Joined Up Care Derbyshire

Greener Inhaler Strategy

July 2022

NHS

The Derbyshire VCSE sector Alliance

Derby City Council

DERBYSHIRE County Council

Contents

Joined Up Care Derbyshire Greener Inhaler Strategy

Executive Summary

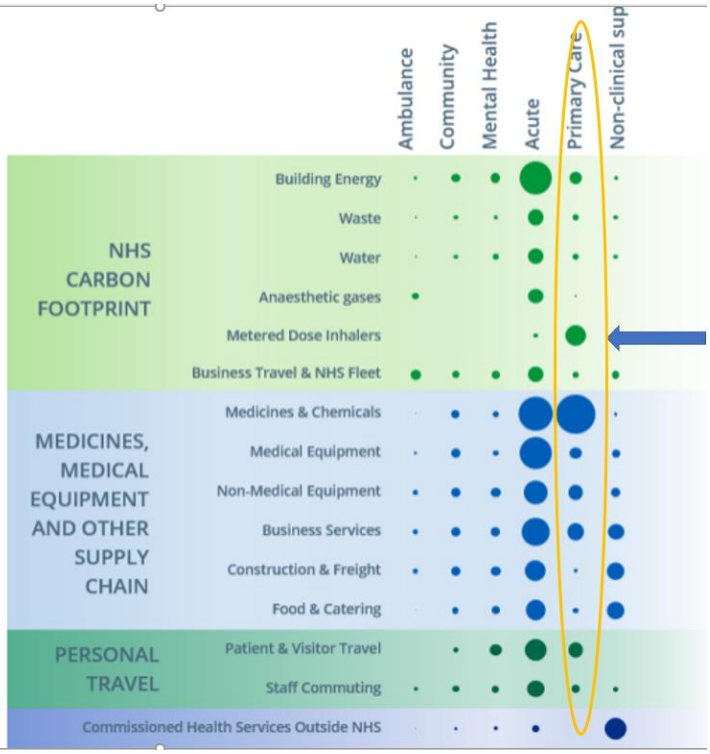
This document sets out the actions we will take to reduce the carbon emissions created within the Derbyshire system by medicines, particularly pressurised metered dose inhalers (pMDIs).

Our Greener NHS work focuses on working to reduce the carbon footprint (CF) of inhaler prescribing. Currently around 3% of the entire NHS carbon emissions are due to the prescribing of pMDIs. Most of these emissions come from the propellants used in pMDIs to deliver the medicine, rather than the medicine itself or the plastic device.

In Primary Care, the prescribing of pMDIs accounts for more carbon emissions than any of buildings energy use, waste, water, or travel, so clearly it is an area where we can make a huge impact.

Sources of carbon emissions by activity type and setting of care in NHS

Page 13. Delivering a Net-zero NHS report. October 2020



The ICS have recently agreed a Greener Inhaler Prescribing Guidance document (Appendix 1) highlighting a range of ways in which we can reduce the carbon footprint of inhaler prescribing.

One of the main areas we can influence is regarding the prescribing of lower carbon alternatives to MDIs, such as dry powder inhalers (DPIs) and Soft Mist inhalers (SMIs). The table in the Greener Inhaler Prescribing Guidance document (Appendix 1) details our preferred inhaler choices in bold. There are other ways of reducing emissions,

such as avoiding overuse and overordering of short acting inhalers such as salbutamol, and by encouraging patients to return used inhalers to community pharmacies for environmentally friendly disposal. The prescribing guidance details other methods, such as ensuring that the patient's condition is well-controlled and moving to combination inhalers (rather than separate monotherapy inhalers) where appropriate.

Other parts of our strategy detailed include: updating guidelines and formularies, producing resources for patients and GP Practices, providing clinical education sessions and actively seeking out patients who appear to not be using their inhalers efficiently.

In March 2022, the strategy was adopted across the whole ICS. Partner organisations were invited to submit their strategies for incorporation within *(Appendix 2)*.

This strategy is a 'live' document and will be updated as required.

Introduction

Historically, the NHS Long Term Plan (January 2019) included the sustainability target of reducing carbon emissions (on a 1990 baseline) by 34% by 2020, and 51% by 2025. Within this was a 4% reduction in emissions, achieved by a shift to lower carbon inhalers.

The newer and ambitious target, published in October 2020, is to achieve a 'net zero' NHS by 2040. Net zero is reached when the amount of carbon we add is no more than the amount taken away. This target regards the emissions we control *directly* (the NHS Carbon Footprint) with an initial ambition to reach an 80% reduction by 2028 to 2032.

