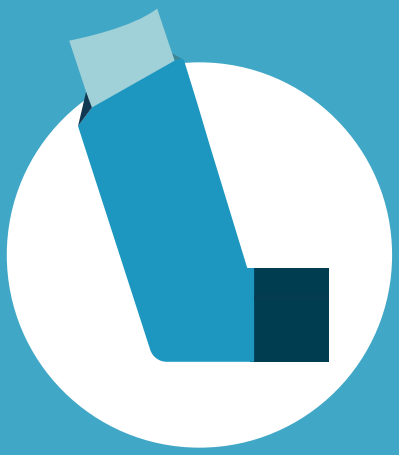
CLINICIANS

NHS Sussex

Your guide to inhalers that are better for the environment

What are the options and why do we need to make the switch?

care WITHOUT CARBON



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Introduction

Welcome and thank you for taking the time to find out more about the value in swapping inhaler devices for lower carbon alternatives.
You may be aware that NHS Sussex, in line with national requirements, has developed a regional plan called Together to Zero to ensure we meet the NHS England target of Net Zero Carbon by 2040. Over 70% of the carbon footprint of healthcare comes from the medicines and medical equipment we provide to our patients and the delivery of care. Therefore, we need to target this area for action.

Inhaler use contributes significantly to the carbon footprint of healthcare and addressing it has been identified locally and nationally as a priority action. This booklet is designed to help inform and guide your practice, to help target the use of Metered Dose Inhalers, and encourage a switch to less carbon intensive alternatives. It also looks at the importance of asthma reviews, inhaler technique and sustainable disposal at end of use.

With your help we can begin to bring down our carbon footprint and with it the risk of accelerating the climate crisis which is impacting the health of everyone.

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Why are we asking you to make this switch?

Climate change poses a major threat to our health as well as our planet. The environment is changing, and this has direct and immediate consequences for our patients, the public and the NHS.

NHS England has set a target for all NHS organisations to reach Net Zero Carbon by 2040. Within the public sector the NHS accounts for 40% of the national carbon footprint.

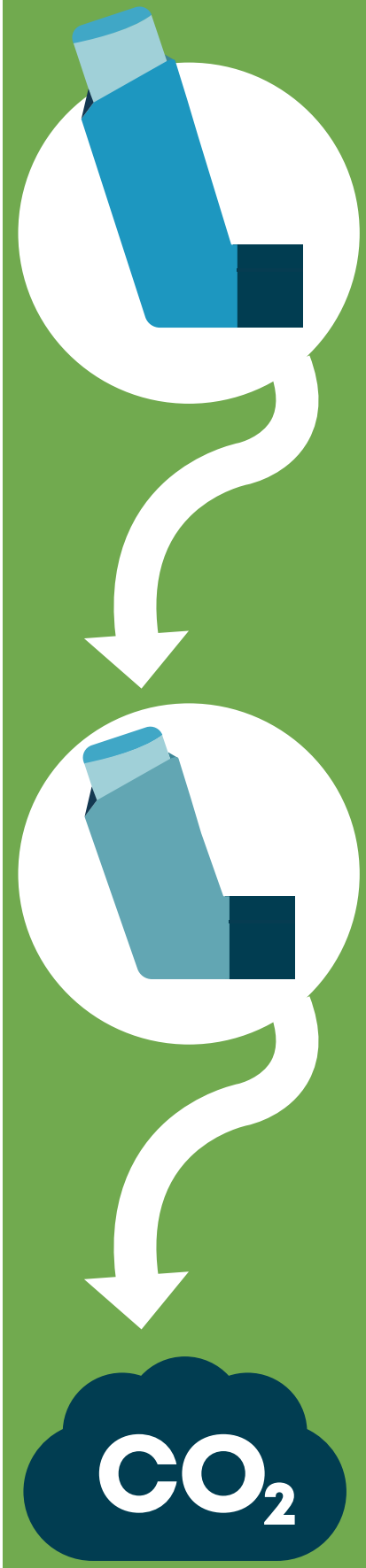
Currently 4% of the NHS carbon footprint comes from pressurised Metered Dose Inhalers (pMDI). Within Primary Care that increases to an astounding 25% of the carbon footprint.

