University Hospital Southampton
NHS Foundation Trust

# Cleaning Inhalers to Allow Multi-Patient Use with the Use of Individual Patient Spacers

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| Trust reference | MEDM013 | Version number | V1 |
| Description | Standard Operating Procedure for cleaning of inhalers to allow multiple patient use | | |
| Level and type of document | Level 1: applicable across the Trust<br><br>Standard operating procedure – controlled document | | |
| Target audience | Staff administering inhalers to patients, which will be used by other patients. | | |
| List related documents / policies (do not include those listed as appendices) | **Viral Induced Wheeze and Acute Asthma Treatment version 1.0** Approved 10/2020 https://www.piernetwork.org/wheeze-asthma.html<br><br>**UHS Hand Hygiene Policy v.9.0** http://staffnet/TrustDocsMedia/DocsForAllStaff/InfectionControl/HandHygienePolicy/Hand-Hygiene-Policy-2023.pdf | | |
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## 1 Version control

| Date | Author(s) | Version created | Approval committee | Date of approval | Date next review due | Key changes made to document |
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| 26/11/24 | Southgate, Genevieve | 18/2/24 | QGSG | 2/4/24 | 2/4/27 | Date documentation finished and uploaded |
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# 3 Introduction

Pressurised Metered Dose Inhalers (pMDI) such as salbutamol and ipratropium, are used in certain departments where a limited number of puffs are required per patient, after which the inhaler has historically been disposed of with most medication wasted for example, in reversibility testing in paediatric spirometry and burst therapy in viral induced wheeze. pMDIs are important as part of assessments and care for viral induced wheeze, asthma, and chronic obstructive pulmonary disease, but the propellant required has significant carbon emissions; as an example, one ventolin inhaler is equivalent in carbon emissions to driving 175 miles[1]. We have a responsibility within UHS, as part of the NHS, to reduce our carbon emissions in line with the 'Delivering a Net Zero NHS'[2] & 'The Health & Care Act 2022'[3]; 'UHS Net Zero Pathway'[4], as part of our legal and ethical duty to today's patients, and patients of the future NHS.

# 4 Scope

The SOP is for use by any staff member who administers inhalers to a patient which will subsequently be used by another patient. This could include any MDI use in adult and paediatric spirometry, and in the Children's Emergency Department (CED) in relation to ipratropium treatment as part of the Wheeze Pathway[5]. It is the responsibility of the staff member administering the inhaler to the patient to follow the steps in this SOP.

# 5 Purpose

The aim of this SOP is to detail the process required to ensure appropriate cleaning of inhalers between every patient use, accurate record of administrations to ensure disposal of inhaler when it has been used, and weekly decontamination.

# 6 Definitions

ABHR: alcohol-based hand rub
CED: Children's Emergency Department
COPD: Children's Outpatients Department
pMDI: pressurised Metered Dose Inhaler
Spacer: device with mouthpiece at one end with one-way valve, and attachment for pMDI to make administration of inhaler medication easier and most effective

# 7 Inter-Patient and Terminal Cleaning Process

1. Hand hygiene is essential to reduce the transmission of infection prior to patient interaction, as per standard hand hygiene. Staff should decontaminate their hands with alcohol-based hand rub (ABHR) prior to inhaler administration.
2. Inhalers which will be administered to more than one patient must be administered via an age-appropriate spacer device. The spacer device is for use by a single patient only, and should remain with the patient and be taken home by them if they have ongoing pMDI use of any kind.
3. The staff member should connect the inhaler and administer the appropriate number of puffs through the spacer.
4. After administration, the staff member must disconnect the inhaler from the spacer.
5. The inhaler canister should be disconnected from the plastic inhaler casing, and both cleaned with a universal Clinnel wipe.
6. Allow the inhaler casing to air-dry, and then return to the drug cupboard with the canister, putting back in the inhaler box, and documenting the date and time of cleaning in the logbook.

7. Once a week, all inhalers in use in the department should have a terminal clean using Descogen powder. Clean hands using ABHR. Dissolve 15g of Descogen powder into 1L of cold water. Disconnect the inhaler canister from the casing and place the casing into the water and allow to soak for 15 minutes. After this time has passed, wash the casing with warm water and leave to dry fully before reassembling.
8. During the terminal clean, inspect the internal mechanism- if the hole from which the medication is emitted appears blocked, discard the inhaler if there is any concern of inadequate medication delivery.
9. Document date and time of terminal clean in logbook.

