

The environmental impact of inhalers

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BSW CCG 14/07/2021

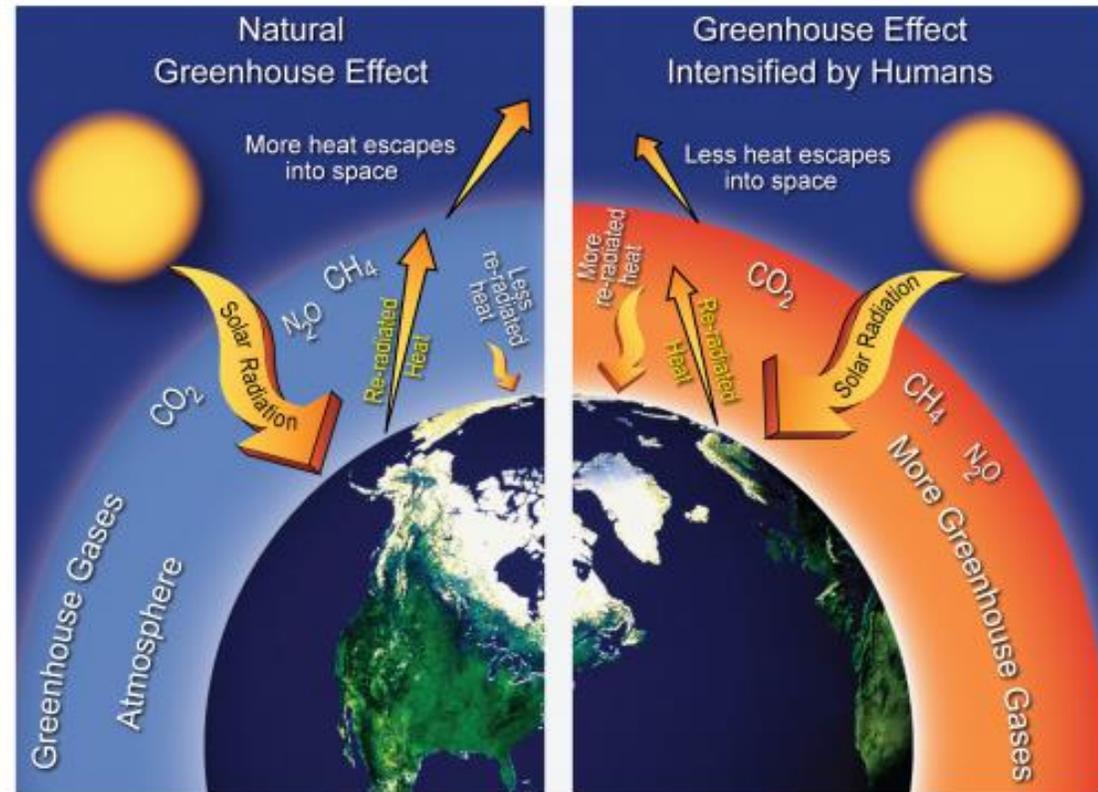


The problem

Global warming occurs when carbon dioxide and other air pollutants and greenhouse gases collect in the atmosphere and absorb sunlight and solar radiation that have bounced off the Earth's surface. This trapped heat can cause the planet to get hotter. This is known as the greenhouse effect.

