Reducing Medication Waste

INHALER REUSE BETWEEN PATIENTS

In an effort to reduce unnecessary medication waste, many sites across Canada are piloting and implementing protocols to safely reuse inhalers between patients.

Metered dose inhalers (MDIs) produce significant greenhouse gas (GHG) emissions, which threaten respiratory heath. There are many opportunities from diagnosis to disposal to reduce these emissions while ensuring patients receive the medication they need; these are explored in the CASCADES inhaler resources.



Wasted inhaler doses is an ongoing inhaler-related sustainability challenge in care settings. After administering one or two doses from an inhaler to address patient symptoms, providers generally discard that inhaler...even though it may contain up to almost 200 more doses of medication!

Safely reusing inhalers between patients offers an important way to reduce unnecessary medication waste.

There are two main considerations when it comes to inhaler reuse between patients:

SAFETY

Reusing inhalers between patients may raise concerns about infection risk. Working with internal Infection Prevention and Control (IPAC) teams to develop inhaler reuse protocols can address these concerns.

QUANTITY

MDIs often lack dose counters, so protocols must be put in place to keep track of the amount of medication left in each inhaler. This can be done by keeping a tally of doses administered or weighing the inhaler.

Below, explore Canadian approaches, examples, and resources for inhaler reuse!

INHALER REUSE WEIGHT-BASED APPROACH

In Canada, many MDIs lack dose counters; both clinicians and patients are left unsure of how many doses remain in the inhaler or when the inhaler is empty. A research team from B.C. created a weight-dose equation to determine the number of doses remaining in several inhaler formulations. The associated inhaler weight-dose tool can help identify if an inhaler is safe for reuse or near empty based on inhaler weight data. See also:

- Weighing for Accuracy: Reducing Inhaler Waste and Misclassification in a Pulmonary Function Clinic
- Optimizing Dose Prediction: Weighing MDIs to Accurately Estimate Remaining Doses

The ability to calculate remaining doses can help providers across Canada set standard reuse limits to minimize medication waste, reduce costs, and prevent the use of empty inhalers.

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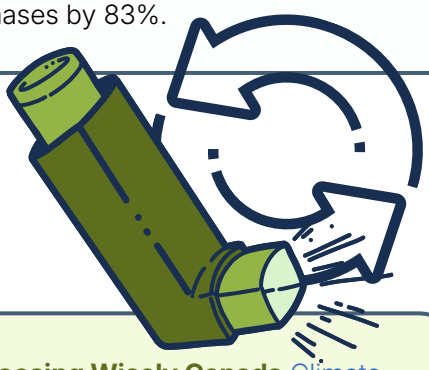
Canada

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SURREY MEMORIAL HOSPITAL (SMH), FRASER HEALTH, B.C.

At SMH, recognition of high waste from single-use inhaler practices prompted a pediatric inhaler reuse program in the **pediatric emergency department**. Inhalers are now safely reused between patients up to six times, with each device weighed, tracked, and disinfected between uses. This initiative is projected to reduce annual inhaler purchases by 83%.

- CASCADES Case Example: Reusing Ipratropium Inhalers at Surrey Memorial Hospital
- SMH Reusing Inhalers Project Poster
- SMH Ipratropium Inhaler Project Redispensing Chart
- SMH Ipratropium Inhaler Project Doses and Weight



Choosing Wisely Canada Climate-Conscious Recommendation #15, developed by the **Canadian Thoracic Society:** *"Don't discard inhalers after each patient use in the pulmonary function lab…rather inhalers should be disinfected and re-used until empty, and in consultation with local Infection Prevention and Control authorities."*

QUEBEC HEART AND LUNG INSTITUTE (IUCPQ), QUEBEC

IUCPQ introduced an MDI reuse policy for respiratory therapists working in **respiratory physiology departments**. Specific procedures are outlined in the policy for the safe reuse of inhalers for minor emergencies and respiratory physiology. Every dose administered by a respiratory therapist, including the doses for priming, are recorded on a dose count sheet; this is used to track the number of remaining doses for each inhaler.

- Procedure for the Reuse of Bronchodilator MDIs (fr)
- Recommendations for reusing MDIs in the Respiratory Department (fr)

Publications exploring wasted doses/inhaler reuse

- *Environmental Sustainability in Respiratory Care: Engagement among Canadian healthcare professionals* (Butler et al. 2026)
- *Health Technology Review: Strategies to Reduce the Environmental Impact of Metered-Dose Inhalers in Pulmonary Function Testing Labs* (CDA, 2026)
- *Pressurized Pandora's box: Characterization of dose waste, overuse and days of therapy lost in hospital-discarded inhalers* (Song et al. 2026)

CENTRE HOSPITALIER UNIVERSITAIRE (CHU) SAINTE-JUSTINE, QUEBEC

CHU Sainte-Justine developed an IPAC compliant protocol around safe reuse of MDIs in the **emergency department** and **pulmonary physiology laboratory**. The inhalers are weighed daily to estimate remaining doses. The spacers are reused and disinfected between patients; the same spacer undergoes up to 5 reprocessing cycles prior to replacement. The inhalers are safely reused until they reach the specified weight outlined in the policy (inhaler is disposed once canister weighs <13g). See the policy here (fr).

PETER LOUGHEED CENTRE (PLC), ALBERTA HEALTH SERVICES

A pilot project was implemented in PLC's **pulmonary function testing (PFT) lab** to reduce inhaler waste. Previously, a new MDI was used for every patient visit; upon completion of clinical tests, the MDI was discarded after only four doses, leaving about 98% of the medication unused. To address this, two initiatives were introduced:

- Allowing patients to bring their own inhalers
- Establishing a safe, IPAC compliant protocol to reuse inhalers across up to 50 patients using a disposable spacer made from paper

This multidisciplinary approach reduced the number of inhalers used per week from 23 to approximately 1.25, achieving a 95% reduction in waste and generating an estimated annual cost savings of $12,700, with plans for expansion to three additional PFT lab sites. Read more about these initiatives in the team's SUSQI Project Report, available on the Centre for Sustainable Healthcare's website.