Acacium Group

Administration of Medicines via Metered Dose Inhalers (Adult and Child)

Procedure Reference | SOP MEDS 17

Version | V4.0

Procedure Name	Administration of Medicines via Metered Dose Inhalers (Adult and Child)
Purpose of Document	To ensure that the correct preparation, procedure and outcome are achieved by implementing a consistent, and systematic, approach to the procedure of administering medicines via metered dose inhalers
Target Audience	All nurses and appropriately trained carers
Version	V4.0
Author	Karen Matthews-Shard
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Review Frequency	3 yearly, or when clinical or operation guidelines change
Last Reviewed	August 2022
Next Review Date	August 2025
Equality Impact Assessment (EIA) Form	Acacium Group is committed to Equality, Diversity and Inclusion and in line with our values, we strive to ensure that everyone that is part of the Acacium community is not disadvantaged or discriminated against given their individual need or characteristics. To support this, an Equality Impact Assessment has been undertaken on this policy/procedure. This information is held centrally and can be requested from the Clinical Governance Team.
About Acacium Group	Details of all Acacium Group trading companies that this policy applies to are detailed within Appendix A

Document History			
Version	**Date**	**Changes made/comments**	**By whom**
V1	Dec 2016	Implementation of document history page	KNF/VM
V1	Mar 2018	Updated front sheet to include new review frequency date.	KMS/MS
V2	Sept 2019	3 yearly review and implementation of new template	Clinical Advisory Group
V2.1	Apr 2020	Updated to new Template	CC
V2.2	Oct 2020	Update re rebrand	CC
V3	Aug 2022	3 Yearly Review	Clinical Advisory Group
V4	Jan 2024	Rebrand	Clinical Advisory Group

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1. Introduction

Drug delivery mechanisms using aerosols are an integral part of respiratory disorder treatment (e.g. asthma, obstructive lung disorders, cystic fibrosis, pulmonary arterial hypertension, infectious pulmonary disease).

The pressurised metered-dose inhaler (PMDI) is a popular way of administering aerosols. This can be used with or without a spacer.

A spacer is an external device that is attached to an MDI to allow for better drug delivery by enhanced actuation and inhalation coordination. The inherent advantages of aerosol drug delivery are faster onset of pharmacological action, since the drug is being delivered to the site needing therapeutic effect, and a decrease in potential adverse effects.

Using a metered-dose inhaler seems simple, but many do not use it the right way. When used the wrong way, less medicine gets to the lungs. This is why it is recommended that a spacer device is used which connects to the mouthpiece. The inhaled medicine goes into the tube first, the client takes two deep breaths to breathe the medicine into the lungs. Using a spacer wastes a lot less medicine than directly spraying the medicine into the mouth.

Spacers come in various shapes and sizes and are available for adults and children. Any child can use a spacer as long it is the correct size with the appropriately sized mask. Face masks are used for Children under 2 years. Spacers are not designed for dry powder inhalers.

2. Aim

To administer medication safely and effectively via a metered dose inhaler for optimum efficacy.

The six rights: Prior to administering any medications it is important to consider the six rights:

- right drug
- right time
- right dose
- right route
- right client
- right to refuse

As well as the six rights it is also important to consider the right position and the right documentation.

3. Who needs to be aware of this procedure

All Acacium Group nurses and carers that have been assessed as competent to do so.

4. Hazards / complications

Several problems may be encountered when using PMDIs:

- poor coordination of breathing and activating the inhaler can reduce drug delivery
- inhaling too quickly or too slowly can affect the amount of drug deposited in the lungs
- the teeth or tongue can obstruct the flow of the medication from the inhaler
- the spray from the inhaler can cause coughing
- side-effects can include hoarse voice (dysphonia) or thrush (candidiasis) can occur with some inhaled steroids. This can be reduced by using a spacer device and gargling with water after

use if possible if not contraindicated. The water should be discarded rather than swallowed to prevent systemic absorption of steroids, Increased heart rate and muscle shaking.