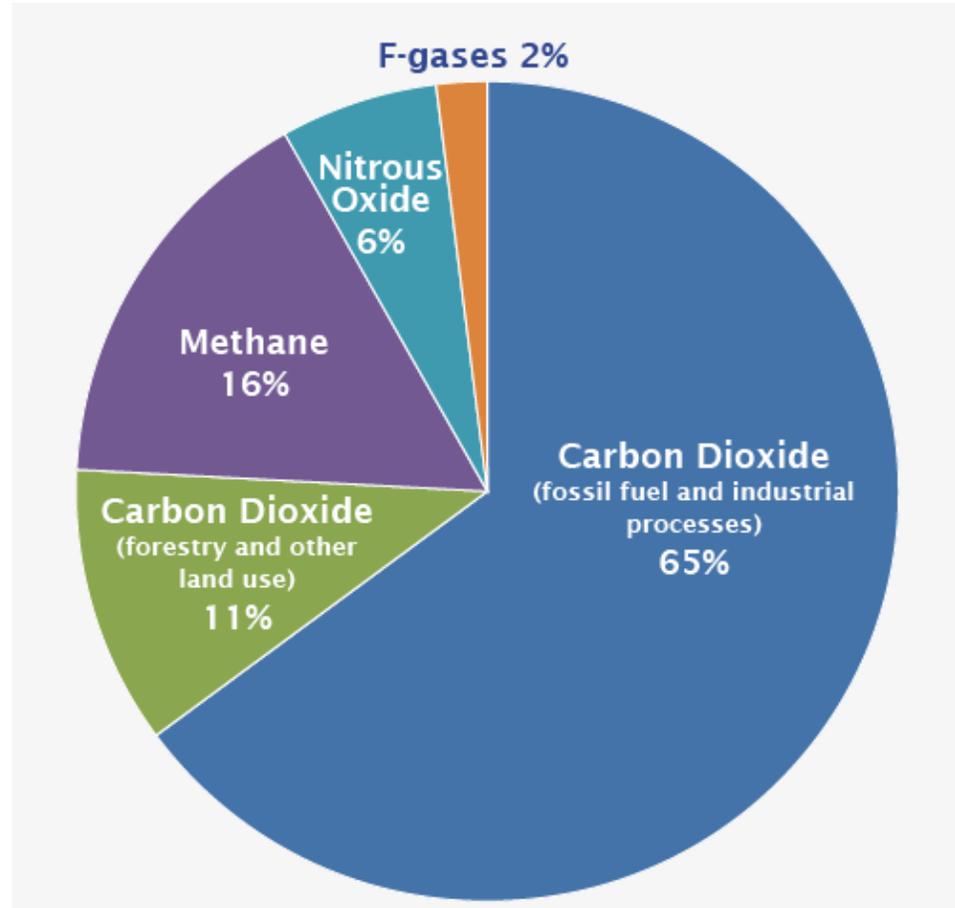
<https://www.globalchange.gov/browse/multimedia/human-influence-greenhouse-effect>

Human Influence on the Greenhouse Effect



Global greenhouse gas emissions by gas

- <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>



What are F-gases

- **Fluorinated gases ('F-gases')** are a family of man-made gases used in a range of industrial applications.
- F-gases are often used as substitutes for ozone-depleting substances, because they do not damage the atmospheric ozone layer. However, F-gases are powerful greenhouse gases, with a global warming effect up to 23 000 times greater than carbon dioxide (CO₂), and their emissions are rising strongly.
- Hydrofluorocarbons (HFCs) are used in various sectors and applications, such as refrigerants in refrigeration, air-conditioning and heat pump equipment; as blowing agents for foams; as solvents; and in fire extinguishers and aerosols.
- Perfluorocarbons (PFCs) are typically used in the electronics sector (for example for plasma cleaning of silicon wafers) as well as in the cosmetic and pharmaceutical industry. In the past PFCs were also used in fire extinguishers and can still be found in older fire protection systems.
- Sulphur hexafluoride (SF₆) is used mainly as an insulating gas, in high voltage switchgear and in the production of magnesium and aluminium.
- Metered dose **inhalers** (MDIs) **use F-gases** (HFA-134a and HFA-227ea) as propellants, and account for around 1 MtCO₂e of annual emissions in the **UK**.

