

# METERED DOSE INHALERS

Metered dose inhalers are hand held devices that deliver medications through an aerosol spray, mist or powder to penetrate the airway. The respiratory tract offers rapid absorption in the alveolar capillary network. There is a large surface area in the deeper passages of the respiratory tract.

Drugs given by metered dose inhalers can be given in high concentrations with minimal side effects. A measured dose of medication is given with each push of the canister. To activate the aerosol, 5 to 10 pounds of pressure must be exerted. It is also important that the client inhale at the exact time the inhaler is depressed. If this does not happen, the medication will reach the back of the throat but will not be inhaled into the respiratory tract.

## COMMON PROBLEMS IN USING INHALERS

- Not taking as prescribed: either taking too much or too little.
- Incorrect activation. Breathing and pressing the canister must happen simultaneously for the drug to be carried into the lungs with the breath.
- Forgetting to shake the container. The drug is a suspension and particles may settle. Shaking is necessary to insure correct dose is given.
- Not waiting long enough between puffs. The whole process must be repeated with the second puff.
- Failure to clean the valve. Particles may occlude the valve in the mouthpiece unless it is cleaned. This will decrease the ability to get the correct number of doses per inhaler.
- Failure to observe whether the inhaler is releasing a spray - if not it should be checked with the pharmacist.

***Note: This procedure would normally not be delegated to assistive personnel. Aides should be instructed about potential side effects of medications and to report these signs and symptoms. They may also be instructed to report ineffective breathing and any other signs of respiratory distress.***

## APPLIES TO

- Registered Nurses
- Licensed Practical/Vocational Nurses
- Therapists
- Other (Identify): \_\_\_\_\_

## EQUIPMENT/SUPPLIES

- Metered dose inhaler with medication canister.
- Tissues/paper towels.

## PROCEDURE

1. Gather equipment and wash hands. Refer to the Hand Washing procedure.
2. Explain what the metered dose is and allow client to set up the inhaler and canister.
3. Remove mouthpiece cover from inhaler.
4. Shake inhaler for 2-5 seconds.
5. Hold inhaler upside down instruct client to position inhaler in one of two ways:
  - a. Place inhaler in mouth with opening toward the back of throat closing lips tightly around mouthpiece.
  - b. Position the device 1-2 inches in front of widely opened mouth.
6. Have client take deep breath and exhale completely.
7. Position inhaler by having client hold inhaler with thumb on mouthpiece and index finger and middle finger at the top.
8. Instruct client to tilt head back slightly, inhale slowly and deeply through mouth while depressing medication canister completely.
9. Hold breath for about 10 seconds.
10. Exhale slowly through nose or pursed lips.

**To administer using a spacer device:**

*A spacer device traps medication released from MDI; client then inhales the drug from the device. These devices improve delivery of correct dose of inhaled medications.*

1. Remove the mouthpiece cover from the metered dose inhaler and mouthpiece of spacer device.
2. Insert MDI into the end of the spacer device.
3. Shake inhaler well for 2-5 seconds.
4. Place spacer device mouthpiece in mouth and close lips. Do not insert beyond the raised lip on the mouthpiece.
5. Breath normally through spacer device mouthpiece.
6. Depress medication canister, spraying one puff into the spacer device.
7. Breath in slowly and deeply for 5 seconds.
8. Hold full breath for 5-10 seconds. Instruct client to wait 2-5 minutes between inhalations or as ordered by physician.
9. Instruct client in removing medication canister and cleaning inhaler in warm water. After administration assess client respirations and lung sounds.

**DOCUMENTATION GUIDELINES**

1. Document in the clinical record:
  - a. Actual time and dose of drug administered.
  - b. Client response to medication.
  - c. Teaching done and client ability to perform task plan for further teaching and demonstration.

**PEDIATRIC CONSIDERATIONS**

- Because of the coordination required a spacer device is recommended for children.
- Children should be monitored for adverse effects such as tremors, restlessness, dizziness, gastrointestinal upset and tachycardia, These side effects are associated with bronchodilators.
- Educate child and parent about the need to use inhaler during school hours. Many schools do not permit self-administration of MDI. A physician order may be needed for school administration.

**RELATED PROCEDURES**

None.