Most complications are a result of the drug or the general health of the client and the ability of the client to absorb the medication.

Complications that are above what would be expected should be reported to the client's GP and your Line Manager. These should also be reported to the Clinical Director, who will report to the MHRA as necessary.

In order to prevent harm to the client make sure it is the right medicine, the right route, the right dose, the right site and the right time. Also ensure that the client is not allergic to the medication and check the prescription against the client's details.

5. Storage of medicines

To check the medicine for administration remains in license, observe that the medication is stored as per the manufacturer's instructions. Acacium Group employed nurses or carers may need to advise the client and his / her family of the suitability of storage but responsibility for storage lies with the client and his or her family. There should be an awareness of the need to store medicines out of the reach of children.

6. Availability of supplies and medications

Whoever has responsibility (Client, Family or Worker) must ensure that the required items and medication for administration are provided as required.

7. Consent

Valid consent should be gained before commencing the procedure. Risks and benefits should be explained along with the risks of not having the medication and any possible alternatives to the medicine or route of administration.

Acacium Group staff should be aware that carers and relatives do not have the right to give consent on behalf of the client. However, staff may be able to act as long as they are able to demonstrate that any actions are in the best interest of the client. There may be a representative legally appointed to provide consent on the client's behalf.

Please read Acacium Group Consent Policy.

8. Client / relatives / carers involvement

Where the commissioner has agreed the client's relatives and carers can be taught to administer medicines via this route if they wish to support the care needs and it is practical and safe to do so, the Acacium Group employee can support this goal.

9. Client information

As part of obtaining valid consent the risks, benefits and alternatives to treatment will have been discussed.

The procedure must be explained fully to gain full cooperation.

An information leaflet may be given about the drug and the route of administration. This supports the verbal information given and serves as a reference.

The client should also be informed about possible side effects and advised to contact the GP if they are concerned.

10. Equipment

- prescription chart and prescribed medication
- drug administration system (spacer)
- Appropriate PPE
- Record of events

11. Procedure

Procedure without spacer

	Action	Rationale
1.	Explain the procedure to the client.	To gain valid consent and support with the procedure.
2.	Wash hands.	To ensure a level of cleanliness at the start of the procedure and minimise the risk of cross infection.
3.	Check drug label and / or MAR Chart for name of drug and dose, name of person due to receive it and the expiry date.	Ensure the correct medication is given to the client and that it is still in license.
4.	Check there are no contraindications to administration, such as allergies or reactions with other drugs being taken.	To double check that the medication is suitable for administration to the client.
5.	Sit the client up straight or stand up and lift the chin.	Position to open the airways.
6.	Remove the cap from the mouthpiece and shake the inhaler vigorously.	To ensure medication is fully mixed.
7.	If the inhaler has not been used for a week or more, or it is the first time it is being used, spray it into the air first.	To check that it works and as per the manufacturer's instructions.
8.	Ask the client to take a few deep breaths and then breathe out gently then to immediately place the mouthpiece in his / her mouth, putting teeth around it (not in front of it and do not bite it), seal lips around the mouthpiece, holding it between the lips.	To ensure the inhaler is correctly positioned in order to gain maximum amount of medication when activated.
9.	Guide the client to start to breathe in slowly and deeply through the mouthpiece. As he / she	

	breathes into it, simultaneously press down on the inhaler canister to release the medicine. One puff of the canister will release one puff of medicine.	
10.	Continue to breathe in deeply.	To ensure the medicine gets into the lungs.
11.	Hold breath for 10 seconds or as long as can comfortably be held, before breathing out slowly.	To allow maximum absorption in the lungs.
12.	If the client needs to take another puff, wait for 30 seconds, shake the inhaler again then repeat steps 8 to 11.	
13.	Replace the cap on the mouthpiece and store safely.	
14.	Remove PPE and Wash hands.	To maintain cleanliness and minimise the risk of transmitting any infection.
15.	Document administration in the MAR Chart and nursing records. Sign the MAR Chart.	To maintain accurate records, provide a point of reference and prevent any duplication of treatment. To highlight any concerns.