https://ec.europa.eu/clima/policies/f-gas_en

<https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-F-gases.pdf>

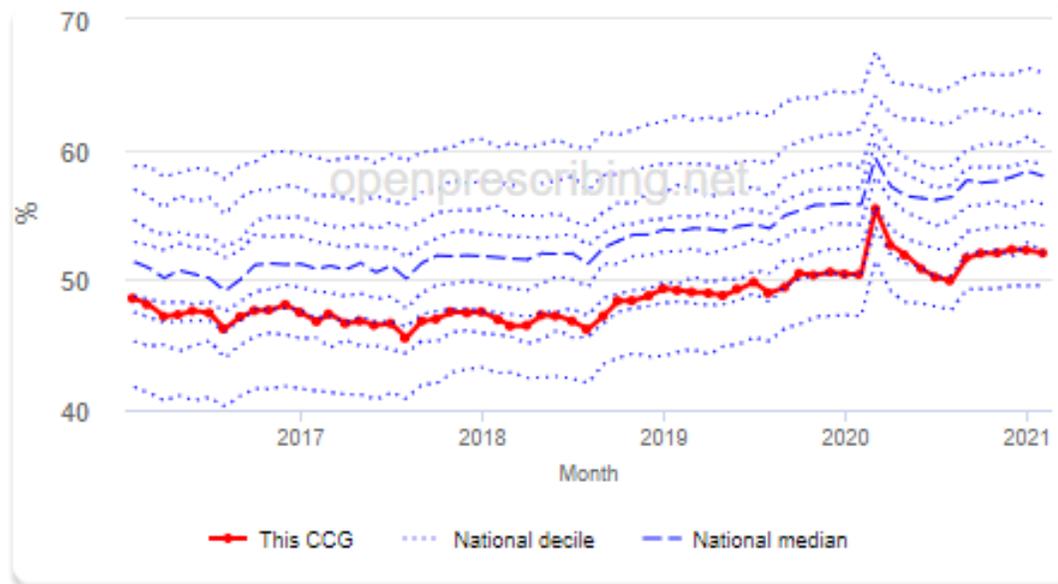
The ask

<https://www.longtermplan.nhs.uk/>
<https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/469/46905.htm>

- The NHS has committed to reducing its carbon footprint by 51% by 2025 to meet the target in the Climate Change Act, including a shift to Dry Powder Inhalers (DPI) to deliver a reduction of 4%. DPIs are less harmful to the environment than traditional metered dose inhalers (MDIs) and the NHS long term plan supports the use of DPI where it is clinically appropriate.
- The Environmental Audit Committee of the UK Parliament has issued a directive that by at least 50% of prescribed inhalers should have a low global warming potential (GWP)

Environmental Impact of Inhalers

MDIs prescribed as a proportion of all inhalers in BNF Chapter 3, excluding salbutamol



- https://openprescribing.net/measure/environmental_inhalers/ccg/92/G/

Top 10 Presentations contributing to variation in BSW CCG

Presentation	Items	Quantity	Cost
Fostair 100micrograms/dose / 6micrograms/dose inhaler	12,514	15,254	£416,380.48
Clenil Modulite 100micrograms/dose inhaler	9,784	11,339	£78,410.95
Generic Trimbaw 87micrograms/dose / 5micrograms/dose / 9micrograms/dose inhaler	4,311	4,803	£198,966.38
Fostair 200micrograms/dose / 6micrograms/dose inhaler	3,142	3,661	£99,931.41
Clenil Modulite 50micrograms/dose inhaler	2,989	3,409	£11,772.74
Sirdupla 25micrograms/dose / 125micrograms/dose inhaler	2,973	3,943	£82,416.62
Seretide 50 Evohaler	2,786	3,774	£61,357.85
Sirdupla 25micrograms/dose / 250micrograms/dose inhaler	1,799	2,273	£59,929.56
Seretide 125 Evohaler	1,679	2,161	£47,179.66
Clenil Modulite 200micrograms/dose inhaler	1,364	1,570	£23,642.30

- https://openprescribing.net/measure/environmental_inhalers/ccg/92

Easy switch?