In Sussex alone we prescribe about 1.3 million inhalers a year and 73% are pMDIs. This creates over 20,000 tonnes of carbon emissions every year which is the equivalent of the energy used in one year for 2,500 homes.

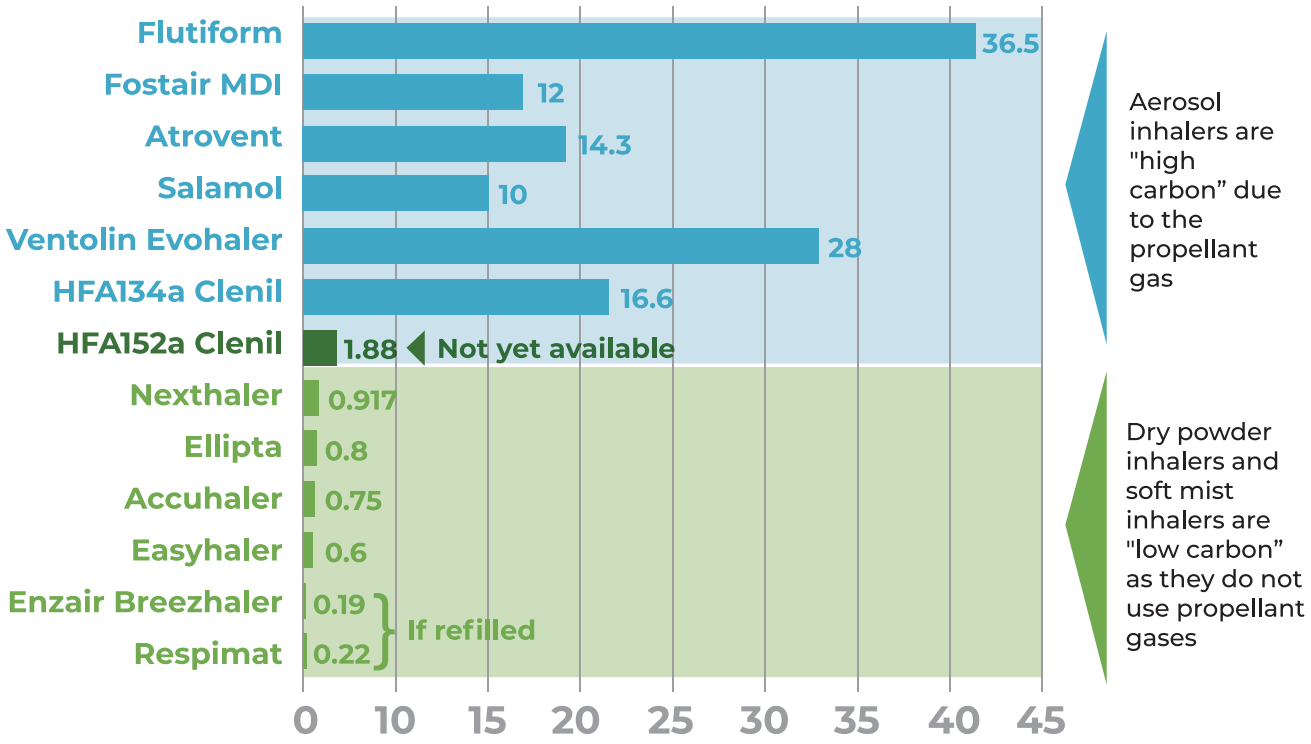
It is the propellant in pMDIs that contains a harmful greenhouse gas, which is significantly more potent than carbon in the damage it does to our environment. Breath Actuated Inhalers (BAI) also contain this damaging propellant (e.g. autohaler and easi-breathe devices).

While pharmaceutical companies are looking at changing the propellant used in their inhaler(s) to reduce the carbon impact, it will be 2027 before new pMDI products are likely to reach market.