With spacer

	Action	Rationale
1.	Follow steps 1 – 7 as above.	
2.	Insert the inhaler mouthpiece into the hole in the end of the spacer ensuring that it fits snugly and without difficulty.	
3.	Ask the client to take some deep breaths and then put their teeth around the spacer mouthpiece (not in front of it and do not bite it), and ask the client to seal their lips around the spacer mouthpiece, holding it between their lips.	To ensure the inhaler is correctly positioned in order to gain maximum amount of medication when activated.
4.	Press down on the canister in the inhaler to spray one puff of medicine into the spacer.	
5.	Ask the client to breathe in slowly and deeply then hold their breath for 10 seconds or as long as is comfortably possible.	To optimise the absorption of the medication into the lungs.
6.	Ask the client to breathe out, then breathe in deeply again through the mouthpiece of the spacer and hold the breath. It is best to take two deep-held breaths from the spacer for each puff from your inhaler. However, if the client finds it difficult to take deep breaths, breathing in and	

	out of the mouthpiece several times is just as good.	
7.	If another dose is needed, wait 30 seconds, shake the inhaler then repeat steps 17 – 20.	
8.	Don't spray more than one puff at a time into the spacer.	This makes the droplets in the mist stick together and to the sides of the spacer, so a smaller dose is received.
9.	Clean the spacer as per manufacturers recommendations.	To maintain cleanliness and minimise the risk of transmitting any infection.
10.	Wash hands.	To maintain cleanliness and minimise the risk of transmitting any infection.
11.	Document the procedure in the MAR and nursing care records. Sign the MAR chart.	To maintain accurate records, provide a point of reference and prevent any duplication of treatment. To highlight any concerns.

Paediatric spacers

	Action	Rationale
1.	Follow steps 1 -7 as above. Clean once in every 24 hours.	
2.	Attach the mask to the mouthpiece of the spacer.	
3.	Insert the inhaler mouthpiece into the hole in the end of the spacer ensuring that it fits snugly and without difficulty.	To obtain maximum medication dosage into the airways and lungs.
4.	Place the mask over the child's nose and mouth so that it makes a seal with the face.	To allow for maximum drug dosage delivery.
5.	Press down on the inhaler canister to spray one puff of medicine into the spacer. (For infants and young children ensure the spacer at a 45 degree angle to assist them with breathing against the valve).	
6.	Hold the mask in place and allow the child to breathe in and out slowly for five breaths.	
7.	If another dose is needed, wait 30 seconds then repeat the process.	
8.	Using a mask and spacer with a baby can sometimes be tricky. Reassure the baby by cradling them in your arms or on your knee. Gently stroke the baby's face with the mask so	To manage administration for a baby.

	that they get used to it. Talk to the baby and smile - the baby will sense if you are anxious. You can hold the mask over the baby's nose and mouth to give them a dose while they are sleeping, and babies will also breathe in the medicine while they are crying or offer a drink if applicable.	
9.	Wash hands plus child's face.	
10.	Document the procedure in the MAR and nursing care records.	To maintain accurate records, provide a point of reference and prevent any duplication of treatment. To highlight any concerns.
11.	Clean and air dry once every 24 hours.	

12. After care

If appropriate rinse mouth to reduce the risk of developing oral thrush. Observe for side effects and report to the GP and Acacium Group if any concerns.