For the emissions we can *influence* (rather than directly control - our NHS Carbon Footprint *Plus*), the NHS aims to reach an 80% reduction by 2036 to 2039, with a net zero target by 2045

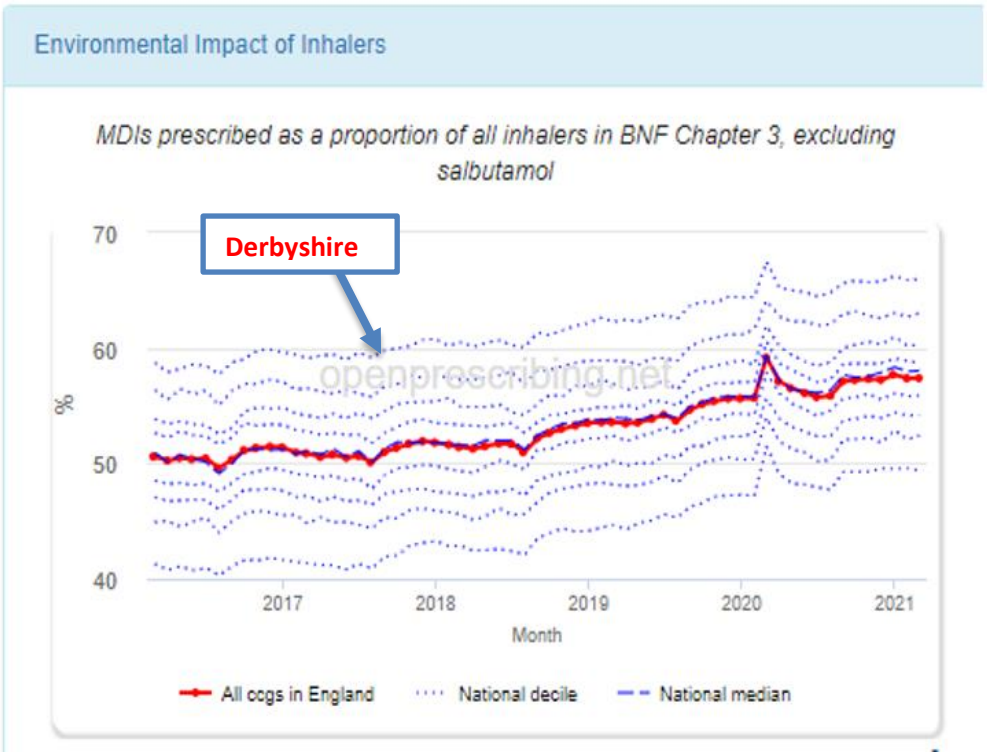
Across England, Wales and Scotland, the average % pMDI to DPI/SMI prescribed from September to November 2021 was 52.65%. Within the same timeframe, the STP footprint, the figure was 66.29%.

Primary Care Networks (PCN's) are incentivised for completing work to reduce the carbon footprint of inhaler prescribing. Indicators ES01/02 of the Investment and Impact Fund (IIF) 22/23 - part of the Network Contract Directed Enhanced Service (DES) - are related to lower carbon inhaler prescribing. The % MDI prescriptions lower threshold (for patients aged 12 and over) is 44% and upper threshold is 35%.

V. Help create a more sustainable NHS			
Indicator	Thresholds	Valuation	Data source
ES-01: Metered Dose Inhaler (MDI) prescriptions as a percentage of all non-salbutamol inhaler prescriptions issued to patients aged 12 years or over	44% (LT), 35% (UT) intended 23/24 trajectory: 35%/25%	£6.1m / 27 pts	GPES
ES-02: Mean carbon emissions per salbutamol inhaler prescribed (kg CO_2e)	22.1 kg (LT), 18.0 kg (UT) intended 23/24 trajectory: 18.0 kg/ 13.4 kg	£9.9m / 44 pts	BSA prescribing data

(PCN Network DES 22/23 Annex B p12)

The graph below represents the national yearly increase in MDI prescribing (with a spike due to the start of the COVID-19 pandemic in March 2020).
Derbyshire MDI prescribing is the highest blue dotted line.



Locally, the Derbyshire ICS is a member of NHS Midlands Region Greener Delivery Board, which meets monthly. Key priority areas concerning medicines are:

- Reducing the proportion of desflurane used in surgery to less than 10% of overall volatile anaesthetic gases volume in all trusts.
- Implementing approaches to optimise use of medical gases, including reducing nitrous oxide waste and preventing the atmospheric release of medical gases
- **Reducing the carbon impact of inhalers, in line with the commitment of a 50% reduction by 2028 and a 6% reduction in 2021/22 on a 2019/20 baseline.**

Areas of Focus

The Strategy to reduce our carbon footprint will focus on the following areas:

- Ensure control of asthma and COPD is optimised and promote clinician adherence with NICE asthma and COPD treatment pathways – this will benefit patients and reduce use of short-acting bronchodilators (SABA's). Currently, salbutamol MDIs account for over 40% of inhaler items in Derbyshire, and in the 3 months from June to August 2021 well over 100,000 salbutamol MDIs were prescribed. Ensuring optimal control of both asthma and COPD would have a positive impact on our carbon footprint:

    - Education/guideline updates will be offered to GPs and non-medical prescribers (NMPs)
    - System searches to find patients underusing inhaled corticosteroids (ICS), over ordering of SABA's, prescribed multiple short courses of oral steroids, etc.