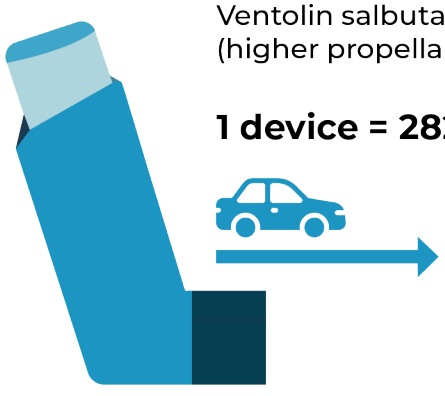
Dry Powder Inhalers (DPI) do not have this propellant and therefore are a more carbon friendly alternative to pMDIs/ BAIs. If we can get more patients using DPIs, or Soft Mist Inhalers (SMI) (e.g respimat devices), then we can reduce the 25% which inhalers currently contribute to the Primary Care carbon footprint.



Carbon footprint of various inhalers in kg CO_2e per device or per month



The most common pMDI in the UK is a Ventolin Evohaler. The full use of just one inhaler has a carbon footprint equivalent to driving from London to Sheffield.



Ventolin salbutamol MDI inhaler (higher propellant volume)

1 device = 282km

Salamol salbutamol MDI inhaler (lower propellant volume)

1 device = 100km

The importance of a conversation

Choosing or switching an inhaler device should be a shared decision between patients and clinicians. There should be no change of device without a conversation with the patient and without clearly checking their inhaler technique. Questions to consider before making a switch and when talking with an asthma or COPD patient about their treatment:

- Does the patient have the correct diagnosis?
- Is their disease control optimal?
- Are they on the most appropriate device that they can and will use and have they been offered a low carbon inhaler?
- To take an MDI a patient must inhale slowly and steadily for 3-5 seconds
- To take a DPI a patient must inhale deeply and quickly over 2-3 seconds
- Do they know how to dispose of their inhaler?

These questions will ensure that the switch is both an improvement in care for the patient and better for the environment.

Do patients want to switch?

Asthma UK conduct an annual survey of asthma sufferers and in 2020 found:

- Keeping control of asthma is a persistent challenge, with 2.17 million people estimated to have uncontrolled asthma in the UK. This is particularly a challenge for younger people and for those on lower incomes.
- People with asthma value face-to-face appointments for their annual reviews.

These findings indicate that people with asthma do want to have support to better manage their symptoms.

Surrey and Sussex Integrated Care Systems (ICS) conducted a joint piece of research into patient views on more sustainable healthcare surveying and interviewing over 800 patients across both regions.

- 59% of respondents agreed that climate change is impacting health right now in the UK and something needs to change to tackle it. 66% agree that the NHS can play a part in reducing carbon emissions.
- 78% of respondents were in favour of switching to lower carbon medicines that are equally effective which strongly supports the switch to lower carbon inhalers.

In the in-depth interviews patients said they needed to be reassured that any medicine switches for lower carbon alternatives would not impact their care and they could take the medicine in the same way so having a good conversation with your patient about making a switch is essential.

How to reduce use of pMDIs and inhaler waste

Use this table with a hierarchy of actions to guide your approach to inhaler use. Start with Level One actions to try and reduce need for an inhaler at all then work down hierarchy.