13. Associated Policies / SOPs

Policies
CLIN 06 Consent Policy
CLIN 14 Health Records Management Policy
CLIN 03 Medicines Management Policy

SOPs
SOP Meds 01 Controlled Drugs
SOP Meds 02 Oral Administration
SOP Meds 03 Rectal Administration
SOP Meds 04 Subcutaneous Administration of Medicines
SOP Meds 05 Administration via Gastrostomy and Jejunostomy Tubes (PEG, PEJ and JEJ)
SOP Meds 06 Intramuscular Injection Administration
SOP Meds 07 Peripheral Intravenous Administration
SOP Meds 08 Administration via Central Line (Hickman, PIC and Porta Cath)
SOP Meds 09 Removal of Medicines from Client's Home
SOP Meds 10 Vaginal Administration
SOP Meds 11 Topical & Transdermal Application of Medicines
SOP Meds 12 Administering Ear Drops
SOP Meds 13 Administration of Eye Drops or Ointments
SOP Meds 16 Buccal or Sublingual Administration of Medicines
SOP Meds 18 Administration of Epi-pen, Anapen and Emerade
SOP Meds 19 Self Administration of Medicines
SOP Meds 20 Oxygen Therapy: Adult and Child

14. References

- NMC 2018 Guidelines for records and record keeping Procedure no 4

- The Royal Marsden 2015 Manual of Clinical Nursing procedures 9th Edition
- CQC Medicines training and competency in adult social care settings – this relates to appropriate training, support and competencies making care safe, high quality and consistent (Training is referred to in all SOP's)
- NICE Guidance NG67 Managing medicines for adults receiving social care in the community March 2017 – this relates to general medicines management and details all processes
- Buddiga**,** P. (2010). *Use of metered dose inhalers, spacers and nebulizers*. eMedicine. Available at: https://emedicine.medscape.com/article/1413366-overview
  [Accessed March 7 2018]
- Heslop, K. (2008) How to use pressurised metered dose inhalers. Nursing Times;104:47, 78-80. Available at: https://www.nursingtimes.net/nursing-practice-clinical-research/how-to-use-pressurised-metered-dose-inhalers/1940821.article
  [Accessed March 9 2018]

Appendix A: About Acacium Group

Acacium Group consists of a number of trading companies, each providing services within core niche areas of the health and social care industries. Therefore, as this document is a Group Policy, the Policy herein applies to all trading companies detailed below:

pulse Part of Acacium Group	Thornbury Nursing Services Part of Acacium Group
Thornbury Community Services Part of Acacium Group	Scottish Nursing Guild Part of Acacium Group

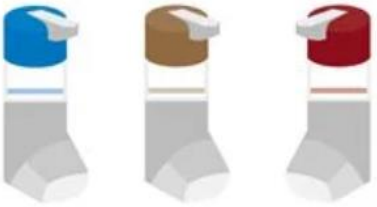
Appendix B: Pressurised metered dose inhaler

The pressurised metered dose inhaler (pMDI) is currently the most widely used type of asthma inhaler, which can be used to deliver various different medicines. The pMDI contains a pressurised inactive gas that propels a measured dose, which is released by pressing down on the top of the inhaler cannister.

Although this type of inhaler is convenient, the user needs good co-ordination and a sound technique to get the best out of this device. Common errors include:

- not shaking the inhaler before using it
- inhaling at the wrong time
- not holding your breath long enough after breathing in the contents

Pressurised metered dose inhaler	
Accuhaler	
Spiromax	
Nexthaler	
Ellipta	
Turbohaler	

Easibreath	
Respimat	
Handihaler	
Breezehaler	
Easyhaler	
Autohaler	
Genuair	

Spacer

Spacer devices may be used with PMDIs to overcome problems of poor co-ordination. The spacer between the inhaler and the mouth holds the drug like a reservoir when the inhaler is pressed. A valve at the mouth end ensures that the drug is kept within the spacer until you breathe in. When you breathe out, the valve closes.

A face mask can be fitted onto some types of spacers, instead of a mouthpiece. This is sometimes done for young children and babies who can then use the inhaler simply by breathing in and out normally through the mask.