**Record of Use**
Record of patients using the inhaler will be required using a logbook without perforated pages, or an electronic record setup within the department. The approach to this may differ by department.

For CED:
1. In the logbook, record the date, name, and hospital number of the patient that the inhaler has been administered to.
2. After 7 patients have used one inhaler, it should be disposed of.

In CED, for safety it will be presumed number of puffs of ipratropium given is always for the upper age bracket (24 puffs as per PIER Viral Induced Wheeze & Acute Asthma Guideline[5]), therefore the inhaler will be disposed of after use by 7 patients. This will also allow a safety-net for accidental or test puffs in assembly.

For Children's Outpatients Department (COPD):
1. In the logbook, record the date, name of the patient and hospital number that the inhaler has been administered to.
2. Record number of puffs given in the logbook.
3. In COPD, the inhaler should be disposed once 180 puffs have been administered.

If multiple inhalers are in use at one time, they need to be clearly labelled (e.g., cycle of coloured dots/letters/numbers on the boxes and/or inhalers), and this correspond with label in the logbook to identify patients using that inhaler. The patient details must be documented at the time the inhaler is collected, prior to administration.

Each department must keep the logbook in a secure, locked area. Records should be kept for two years from the date of last entry If this SOP is adopted in other areas, a protocol for record of use specific to each department must be approved.

**Disposal**
When the inhaler is expected to be nearly fully used, it should be disposed of in the specific used inhaler collection bin. This is because propellant gas remains in the cannister after all medication has been delivered, therefore it is better to use an inhaler recycling scheme, or if this is unavailable to incinerate inhalers, than to dispose of in black waste bags, to reduce release of greenhouse gases into the atmosphere.

# 8 Implementation

All staff administering inhalers which will be used by more than one patient need to be familiar with this guideline. Specific training isn't required, as the cleaning techniques are already in use as standard aspects of cleaning and decontamination.

## 9 Roles and responsibilities

Senior nursing teams in departments applying this to be responsible for ensuring cleaning and logging of activities is appropriately recorded, and audit of this within the department.

## 10 Document review

All Trust policies will be subject to a specific minimum review period of one year; we do not expect policies to be reviewed more frequently than annually unless changes in legislation occur or new evidence becomes available. The maximum review period for policies is every three years. The author of the policy will decide an appropriate frequency of review between these boundaries.

Where a policy becomes subject to a partial review due to legislative or national guidance, but the majority of the content remains unchanged, the whole document will still need to be taken through the agreed process as described in this policy with highlighted changes.

This Cleaning Inhalers to Allow Multi-Patient Use with the Use of Individual Patient Spacers will be reviewed in three years (by end September 2026).

## 11 Process for monitoring compliance

The purpose of monitoring is to provide assurance that the agreed approach is being followed. This ensures that we get things right for patients, use resources well and protect our reputation. Our monitoring will therefore be proportionate, achievable and deal with specifics that can be assessed or measured.

Key aspects of this policy will be monitored:

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| Element to be monitored | Clean after each use and Weekly terminal clean |
| Lead (name/job title) | Charlotte Bruce- Senior Sister in Children's ED |
| Tool | Audit |
| Frequency | Weekly first month of implementation, and monthly thereafter |
| Reporting arrangements | Governance |

Where monitoring identifies deficiencies, action plans will be developed to address them.

## 12 References


1. Janson C, Henderson R, Löfdahl M, et al. Carbon footprint impact of the choice of inhalers for asthma and COPD. Thorax. 2020 Jan;75(1):82-84. doi: 10.1136/thoraxjnl-2019-213744.
2. Delivering a 'Net Zero' National Health Service. 2022. NHS England. https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2022/07/B1728-delivering-a-net-zero-nhs-july-2022.pdf
3. The Health & Care Act 2022
4. UHS Our Green Plan 2022 to 2025. University Hospital Southampton. https://www.uhs.nhs.uk/Media/UHS-website-2019/Docs/uhs-green-plan-2022-2025-1.pdf
5. PIER Network. Guidelines: Viral Induced Wheeze and Acute Asthma Treatment. Available at: https://www.piernetwork.org/wheeze-asthma.html


**Please reference if using document outside of UHS:**
**Southgate G, Crocker C and Harper S. 2024. 'Cleaning Inhalers to Allow Multi-Patient Use with the Use of Individual Patient Spacers'. University Hospital Southampton NHS Trust.**