

## **Audit of the Carbon Footprint of Inhalers in an Irish General Practice**

S. Owens, S. Garavaglia, E. Mc Dermott, M. Baxter, K. Whately, S. Maroof

Blackrock Medical Centre, Dundalk, Co. Louth, Ireland.

The climate crisis has been described by the Lancet as “biggest global health threat of the 21st century”<sup>1</sup>. There is a paradox in that the healthcare we provide may exacerbate the climate crisis; it is estimated the global healthcare has a carbon footprint that exceeds most Western countries. There is a paucity of literature showing how we can decarbonise healthcare. The most frequently employed therapeutics for respiratory are inhalers which vary in class, use and importantly carbon footprint. Multidose Inhalers (MDIs) contain hydrofluorocarbons which have a disproportionate effect on the carbon footprint of healthcare. The NHS estimates inhalers account for 3% of their entire carbon footprint and have identified inhaler prescribing as a target to achieve “net zero” by 2040. Soft Mist Inhalers (SMIs) and Dry Powder Inhalers (DPIs) do not contain hydrofluorocarbons and so have a fraction of the carbon footprint than MDIs<sup>2</sup>. The carbon footprint of inhalers prescribed in Ireland is not known nor is the potential carbon savings by switching to alternatives such as DPIs.

The number and type of prescribed inhalers in a mixed rural urban GP practice was determined retrospectively January – June 2020. An educational team intervention was performed aiming to switch MDIs to DPIs where appropriate, with patient counselling and consent and in line with best practice. Inhaler prescribing was re-audited July -December 2020 and the carbon equivalent difference estimated. Over the six months of the duration of the audit a potential saving of approximately 21, 448 kg of CO<sub>2</sub> was achieved.

Targeting inhaler prescribing offers the potential to significantly improve the carbon footprint of Irish healthcare. The carbon saved by changing MDIs to DPIs and SMIs in this audit is the equivalent of driving around the globe twice or charging almost 3 million smart phones<sup>3</sup>. DPIs and SMIs may also improve drug delivery, improve compliance, reduce waste and reduce costs associated with unscheduled care. Targeting inhaler prescribing offers the potential to significantly improve the carbon footprint of Irish healthcare and importantly these savings will continue on into the future. Reducing the carbon costs of inhalers offers healthcare a rare triple win; better health for the patient, better health for the planet, and monetary savings from improved disease management.

**Corresponding Author:**

S. Owens, GP  
Blackrock Medical Centre,  
Dundalk,  
Co. Louth,  
Ireland.  
seanpatrickowens@hotmail.com

**References:**

1. Watts N, Amann M, Ayeb-Karlsson S, Belesova K, Bouley T, Boykoff M et al. The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. *The Lancet*. 2018;391(10120):581-630.
2. Wilkinson A, Braggins R, Steinbach I, Smith J. Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England. *BMJ Open*. 2019;9(10):e028763.
3. Carbon Calculators :: Environmental Protection Agency, Ireland [Internet]. Epa.ie. 2021 [cited 9 February 2021]. Available from: <http://www.epa.ie/climate/calculators/>