Clinical Practice Procedures: Drug administration/ Inhalation – Metered Dose Inhaler (MDI)

Policy code	CPP_DFA_IMI_0123
Date	January, 2023
Purpose	To ensure a consistent procedural approach to the metered dose inhaler (MDI).
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Author	Clinical Quality & Patient Safety Unit, QAS
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Inhalation – Metered Dose Inhaler (MDI)

January, 2023

A **Metered Dose Inhaler (MDI)** is a device used to deliver a short burst of aerosolised medication which is inhaled into the patient's lungs. A MDI consists of three components: a canister containing propellant with drug suspension, a metered valve with counter and a plastic holder with mouthpiece.

When the canister is depressed, the MDI will release a preset metered aerosol dose. The release of medication is timed with inspiration to optimise medication delivery deep within the patient's lungs.

A MDI can be used in conjunction with a spacer/holding chamber or an in-line connector (22M–22F) with MDI medication port positioned in an established airway circuit.

Indications

- For the delivery of MDI medications

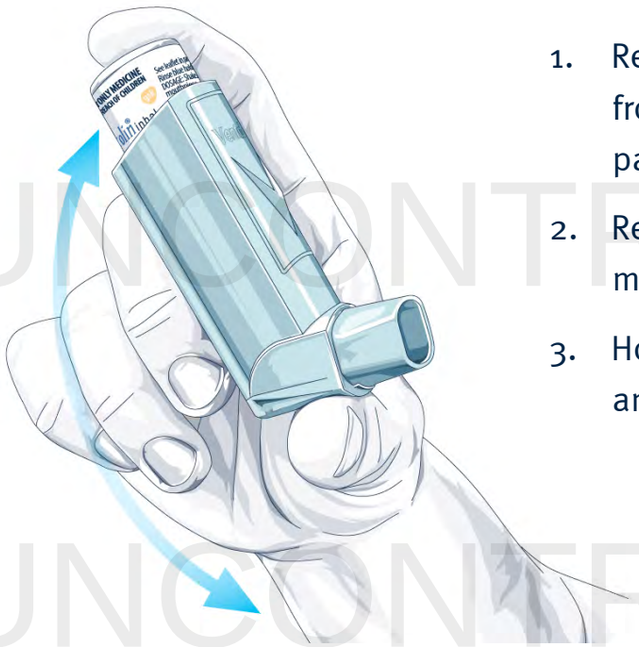
Contraindications

- **MDI with spacer**
  - Foreign body airway obstruction
- **MDI with connector (22M–22F)**
  - Nil in this setting

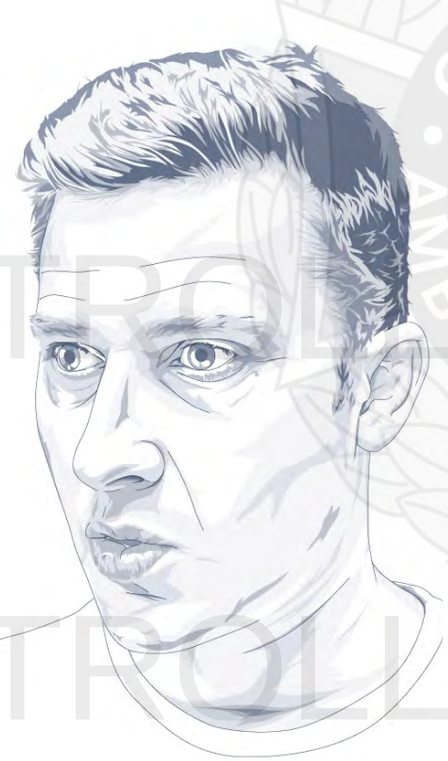
Complications

- **MDI with spacer**
  - Poor procedural compliance reducing drug delivery
- **MDI with connector (22M–22F)**
  - Nil in this setting