- Licensing issues (especially in children)
- Inhaler technique (especially children, elderly, those with dexterity and cognitive problems – need spacer)
- Inspiratory flow (this might be different when patients are well and when experiencing an exacerbation)
- DPI alternatives are available, however is important that we do not restrict inhaler choice and risk patient harm from worse outcomes or deterioration in stable patients. BSW CCG support the Primary Care Respiratory Society statement which does not advocate ‘blanket switching’ of patients from MDIs to DPIs as this could be detrimental to patients needing to use inhalers in emergencies or when their control is poor. Any decisions about inhaler choice should be made on an individual basis with the support of a healthcare professional.

Suggested ways to reduce inhaler carbon footprint

(BSW CCG guidance on the environmental impact of inhalers is being written and will be shared when approved)

- Improve asthma control and reduce patient reliance on SABA
- Optimise inhaler technique and spacer use if needing pMDI
- Improve COPD control (remember fundamentals of COPD care) and reduce SABA use
- Use combination inhalers where one is available
- Monitor inhaler prescription requests – reduce overordering and waste
- Increase utilisation of reusable inhalers or their components
- Choose the most environmentally friendly inhaler where suitable
- Return empty inhalers to pharmacies for recycling where available or for safe disposal

Where to signpost patients for information?

NICE produced a patient decision aid to help patients decide which inhaler they would prefer. Page 12 contains information on carbon footprint.

<https://www.nice.org.uk/guidance/ng80/resources/inhalers-for-asthma-patient-decision-aid-pdf-6727144573>

The [British Thoracic Society Guidelines](#) for asthma have supportive statements advocating the use of devices with lower environmental impact if they are of equal efficacy.

Charitable organisations such as the British Lung Foundation have [patient-friendly information](#) that you could refer patients to.

Greeninhaler.org is a very useful patient-friendly website explaining the issue around the carbon footprint of inhalers and contains some practical tips and resources.

BSW CCG patient information leaflet on environmental impact of inhalers

Improve asthma control and reduce patient reliance on SABA – Incentive scheme

A. Quality improvement

- Relevant staff to attend CCG education session via webinar. One educational session will be presented for nurses/prescribers performing reviews and one for support staff. A minimum of one person from clinical team and one from support team per practice to attend relevant webinar (this will also be recorded so you can cascade to the whole team).
- Report on what changes have been made as a result of attending the session to improve quality of prescribing/repeat prescribing in this area.

A. Prescribing Reviews

- Improvement in asthma control demonstrated by the reduction in SABA prescribing/evidence of reviews.
- Prioritise for annual asthma review those who received ≥ 6 SABA inhalers in the last 12 months. Search and output available in TPP or can use Eclipse when available to identify patients. Search to be broken down by number of SABA prescribed in previous 12m. Practices are expected to review 10% of their asthma list size in order from highest to lowest number of SABA issued in previous 12m.

How many SABA inhalers are too many?

Asthma Slide Rule

1. Questions for prescriber to ask themselves and a person with asthma

Using this slide rule, how much short-acting beta₂ agonist (SABA) also known as reliever/rescue/salbutamol/'blue' inhaler would you think was acceptable for a person with asthma to take in a year, week or day before you thought a review was necessary? What made you choose that?

	Increasing SABA use											
Number of SABA inhalers Rx per year	1	2	3	4	5	6	7	8	9	10	11	12
Puffs of SABA used per year*	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400
Puffs of SABA used per week	4	8	12	15	19	23	27	31	35	39	42	46
Puffs of SABA used per day	< 1	1	2	2	3	>3	4	>4	5	6	>6	7
	Symptoms											

*Some devices do not contain 200 puffs. Check the number in the devices you prescribe/dispense or use, and modify these messages accordingly

Suggestion: Try asking a person with asthma the following question before asking question 1 :

'In the past 4 weeks, how often have you used your reliever/blue inhaler each day?'

