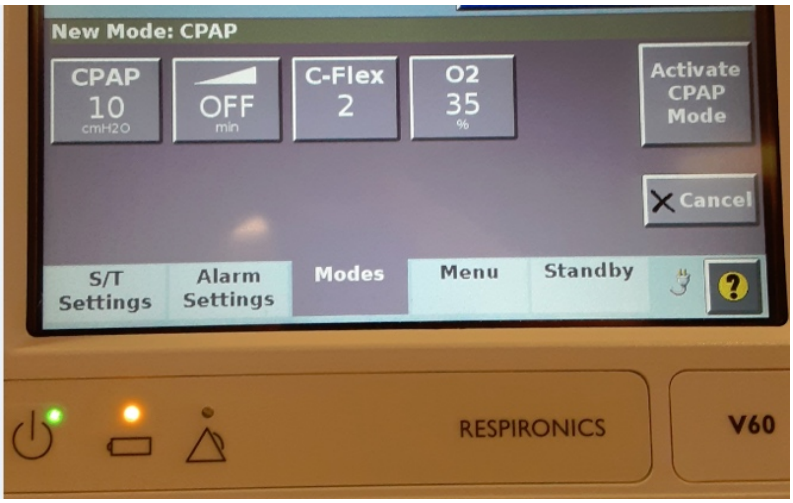
Touch forward or backward arrows to select type of circuit Exhalation Port.
If other than a Philips/Respironics port, select Other.
Touch Accept and begin the Exhalation Port Test.



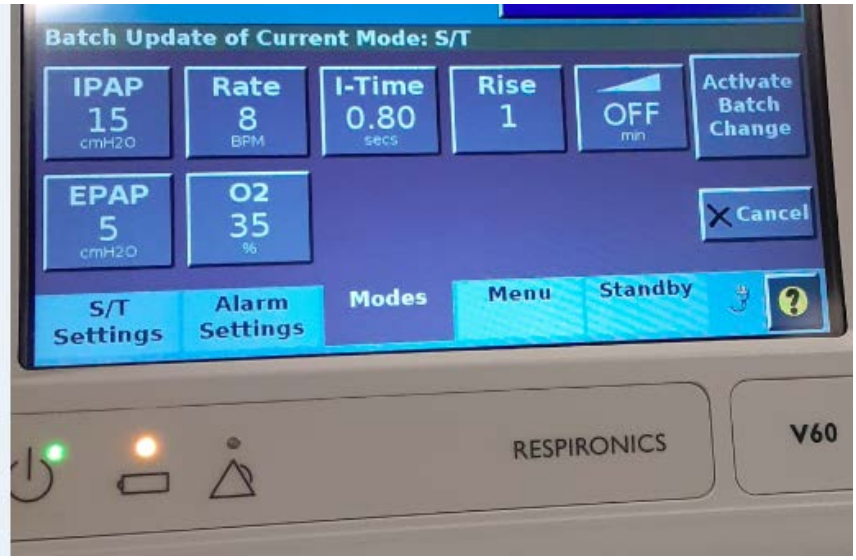
4. Perform the exhalation port leak test:
   a. Connect the exhalation port adaptor to the distal end of the circuit and ensure the pressure line is attached to the pressure port.
   b. Occlude the distal end of the circuit with a gloved hand. Ensure that the 'castle' port is unobstructed. Run the leak test from the option menu.
   c. Once the test has passed, remove the exhalation port from the circuit. **Do not leave inline.** Do not discard; this test must be repeated prior to use if the machine has been turned off.
5. Select the appropriate mask for the patient:
   a. Use the sizing guide to fit the mask to the patient's face.
   b. Slide the lower portion of the mask UNDER the chin.
   c. Place the upper portion of the mask on the bridge of the nose.
   d. Adjust the headgear to a comfortable fit.

e. Pull the mask gently and slightly away from the patient's face and then reseat back into place. This allows the mask seal to be created.
f. The forehead pad of the full-face mask does not need to be in contact with the patient's skin, as it is intended to provide additional support for those with a prominent forehead; attempting to seat the cushion may result in a poor mask seal around the mouth.

6. Select desired parameters:
   a. Pressing the Modes screen key.
   b. Change the appropriate parameters by selecting the parameter and adjusting to the desired setting.
   c. Press the Activate Batch Settings key when done.
   d. The following parameters are available within the two primary modes of ventilation:
      i. CPAP Mode:
         - CPAP; 0_2%, Ramp, CFlex



      ii. Spontaneous/Timed (S/T) Mode:
         - EPAP; IPAP; Rate; I-Time; Rise; O_2%; Ramp



7. Initiate non-invasive ventilation:
    a. Place the pre-sized mask on the patient and adjust the headgear for a comfortable fit with minimal leaks. Over tightening of the mask will cause discomfort and may result in pressure sores. Small leaks are acceptable provided patient comfort and pressure settings are maintained.
    b. Assess the patient for mask comfort and seal. Use an NG sealing pad to help create a seal between the mask and the nasal or orogastric tube if required.
    c. Observe the patient's triggering ability and synchronization with the BiPAP system, as well as patient tolerance. Adjust settings and mask fit as necessary.
8. Set the appropriate alarm parameters by pressing the Alarm Settings screen key.
    a. High Pressure Limit (Hi P):
        i. S/T mode – set 10 cmH_2O above the IPAP setting
        ii. CPAP mode – set 10 cmH_2O above the CPAP setting
    b. Low Pressure Limit (Li P):
        i. S/T mode – set 5 cmH_2O above the EPAP setting, but below the IPAP setting
        ii. CPAP mode – set 2 cmH_2O below the CPAP setting
    c. Low Pressure Alarm Delay (LIP T):
        i. Set the delay time to 20 seconds for all modes
    d. High Tidal Volume (Hi Vt):
        i. Set according to patient's spontaneous parameters
    e. Low Tidal Volume (Lo Vt):
        i. Set according to patient's spontaneous parameters
    f. High Rate (Hi Rate):
        i. Set according to patient's spontaneous parameters
    g. Low Rate (Lo Rate):
        i. Set according to patient's spontaneous parameters
9. Monitoring therapy and response; documenting actions:
    a. Obtain ABG approximately 20 – 30 minutes after initiating therapy.

b. Adjust IPAP and EPAP/CPAP levels according to ABG results and patient's clinical presentation.
c. Monitor and document settings in Cerner. Monitoring guidelines are as follows:
    i. On initiation
    ii. Q 30 minutes for the first hour
    iii. Q 2 hour after the first hour
    iv. Q 4 hours or as assessed by the Therapist

Special Considerations

1. For 100% oxygen, press screen key to activate 2 minutes of 100%; cancel to discontinue.
2. For bronchodilator therapy treatment, discontinue non-invasive ventilation briefly to administer MDI with spacer.
3. If the Screen Lock has been activated and screen is locked, touch and hold the main screen for three seconds, and follow the instruction that will appear and tap the √ key to unlock the screen.
4. The patient should remain NPO while receiving non-invasive ventilation.

Related Documents

1. B-00-12-12138 Respironics V60 BiPAP, Pre-use Check (Respiratory Therapy)

References

1. Respironics V60 User Manual

2. V60 Mask-Port Settings Guide

3. Arundel, L., Irani, E., & Barkema, G. (2021). Reducing the Incidence of Medical Device-Related Pressure Injuries From Use of CPAP/BiPAP Masks: A Quality Improvement Project. *Journal of Wound, Ostomy & Continence Nursing*, *48*(2), 108–114. https://doi.org/10.1097/WON.0000000000000742

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