

**Respiratory Care Services
John Dempsey Hospital
Policy and Procedure Manual**

Subject: Patient-Ventilator System Check (Ventilator Check)

Rationale: To provide a documented evaluation of a mechanical ventilator and of the patient's response to mechanical ventilatory support. All data relevant to the patient-ventilator system check (ventilator check) must be recorded on the appropriate ventilator flowsheet at the time of performance. The Ventilator Flowsheet is to be included as part of the patient's official medical record and must include patient information and observations indicative of the ventilator's operation/settings at the time of the ventilator check.

Indications:

1. A mandatory patient-ventilator system check (ventilator check) will be performed every four (4) hours for any patient who is on mechanical ventilation for life support

A check should also be performed:

- prior to obtaining arterial blood gas specimen for analysis
 - following changes in ventilator settings
 - any time the ventilators performance is questionable
2. The patient-ventilator system check will serve to help prevent the occurrence of problematic incidents, warn of impending or trending events, and assure the maintaining of proper ventilator settings in accordance with a physician's order

Contraindications:

None

Procedures:

1. Each ventilator is to display a ventilator checklist label which clearly documents that an operational verification procedure (or ventilator self-test) was performed prior to or at the time the ventilator was first applied to the patient. The purpose of the OVP or self-test is to assure the proper internal functioning of the ventilator.
2. An operational verification procedure should be performed at bedside prior to connection to the patient; after the patient circuit has been changed or disassembled for any reason.
3. The respiratory therapist will verify and document the ventilator is functioning and properly connected to the patient.
4. The respiratory therapist must verify written documentation of all orders for mechanical ventilator settings and changes by an authorized practitioner in the patient's chart

5. The patient-ventilator system check must include the following patient information and observations indicative of the ventilator's operation/settings at the time of the ventilator check:
 - a. Patient's Name
 - b. Patient's TO# / Admission #
 - c. Diagnosis
 - d. Endotracheal or tracheostomy tube size and position
 - e. Documentation of last time patient circuit changed
 - f. Date of patient-ventilator system check
 - g. Time of patient-ventilator system check
 - h. Current ventilator settings
 - Mode of ventilation
 - Set ventilator frequency
 - Set FIO₂ / measured FDO₂ (fractional concentration of oxygen delivered) with an appropriate calibrated analyzer
 - Peak, mean, baseline airway pressures and auto-Peep (if applicable)
 - Set PEEP
 - Set peak inspiratory pressure limit and pressure support level, (if applicable)
 - Set tidal volume (if applicable)
 - Delivered tidal volume (measured or calculated)
 - Set sigh variables (if applicable)
 - Set minute ventilation (if applicable)
 - Set minimum ventilation (if applicable)
 - Set inspiratory flowrate and waveform (if applicable)
 - Set continuous flowrate (for IMV, if applicable)
 - Set I-E ratio, % inspiration, or inspiratory and expiratory times
 - Set Sensitivity threshold (if applicable)
 - Humidifier temperature settings (if applicable) or presence of HME
 - i. Documentation of alarm settings and activation of appropriate alarms
 - j. Description of any equipment failure and subsequent measures taken
6. Patient –ventilator system checks must include clinical observations indicative of the patient's response to mechanical ventilation. The clinical observations should include an evaluation of the patient's
 - Breath sounds
 - Spontaneous respiratory rate, volume, and pattern
 - Chest motion
 - Pallor, skin color
 - Level of consciousness

- Endotracheal-tube cuff pressure, apparent stability and position of tube (if a tracheostomy tube is present – note cuff pressure, patency and positioning)

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- Secretions
 - Condition of any ancillary equipment (chest tube, manual resuscitator)
 - Results of weaning parameters performed
 - Any problematic effects from disconnection from ventilator during bedside procedures
 - Documentation of patient-ventilator synchrony during assisted or supported breaths
 - Documentation of oxygenation and ventilation status (ABG, end tidal CO₂, transcutaneous saturation)
7. Signature/initials (along with credentials) of therapist performing patient-ventilator system check
 8. The respiratory therapist is expected to be able to
 - comply with Universal Precautions
 - possess a complete understanding of the setup, technical operation, maintenance, and troubleshooting of the ventilator, circuit, and humidifying device
 - understand cardiopulmonary physiology and pathophysiology processes
 - properly assess patient
 - recognize any adverse reaction and appropriately respond to adverse events
 - properly interpret the results of ABG analysis and recommend those ventilator variables which can be initiated or modified to achieve the desired blood gas results

References:

1. AARC Clinical Practice Guidelines: Patient-Ventilator System Checks, Respiratory Care, 1992; 37:882-886

Issued: 12/05