Asthma Right Care Guidance Notes available at www.pcrs-uk.org/asthmarightcare

GB-13611 Date Of Prep - Aug 2018



Background and expectations

Over-prescribing of short-acting reliever inhalers - **Using a reliever inhaler three or more times a week is a strong sign of poor asthma control and a predictor of future asthma attacks.**

The NRAD¹ report found evidence of overuse of or over-reliance on Short-Acting Beta-Agonist (SABA) inhalers. From prescribing data on 165 patients, 92 **(56%) were prescribed more than SIX and 65 (39%) more than TWELVE SABA inhalers in the year before they died.** Six patients (4%) had been prescribed more than 50 SABA inhalers in the previous year.

A SystmONE search and output has been provided to help focus on finding patients who have been prescribed ≥ 6 SABA inhalers in the last 12 months.

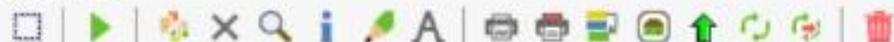
The expectation is that you call these patients in for an urgent asthma review or prioritise these patients for an annual asthma review. To qualify for payment, you will have to review 10% of your asthma list size in order from highest to lowest SABA users. Detailed SystmONE guide with screenshots will be sent out for you to help you prioritise the patients in order from highest to lowest SABA users.

Emis practices – we have not got Emis access – please get in touch individually if you need help.



- Local Reports (6087)
 - Arden's Ltd (29658)
 - Arden's Ltd Referrals (1)
 - Medicines Management Wiltshire (11)
 - Swindon + Wiltshire CCG sharing expertise (1)
 - Wiltshire CCG (Trust Group) (598)
 - Wiltshire CCG Anonymised Reporting (21)
 - Wiltshire Meds Management Reporting (700)
 - Dementia 2018 (1)
 - Dementia 2020 (1)
 - Marco trial searches (4)
 - Medicines Management Team (5)
 - Meds Optimisation Team 2020
 - 2020 Cost savings (77)
 - Anticholinergic burden (11)
 - Asthma (3)
 - B12 optimisation (7)
 - COPD (3)

Asthma



Name

BF COPD pts

more than 5 SABA in 12m

SABA OVERUSE Six or more SABA in past 12m NO COPD coded

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Close Send Information To TPP Refresh

Report Results: SABA OVERUSE Six or more SABA in past 12m NO COPD coded (Me

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Patient Count

- ^ 📄 SABA OVERUSE Six or more SABA in past 12m NO COPD coded (Meds Optimisation Team 2)
 - Derive a breakdown option
 - Item Count
 - Percentage of the total
 - ▼ → Current Referrals In
 - ▼ 👤 Demographics
 - ▼ 📄 Record Sharing
 - ▼ 📄 Registration
 - ▼ 📄 Relationship
 - ▼ 📄 Risk Factors
 - ▼ 📄 Strategic Reporting ID
- ^ 📄 more than 5 SABA in 12m (Meds Optimisation Team 2)
 - ▼ → Current Referrals In
 - ▼ 👤 Demographics
 - ^ 🕒 Event Details (1)
 - Event count
 - ▼ 📄 Record Sharing
 - ▼ 📄 Relationship
 - ▼ 📄 Strategic Reporting ID

Close Send Information To TPP Refresh

- ^ SABA OVERUSE Six or more SABA in past 12m NO COPD coded (Meds Optimisation Team 2)
 - Derive a breakdown option
 - Item Count
 - Percentage of the total
 - ^ Current Referrals In
 - ^ Demographics
 - ^ Record Sharing
 - ^ Registration
 - ^ Relationship
 - ^ Risk Factors
 - ^ Strategic Reporting ID
- ^ more than 5 SABA in 12m (Meds Optimisation Team 2)
 - ^ Current Referrals In
 - ^ Demographics
 - ^ Event Details (1)
 - Event count
 - ^ Record Sharing
 - ^ Relationship
 - ^ Strategic Reporting ID

Report Results: SABA OVERUSE Six or more SABA in past 12m NO COPD coded (Meds Optimisation Team 2)

more than 5 SABA in 12m: Event count ^ Patient Count

more than 5 SABA in 12m: Event count ^	Patient Count
15	1
13	
12	
11	
10	
9	
8	16
7	15
6	28

