



Metered Dose Inhaler Training

2023



Developed in collaboration with City of Santa Rosa Fire
Department for Fireline Paramedic implementation
Revised April 2023 for general use

MDI Administration Authorization

- Administration of Albuterol via Metered Dose Inhaler (MDI) has been authorized by CVEMSA when liquid Albuterol is unavailable due to medication shortages.
- MDI administration is limited to paramedics who have completed training on the delivery of the medication via the device utilizing a spacer
- Spacer use is mandatory for MDI administration
- Use is in lieu of nebulized albuterol for adult patients suffering from bronchospasm

MDI Medical Direction

- Use in accordance with the CVEMSA Treatment Guideline 7701

COASTAL VALLEYS EMS AGENCY



Respiratory Distress	
Policy Number: 7701	
Effective Date: January 1, 2020	Review Date: November 23, 2021
Approved: Bryan Cleaver, EMS Administrator Mark Luoto, EMS Medical Director	
Authority: California Health and Safety Code, Division 2.5 EMS, Sections 1797.220 & 1797.221	
I. Definition	
A. None.	
II. Basic Life Support	
A. Provide General Medical Care. B. CPAP should be considered early in severe respiratory distress per <i>procedure guideline 7908 CPAP</i> . C. Airway obstruction: <ol style="list-style-type: none"> Conscious patient able to speak: <ol style="list-style-type: none"> Offer assurance, do not intervene, encourage coughing. Consider oxygen administration as indicated. Frequent gentle suctioning as indicated to control secretions. If patient is unconscious or becomes unconscious begin CPR. <ol style="list-style-type: none"> If an object is seen, remove object and reassess. Continue CPR as indicated and refer to <i>procedure guideline 7909 Cardiac Arrest Management</i>. 	
Adult	Pediatric (less than 14 years of age)
A. Airway obstruction: <ol style="list-style-type: none"> Conscious patient unable to speak or cough: <ol style="list-style-type: none"> Administer continuous abdominal thrusts until foreign object is expelled, air movement is restored, or the patient becomes unconscious. Unconscious or becomes unconscious patient: <ol style="list-style-type: none"> If unable to maintain an airway or ventilate after two attempts with BLS maneuver: <ol style="list-style-type: none"> Attempt supraglottic airway per <i>procedure guideline 7912 Supraglottic Airway</i>. 	A. Airway obstruction: <ol style="list-style-type: none"> Conscious patient unable to speak or cough: <ol style="list-style-type: none"> Infant < 1 year old: <ol style="list-style-type: none"> Place infant in a head down position supporting the head. Administer 5 back blows and 5 chest thrusts continuously until foreign object is expelled, air movement is restored, or the patient becomes unconscious. Child > 1 year old: <ol style="list-style-type: none"> Refer to adult treatment.
III. Advanced Life Support	
A. Airway obstruction: <ol style="list-style-type: none"> Inspect oral cavity: <ol style="list-style-type: none"> If object seen, use forceps and attempt to remove. 	
A. Airway obstruction: <ol style="list-style-type: none"> If unable to maintain an airway or ventilate after two attempts with BLS maneuver: <ol style="list-style-type: none"> Attempt oral endotracheal intubation per <i>procedure guidelines 7911 Endotracheal Intubation</i> Bronchospasm: <ol style="list-style-type: none"> Administer Albuterol 5 mg in 6 ml NS and Atrovent 0.5 mg in 3 ml NS via appropriate nebulizer device. 	A. Airway obstruction: <ol style="list-style-type: none"> If unable to maintain an airway or ventilate after two attempts with BLS maneuver: <ol style="list-style-type: none"> Attempt supraglottic airway per <i>procedure guideline 7912 Supraglottic Airway</i>. Bronchospasm: <ol style="list-style-type: none"> Administer Albuterol per pediatric medication administration guide via appropriate inline nebulizer device.

MDI Dosage

- Dose
 - 8 puffs (90 mcg/puff) with spacer to replace initial nebulized Albuterol
 - Repeat 8 puff dose with spacer every 5 minutes as necessary to replace subsequent nebulized albuterol treatments (if bronchospasm is severe, use 1 puff every minute until resolution)



MDI Preparation

- Sit patient upright or maintain a standing position
- Remove the cap from the MDI and inspect the opening for foreign bodies
- Shake the MDI vigorously
- Spray a test puff into the air (if canister is new)



MDI Administration

- Push MDI into rubber end of spacer
- Remove cap from spacer



MDI Administration

- Have the patient exhale slowly
- [Immediately] Place the spacer mouthpiece into the patient's mouth and have them form a seal with their lips



MDI Administration

- [simultaneously] Depress the MDI canister to release the medicine (switched order)
- Instruct patient to inhale slowly and completely [Instruct the patient to continue inhaling the medicine until the spacer is empty]
- Instruct the patient to hold their breath for 5-10 seconds or as long as comfortable



MDI Administration

- Allow patient to breathe normally for 30 seconds
- Repeat for 8 individual puffs (should be 1 minute apart)
- Process should take about 8 minutes
- Once the treatment is complete, reassess the patient after 5 minutes to determine if subsequent treatments are necessary
- Subsequent treatments are administered in the same manner as the first

References

- National Institutes of Health (NIH) [*How to use a Metered Dose Inhaler*](#)
- American Lung Association [*How to use a Metered Dose Inhaler with Spacer*](#)