

# Pressurized metered-dose inhalers and their impact on climate change

Lee Fidler MD, Samantha Green MD, Kimberly Wintemute MD

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## 1 Pressurized metered-dose (pMDI) inhalers are an important contributor to greenhouse gas emissions

Hydrofluorocarbon propellants in pMDIs are responsible for roughly 0.03% of yearly global greenhouse gas emissions.<sup>1</sup> Prescriptions for pMDIs represent about 3% of total health care–related emissions from the United Kingdom’s National Health Service.<sup>2</sup> The carbon footprint from 1 pMDI (200 doses) is estimated as equivalent to a 290-km automobile ride.<sup>3</sup> Reducing pMDI prescriptions when appropriate could have a meaningful environmental impact.

## 2 Alternative inhalers with lower carbon impact are available

Dry powder and soft mist inhalers, both available as rapid reliever and maintenance therapies, are commonly used in the treatment of asthma and chronic obstructive pulmonary disease. Dry powder and soft mist inhalers contribute a lower carbon dioxide equivalency (< 20 g CO<sub>2</sub>e per inhalation) than pMDIs (about 100 g CO<sub>2</sub>e per inhalation).<sup>1</sup>

## 3 Dry powder and soft mist inhalers are effective and can have advantages over pMDI prescription

Compared with pMDIs, alternative inhaler devices show similar efficacy and are often preferred by patients.<sup>4–6</sup> The Canadian Thoracic Society guideline highlights reliever therapy with a budesonide-formoterol dry powder inhaler as an appropriate alternative to short-acting β-agonist pMDIs in select patients with asthma, including those with milder disease.<sup>7</sup> Using shared decision-making, physicians should counsel on the benefits and disadvantages of various inhalers, including their impact on climate change. Resources for implementing changes in inhaler prescriptions (i.e., posters, electronic medical record tools, patient letters), cost comparison charts and criteria for appropriate patient selection are publicly available.<sup>3</sup>

## 4 Prescribing only medically indicated inhaler treatment could substantially reduce carbon emissions

One-third of patients labelled as having asthma do not have asthma on objective testing.<sup>8</sup> In the absence of a confirmed diagnosis, avoiding unnecessary inhaler prescribing could substantially reduce emissions related to health systems.

## 5 Proper recycling and disposal of inhalers can reduce carbon dioxide emissions

Recycling inhalers through pharmacies as opposed to landfill disposal allows the reuse of plastic or aluminum components and reduces CO<sub>2</sub> production.<sup>3</sup>

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**Affiliations:** Sunnybrook Health Sciences Centre (Fidler); Department of Medicine (Fidler), University of Toronto; St. Michael’s Hospital Academic Family Health Team (Green); Department of Family & Community Medicine (Green, Wintemute), University of Toronto; North York General Hospital (Wintemute), Toronto, Ont.

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**Correspondence to:** Samantha Green, [samantha.green@unityhealth.to](mailto:samantha.green@unityhealth.to)