	Action	Approach	Benefits
Level One Try to reduce the need for reliever inhalers	Improve patient management of asthma.	Review treatment , educate and encourage regular ICS treatment.	Better control, less symptoms and reduced use of reliever MDIs and related carbon footprint.
	Improve patient management of COPD.	Prioritise smoking cessation, exercise promotion and pulmonary rehabilitation, flu immunisation. Add in regular long acting bronchodilators.	Preventive interventions are proven to be more cost-effective treatments than inhalers. Regular long-acting bronchodilators should be the mainstay of drug treatment in COPD.
Level Two Try to ensure people get the best from their inhalers	Ensure all inhalers are used with correct technique for greater effectiveness.	Assess and teach. Encourage use of online video tutorials such as those on Rightbreathe and Asthma UK.	A better managed condition, reduced waste, more effective use of inhalers and therefore reduced inhaler use.
	Increase the interval between Salbutamol inhalers on repeats	Speak with your patient at their next asthma review appointment and ideally agree a longer interval between when Salbutamol inhalers are ordered on repeats or the number of Salbutamol's per prescription.	Reduces the total amount of Salbutamol inhalers each year that are prescribed automatically and may not be needed.
	When pMDIs are used- make optimal use of spacers to increase clinical effectiveness	Encourage all patients using pMDIs to use spacers when at home. Build into treatment review processes.	Increases lung deposition and reduces oral deposition of drug resulting more effective use of the drug which enable a better supported condition and reduced inhaler use.
Level Three Try to ensure people use the lowest carbon inhaler possible	Where possible, if prescribing an inhaler choose those with minimal carbon footprint such as a DPI.	Talk with the patient about the options available based on their condition and abilities.	Increase of use of DPI inhalers with a big reduction in carbon emissions.
	Where possible, if prescribing SABA relievers choose those with minimal carbon footprint	Ventolin Accuhaler '200' or Salbutamol easyhaler have a 20–30 times smaller carbon footprint than Ventolin Evohaler '100' for equivalent dosage. Salamol pMDI inhaler although a pMDI contains half as much propellant as Ventolin pMDI inhaler for equivalent dosage.	Lower carbon footprint for MDI use
Level Four Try to ensure inhaler waste is minimised	Ensure pMDIs are not discarded before they are empty	Ensure patients know how many doses their pMDI contains when new, especially if the inhaler lacks a dose counter.	Studies show inhalers are frequently discarded half full. Reducing this level of drug waste is good for respecting resources and carbon emissions.
	Promote responsible disposal of inhalers	Encourage patients to return used inhalers to local pharmacies where they can be incinerated	Inhalers returned in medical waste are incinerated. Thermal degradation converts the HFAs into products with far lower greenhouse effect.

Guidance on inhaler swaps

Original Inhaler (MDI)	Option 1	Option 2
Ventolin MDI 100mcg/dose (Salbutamol) 2 puffs prn	Salamol pMDI 100mcg/dose CFC free (Salbutamol) 2 puffs prn	Easyhaler Salbutamol 100 mcg DPI 2 puffs prn Or Ventolin Accuhaler 200mcg DPI 1 puff prn
Clenil modulite 50mcg 2 puffs bd (beclometasone)	Easyhaler Budesonide 100 mcg 1 puff bd	Pulmicort Turbohaler 100 1 puff bd (budesonide)
Clenil modulite 100mcg 2 puffs bd (beclometasone)	Easyhaler Budesonide 100 mcg 2 puffs bd Or Easyhaler Budesonide 200 mcg 1 puff bd	Pulmicort Turbohaler 100mcg 2 puffs bd (budesonide)
Clenil modulite 100mcg 2 puffs bd (beclometasone)	Easyhaler Budesonide 200mcg 2 puffs bd	Pulmicort Turbohaler 200mcg 2 puffs bd (budesonide)
Fostair pMDI (extrafine Beclometasone+ Formoterol)	Fostair Nexthaler (extrafine Beclometasone+ Formoterol)	
Flutiform 5 / 50mcg 2 puffs bd (Fluticasone prop & Formoterol)	Fostair 100/6 mcg Nexthaler 1 puff bd (Extrafine Beclometasone+ Formoterol)	Seretide 100/50mcg Accuhaler 1 puff bd (Fluticasone prop & salmeterol)
Flutiform 5 / 125mcg 2 puffs bd (Fluticasone prop & Formoterol)	Fostair 100/6mcg Nexthaler 2 puffs bd (Extrafine Beclometasone+ Formoterol)	Relvar Ellipta 92/22 1 puff OD (Fluticasone furoate and Vilanterol)
Flutiform 10 / 250mcg 2 puffs bd (Fluticasone prop & Formoterol)	Fostair 200/6 mcg Nexthaler 2 puffs bd (Extrafine Beclometasone+ Formoterol)	Relvar Ellipta 184/22 1 puff OD (Fluticasone furoate and Vilanterol)
Symbicort MDI 100/3mcg 2 puffs bd (budesonide & formoterol)	Symbicort Turbohaler 200/6mcg 1 puff bd (budesonide & formoterol)	
Symbicort MDI 100/3mcg 4 puffs bd (budesonide & formoterol)	Symbicort Turbohaler 200/6mcg 2 puffs bd (budesonide & formoterol)	

Additional information can be found online at: http://int.sussex.ics.nhs.uk/inhalers-the-environmental-effect/