

Reducing the climate change impact of inhalers: environmentally safe disposal

This PSNC Briefing is a training resource to meet the 2021/22 Pharmacy Quality Scheme requirement for all patient-facing pharmacy staff to have been trained on the reasons why used, unwanted and expired inhalers should be returned to the pharmacy for safe disposal and the adverse effects on the environment when inhalers are disposed of in domestic waste.

What is the issue?

- There is an urgent need to **reduce global greenhouse gas emissions**.
- The NHS is working to **reduce its carbon footprint to net zero by 2040**, with an ambition to reach an 80% reduction by 2028 to 2032.
- **Medicines** account for **25% of emissions within the NHS**. A small number of medicines account for a large portion of the emissions with **inhalers making up 3%** of them.
- Asthma and COPD are two of the most common health conditions, with several million people in England using inhalers to manage their condition.
- In England, more than **65 million inhalers are prescribed every year**, with the most frequently prescribed being pressurised Metered Dose Inhalers (pMDIs) and Dry Powder Inhalers.
- pMDIs currently use **hydrofluorocarbon gases** (HFCs or ‘F-gases’) as propellants.
- When released from the inhaler, HFCs remain in the atmosphere for approximately **270 years** and they are **potent greenhouse gases** between **1,300 and 3,350 times greater** than CO₂.
- While inhalers also include plastics and metals, analysis has shown that **96% of the climate change impact of inhalers is from the emissions of these gases**.
- When used pMDIs are **disposed of in domestic waste, the residual HFCs are likely to be released into the atmosphere** due to them being crushed in the back of refuse lorries or when they are eventually disposed of via landfill.



How big a problem is it?

- It has been estimated that the impact of the HFCs released each year in England from inhaler use is **equivalent to around 850,000 tonnes of carbon emissions**.
- That is **equivalent to the carbon emissions from all NHS road mileage**



in England, including business travel and emergency vehicles.

- A typical pMDI with 10g of propellant can have a carbon footprint of 13-33kg depending on the type of propellant. This is **equivalent to driving an average car 45-115 miles**.
- Used inhalers typically have **30% of the original propellant remaining** in the canister.

What is being done about this?

- The NHS wants to increase the frequency of the **greener disposal of used inhalers**.
- While residual propellant gases in inhalers can be extracted, cleaned and reused in industrial equipment, such as air conditioning systems, they are being phased out of use in most applications because of their environmental impacts.
- Inhalers returned to pharmacies for safe disposal will be **incinerated at high temperature** by NHS England and NHS Improvement's waste contractor. This process **destroys the propellant gases**, so they don't escape into the atmosphere. Steel and aluminium from inhaler canisters may be recovered and recycled at some incinerators.
- The NHS is also taking other actions, such as **offering patients alternative, lower carbon inhalers**, where clinically appropriate and **supporting people to use their inhalers properly**.
- The pharmaceutical industry is **developing new propellants** with less impact on climate change.



How can pharmacy teams help to tackle this issue?

- Pharmacy teams can **take a lead in educating patients** who use inhalers **about the environmental benefits of returning their inhalers** to the pharmacy for disposal, rather than putting them in their domestic refuse.
- This advice applies to **all inhaler types**, as it is easier to get the public to change their behaviour, if the message is simple – bring back your old inhalers for safe disposal.
- The 2021/22 Pharmacy Quality Scheme includes a requirement for pharmacy teams to speak with all patients, their carer or representatives, who have been dispensed an inhaler between 1st September 2021 to 31st January 2022, about returning all unwanted and used inhaler devices to a pharmacy for safe and environmentally friendly disposal.
- A briefing sheet can be downloaded from the [PSNC website](https://www.psnco.org.uk) to use when talking to patients, their carers or representatives.

