

Low carbon inhalers: Choosing wisely for patients and the environment

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A modifiable contributor to healthcare-derived greenhouse gas (GHG) emissions is the **use of inhaled therapy** for respiratory conditions. Physicians prescribing inhalers may not always consider their environmental impact, making this an important area of intervention that could be scaled up across Canadian primary care.

Metered-dose inhalers (MDIs) favoured by **physicians and patients in North America** utilize a propellant that releases a small amount of GHGs with each dose. While individual doses have a negligible environmental impact, they cumulatively contribute to a **large GHG burden** when accounting for inhaler use across the population. Canadian data on inhaler emissions are presently unavailable, but UK data indicates that MDIs are the **largest single contributor** to the pharmaceutical-related release of GHGs. Substituting one MDI with a propellant-free dry powder inhaler (DPI) could save between **150-400kg of carbon emissions** annually and exchanging one in ten MDIs in the UK could be the **equivalent** of avoiding "180,000 return car journeys from London to Edinburgh".

The recently updated **Global Initiative for Asthma recommendations** makes this an opportune time for family physicians to reflect on their current practices and consider altering their prescribing patterns. Before prescribing an inhaler, we suggest practitioners to ask themselves the following three questions:

1. Was diagnosis confirmed with spirometry?

Asthma and COPD are often **diagnosed clinically** without the use of **objective testing**. To prevent overdiagnosis and reduce unnecessary treatment, Choosing Wisely Canada suggests that patients aged six and older **undergo spirometry testing**. This practice promotes resource stewardship and may also reduce GHG emissions from MDIs.

2. Were environmentally friendly alternatives considered?

Certain inhaled medications are available in both MDI and DPI formulations. A good example is the 250mcg Flovent inhaler, which is available in **both formulations at equivalent cost** in Ontario. Reusable **soft mist inhalers** with replaceable cartridges have also entered the market, providing another **eco-friendly MDI alternative** for Canadian primary care patients.

Where clinically appropriate, physicians can recommend the use of these lower-carbon alternatives if they align with patient preferences and desired clinical outcomes. When MDIs are the best and only option, an equivalent inhaler with a **decreased propellant load** - such as Airomir rather than Ventolin - can be offered.

3. Is proper inhaler technique used?

Patients using an inappropriate technique for actuation, inhalation, or exhalation may not receive the full therapeutic benefits of their medication and this may contribute to avoidable GHG release. To mitigate this problem, formulation-specific inhaler techniques may be taught by certified respiratory educators who specialize in patient education. Furthermore, a spacer or valved holding chamber may also be prescribed.

MDIs are a **popular and effective treatment option** for patients with respiratory conditions but have a large carbon footprint at the population level. While MDIs are still required in certain situations, lower-carbon alternatives such as DPIs and soft mist inhalers should be considered when consistent with patient choice and the clinical course. Primary care physicians can facilitate the uptake of these alternative options by introducing environmental principles into treatment discussions and advocating for the production of more sustainable

inhalers.

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