Procedure – Metered Dose Inhaler (MDI) with spacer



1. Remove the MDI from the packaging.
2. Remove the mouthpiece cap.
3. Hold the MDI upright and shake well.

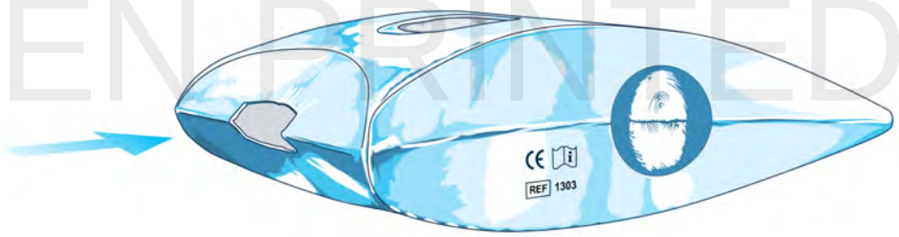


4. Prime the MDI by releasing two metered doses into the air.

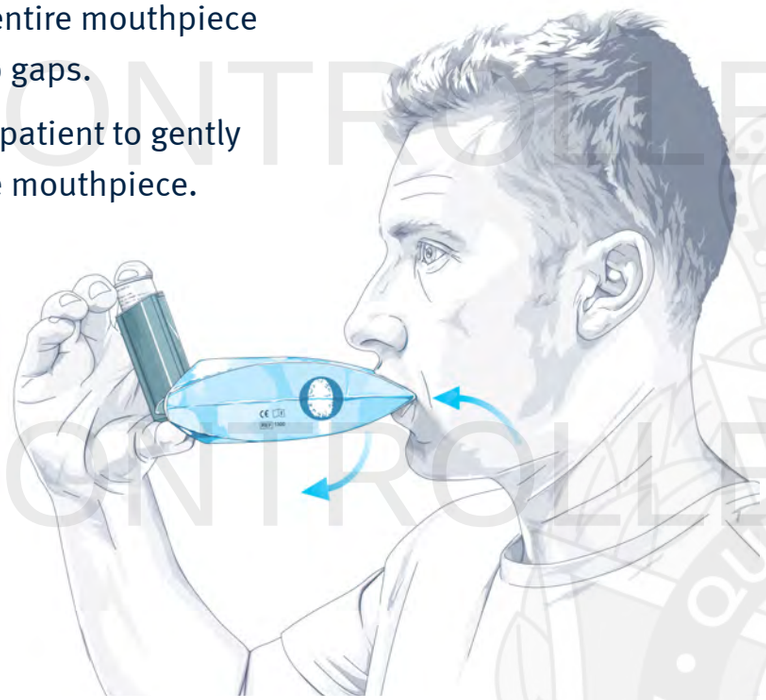
5. Remove the LiteAire® valve holding chamber from the packaging.

6. Firmly grasp the LiteAire® valved holding chamber with your thumb and forefinger on either side and squeeze to form a supported chamber.

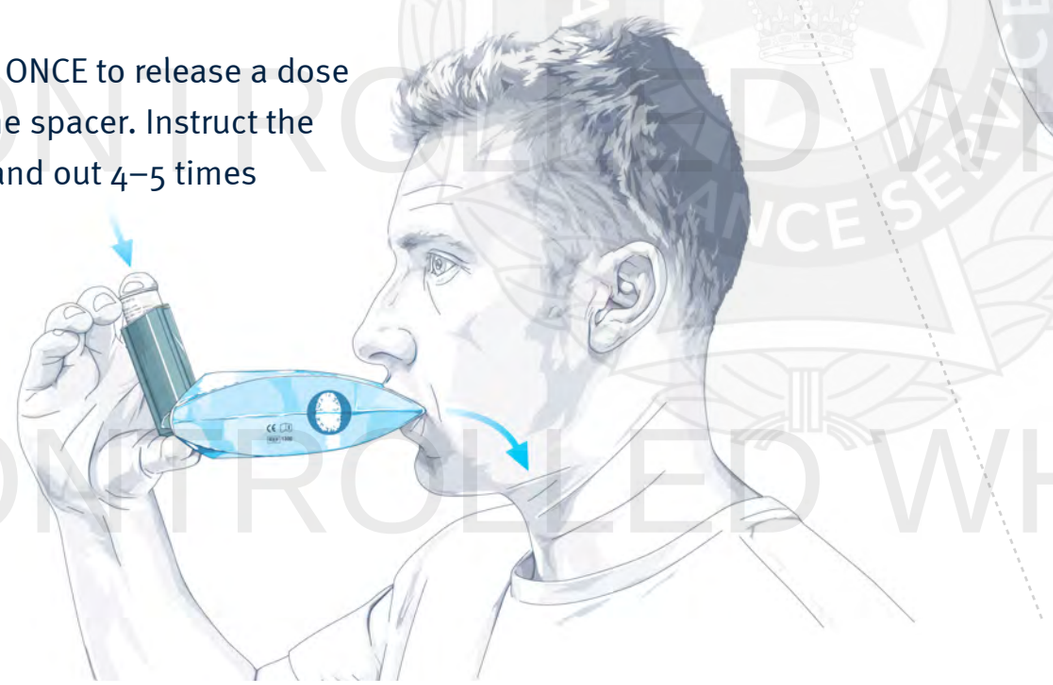
7. Insert the MDI mouthpiece into the LiteAire® inhalation port.



