

# **Respiratory Care Services**

## **John Dempsey Hospital**

### **Policy and Procedure Manual**

**Subject:** **Metered Dose Inhaler (MDI) Usage for Mechanically Ventilated Patients**

**Rationale:** When ordered by a physician Pharmacologic agents from antibiotics to sympathomimetics are delivered to mechanically ventilated patients via metered dose inhalers. MDI's may deliver medication using propellants which disperse a "metered dose" per puff (dosage in micrograms). MDI's can take the place of or be added as an additional respiratory medication when treating the chronic respiratory patient.

**Equipment:** Stethoscope  
Metered Dose Inhaler(s)  
MDI Adapter for Ventilator Circuit

**Indications:**

1. Bronchospasm - constriction
2. Airway Inflammation

**Contraindications:** Same as with respiratory aerosolized medications

**Procedure:**

1. Read the patient's order sheet for the physician's specific instructions. Check the physician order for medication, medication dosage, and frequency. Verify the patient's name, DOB, and bed location.
2. Upon arrival of the MDI from Pharmacy, therapy will be initiated. Obtain the ordered MDI from the patient's medication drawer on the nursing unit. Proceed to the patient's bed, introduce yourself, and explain what you are about to do and that it has been ordered by the patient's doctor. Check the patient's name and DOB verbally and by the patient's wristband. Be reassuring.
3. Wash your hands
4. Each MDI medication delivered to the ventilated patients will be administered at a dosage of four (4) puffs unless otherwise ordered by the physician.  
  
To ensure maximum efficiency, each puff should be delivered one (1) minute apart.
  - a. Place MDI Adapter (holding chamber) on inspiratory side between the patient wye and the inspiratory limb according to the manufacturer's recommendations

- b. Remove the MDI canister from the mouthpiece
  - c. Shake the MDI canister vigorously 3-5 times and place in the MDI receptacle port
  - d. Using only enough force to actuate the canister, deliver the desired number of puffs during the inspiratory phase one minute apart
  - e. Following each treatment wipe the tip of the canister with alcohol and store with cover in patient's medication box
5. Assess the patient before and after Rx
    - Heart Rate
    - Respirations
    - Breath Sounds
  6. Document time and response to therapy on the ventilator flowsheet and sign off MAR

**Considerations:**

Inhalers that dispense dry powder are not suitable for use in ventilator circuits

Deposition of medication to lower respiratory tract is reduced during mechanical ventilation, increased dosages are required to provide optimal effect

Ventilator modes and settings affect deposition. Patients should be on low inspiratory flowrates, using decelerating waveforms with tidal volumes greater than 500 ml

Spontaneous inspirations will increase lung deposition compared to controlled, assist/control and pressure support ventilation

Artificial nose (HME) must be removed during MDI administration