

# Asthma inhalers tied to large greenhouse gas emissions production

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Inhaler devices are a substantial source of greenhouse gas emissions in the United States, according to a research letter [published](#) online Aug. 29 in the *Journal of the American Medical Association*.

Jyothi Tirumalasetty, M.D., from the Stanford University School of Medicine in California, and colleagues assessed mean emissions in 2022 for U.S. brand-name inhalers (metered-dose, dry powder, and soft-mist classes) prescribed to Medicare Part D and Medicaid beneficiaries using [inhaler](#) claims and cost data extracted from the Centers for Medicare & Medicaid Services (CMS) summary and statistics database.

The researchers found that mean estimated emissions per inhaler by device class were 23.1 kg of carbon dioxide equivalent (CO<sub>2</sub>e) for metered-dose inhalers (14 inhalers), 0.79 kg CO<sub>2</sub>e for dry-powder inhalers (19 inhalers), and 0.78 kg CO<sub>2</sub>e for soft-mist inhalers (4 inhalers), with 10 kg CO<sub>2</sub>e equivalent to 41.2 km driven in an average gasoline-powered passenger vehicle.

The highest emissions per inhaler were seen for the [inhaled corticosteroid](#), long-acting β-agonist, metered-dose inhaler Dulera (mometasone/formoterol; 48.1 kg CO<sub>2</sub>e) versus an analogous inhaled corticosteroid, long-acting β-agonist, [dry-powder](#) inhaler Advair Diskus (fluticasone/salmeterol; 0.898 kg CO<sub>2</sub>e emissions per inhaler). For short-acting β-agonist medications, Ventolin HFA (albuterol sulfate) had the highest emissions (28.7 kg CO<sub>2</sub>e per inhaler).

Overall, there were 69.8 million CMS inhaler claims in 2022, resulting in an estimated 1.15 million metric tons of CO<sub>2</sub>e emissions, or the equivalent of 226,960 homes' yearly electricity use.

"Formulary choices that optimize clinical efficacy, [greenhouse gas emissions](#), and affordability may improve patient outcomes and reduce climate pollution," the authors write.

**More information:** Jyothi Tirumalasetty et al, Greenhouse Gas Emissions and Costs of Inhaler Devices in the US, *JAMA* (2024). [DOI: 10.1001/jama.2024.15331](https://doi.org/10.1001/jama.2024.15331)

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