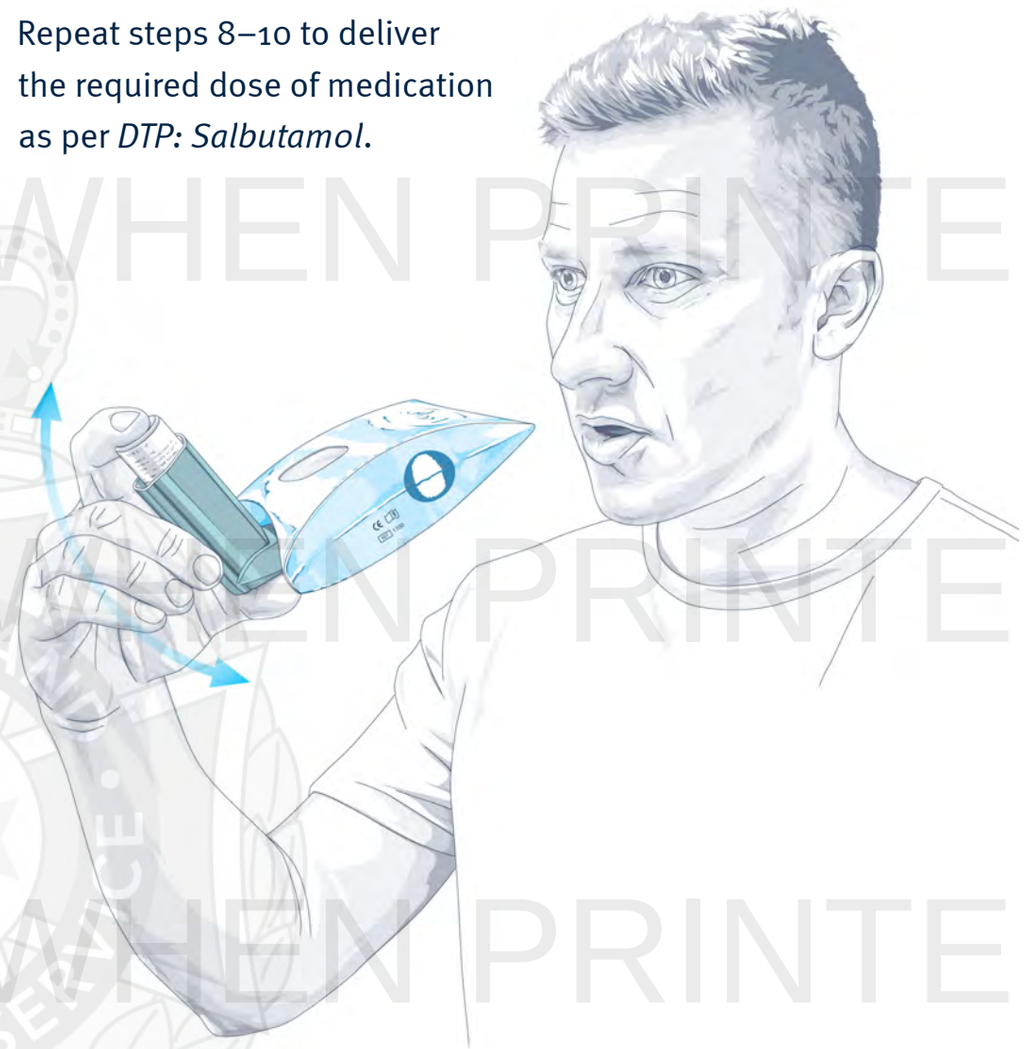
8. Instruct the patient to place their lips around the small holes of the LiteAire® mouthpiece. Ensure the patient's lips cover the entire mouthpiece so there are no gaps.
9. Encourage the patient to gently **exhale** into the mouthpiece.



10. Depress the canister ONCE to release a dose of medication into the spacer. Instruct the patient to breath in and out 4–5 times without removing the mouthpiece between breaths (there is a 2-way valve system which will prevent the medication from escaping from the spacer).