- Show Patients
- Actions >
- Table >

0 Rows

Showing 16 result(s) (16 patient(s)): SABA OVERUSE Six or more SABA in past 12m NO COPD coded (Meds Optimisation Team 2020 / Asthma)

more than 5 SABA ...	Organisation name	NHS number	Title	First name	Surname	Sex	Date of birth	Age i...	Address
8	Abbey Meads Medical Gro...								
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8	Abbey Meads Medical Gro...								

Select Report Output

Default report output

Ad-hoc report output

Pre-defined report output

Name	Active	Availability
Learning Disability	<input type="checkbox"/>	Swindon Hub
Diabetes 3TT - cholesterol >5	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
Diabetes 3TT - BP >140/80	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
Potential BTS high dose ICS in adult	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
Q1 Swindon CCG PIS 201920	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
Asthma SABA overuse	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
COVID-19 for AccuRx	<input checked="" type="checkbox"/>	Arden's Ltd
Tripple therapy patients	<input checked="" type="checkbox"/>	Swindon CCG Medicines ..
End of Life	<input type="checkbox"/>	Arden's Ltd
Lithium Letters Received	<input checked="" type="checkbox"/>	Organisation Specific
Stroke Letters Received	<input checked="" type="checkbox"/>	Organisation Specific
Shingles Invites	<input checked="" type="checkbox"/>	Organisation Specific
Diabetes 3TTs - HbA1c >7.5	<input type="checkbox"/>	Unavailable until publishec
Diabetes 3TT cholesterol >5	<input type="checkbox"/>	Unavailable until publishec
Diabetes 3TTs BP above 140/80	<input type="checkbox"/>	Unavailable until publishec

New pre-defined report output

Ok Cancel

Name	DOB	NHS number	SABA	Number of times bronchodilator used in one week as coded at last review	SABA use as recorded at last review	ICS	Dose	ICS	Last issue of	ACT recorded date	ACT/ ACT child score	Last Asthma Annual review date	Number of asthma exacerbations in past year	Number of exacerbations past 12m recorded on date
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Virtual review of notes

Review the patient's asthma medication. Assess adherence and whether the medication is optimal. Use the questions below to aid your assessment.

- Start by reviewing the prescription ordering for the reliever inhaler over the last 12 months (Repeat as well as acute).
- Is this a reflection of poor asthma control or is the patient stockpiling/wasting inhalers? - Please address with patient education.
- Review the prescription ordering for the preventer inhaler – is the patient compliant with treatment?
- Look to see whether the patient has had an asthma review in the last 12 months.
- Has the patient been provided with a Personal Asthma Action Plan (PAAP) or Asthma self-management plan?
- Is the patient's medication optimal? Has MART regime been considered if appropriate?
- Is the patient's asthma medication in line with current guidelines?

Book patient in for an asthma review

- Appropriate clinician to review patient after initial virtual assessment. This can be done as part of their annual asthma reviews.
- Inhaler technique – check and re-train if needed.
- Patient education and self management plan.
- Discuss compliance.
- Consider if patient is receiving adequate treatment – consider stepping up treatment or MART regime as appropriate and if needed.
- Consider if referral is needed.
- Arrange follow-up as appropriate.

Results to report by 31/03/2022

	Number identified by provided SystemONE/Emis search	Number of patients reviewed
≥ 6 SABA inhalers in the last 12 months		
Outcome of reviews		
Total number of patients that had a change in their treatment as a result of this audit		
Total number of patients that were referred to a secondary care specialist		
Total number of patients that had no changes made to their treatment and the reason		
Unable to make contact with the patient to arrange asthma review		
Already at maximum therapy – awaiting secondary care review		
Other – please specify		
Practice learning from audit		
Please comment on any lessons learnt from this audit, any changes in practice and any feedback about the project.		