11. Repeat steps 8–10 to deliver the required dose of medication as per *DTP: Salbutamol*.



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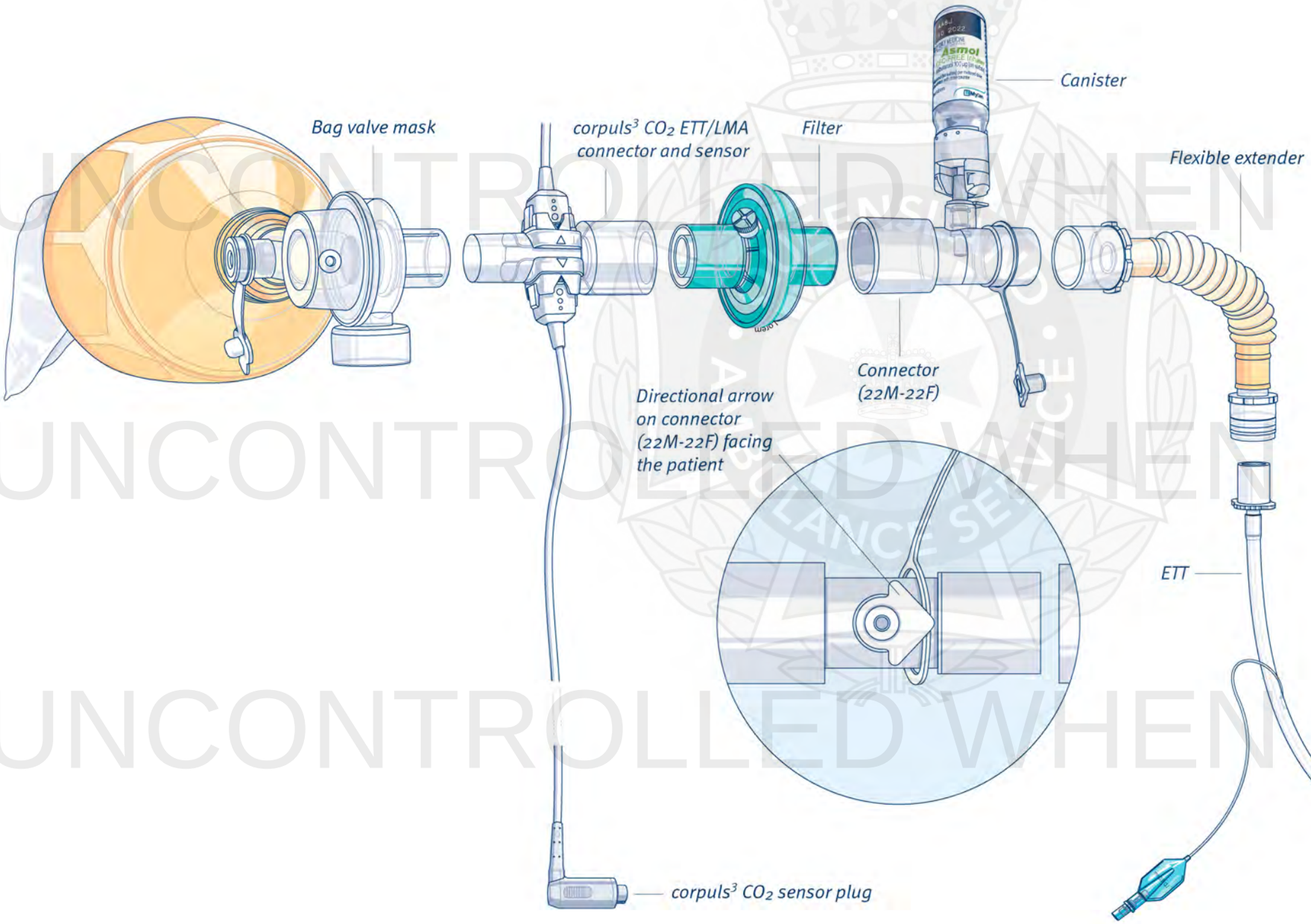
Procedure – Metered Dose Inhaler (MDI) with connector (22M–22F)

1. Remove the MDI canister from the packaging.
2. Hold the MDI upright and shake well.
3. Connect the canister to the medication port on the in-line connector (22M–22F).
4. Prime the MDI by releasing two metered doses into the air.
5. Insert the canister and connector (22M–22F) into the patient's established airway circuit – ensure directional arrow is facing the patient.



6. Depress the MDI canister once to release a dose of medication. This must be timed to the inspiratory phase to optimise medication administration.
7. Repeat step 6 to deliver the required dose of medication as per *DTP: Salbutamol*.
8. At the completion of medication delivery remove the MDI canister and cap the medication port – the capped medication port of the connector may be kept in-line.

Additional information

- The LiteAire® mouthpiece and internal chamber should be inspected before each use to ensure it is free from contaminants.
- Each LiteAire® chamber may be used for multiple administrations in the same patient, however should be immediately discarded if wet, crushed, contaminated or discoloured.
- All MDIs supplied by QAS now contain a counter to identify doses administered. This counter does not operate when used with the connector (22M–22F) however will not affect medication delivery.
- The MDI dose counter must not be removed in any circumstances.
- All used MDIs must be discarded in accordance with the *QAS Drug Management Code of Practice*.

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