- Ensure all inhalers are used with the correct technique for greater effectiveness and reduced wastage:

    - Inhaler technique training offered to GP practice/PCN teams, care home staff.

    - New Medicine Service (NMS) optimised in community pharmacy to ensure patients get inhaler technique training when prescriptions are dispensed.

- Initiate new patients on lower Global Warming Potential (GWP) devices such as DPIs and soft mist inhalers (e.g. Respimat) where clinically appropriate:
    - Greener Inhaler Prescribing Guidance document (Appendix 1) in place and guidelines updated to promote use of DPIs

  - OptimiseRx messages updated on a regular basis to promote the prescribing of DPIs/SMIs – introduced in a staggered manner to reduce the risk of OptimiseRx message fatigue
  - Communicate with acute trusts and other potential prescribers to encourage initiation of DPIs where appropriate

- Discuss a potential switch with existing patients (where it is clinically appropriate to do so) to a device with a lower GWP, e.g. during annual reviews:

  - Greener Inhaler Prescribing Guidance document (Appendix 1) contains guidance on appropriate patients to consider for switch
  - Brief guide available on the Medicines Management website showing preferred choices.
  - Patient Information Leaflet available to support discussions with patients
  - Continuing the education sessions for clinicians
  - Practice system searches available to highlight patients where switches may be most appropriate
  - Where agreed with the GP practice - addition of messages to patient notes to encourage switch at annual reviews

- Switch patients using more than one single component MDI to a combination inhaler where one is available and is suitable for the individual. This will reduce the overall number of inhaler items used and be more convenient for patients:

  - Practice system searches available to highlight patients currently using separate monotherapy inhalers

- Advocating for the use of Maintenance and Reliever Therapy (MART) regimes, where appropriate for asthma treatment. These regimes employ combination inhalers such as Fobumix Easyhaler (budesonide/formoterol DPI) as both regular maintenance therapy and ‘when required’ reliever therapy. When used in appropriate patients this can improve the patient’s asthma control and reduce

the amount of inhaled corticosteroid used, as well as preventing overuse of short-acting drugs such as salbutamol:

  - Education/guideline updates will be offered to GPs and non-medical prescribers (NMPs)

- Patient education – including sign posting to resources such as Asthma+LungUK website and promoting the Greener Inhalers via GP Practices screens, ICB website and social media:

  - Ongoing work with the Communications Team will maintain the profile of the Greener Inhaler initiative with regular updates.

- Inhaler disposal schemes – current advice is to return used inhalers to a pharmacy for disposal. Inhalers should never be discarded in household refuse:

  - A suite of communications featuring the disposal message have been produced – including: a poster, GP practice waiting room screens and social media messages.
  - Patient Information Leaflet is available. This includes information about inhaler ordering and disposal

- Ensure inhalers are not discarded unnecessarily before they are empty:

  - Patient Information Leaflet available which includes information about inhaler over ordering and appropriate disposal
  - A suite of communications has been produced including a poster, GP practice waiting room screens and social media messages.

- Reduce over-prescribing of short-acting bronchodilators by reviewing ordering patterns:

  - Practice system searches available to highlight patients over-ordering short-acting bronchodilators so that usage can be reviewed.

- Develop and run searches for very high carbon emitting inhalers. These are detailed in Prescqipp Bulletin 295: Inhaler carbon footprint. Focus to switch to lower carbon options, especially if prescribing volumes indicate a substantial impact on carbon emissions can be achieved by switching. The top ten pMDIs in terms of highest carbon emissions are: Flutiform, Intal, Symbicort, Aloflute, Sirdupla, Seretide, AirFluSal, Flixotide, Serevent and Ventolin:

  - ePACT2 and system searches will be used to highlight practices with higher prescribing of high carbon emitting inhalers and encourage switch to inhalers with a lower carbon impact.
  - Work has already started on switching patients from Ventolin Evohalers (and generic salbutamol which mainly gets dispensed as Ventolin) to our preferred brand Salamol – see below for potential carbon reductions from this work.

- Working collaboratively with partner organisations to develop a joint strategy.

- We will publicise our work using a plan developed with the ICB Communications Team. This will include the ICB internet and intranet, ICB Membership Bulletin, a new, periodic 'Green Inhaler Bulletin', MS Teams background, social media, GP practice digital screens and in partnership with the LPC.

These work streams are either under way or in development – see *'Timescales'* (page 18) for further detail.

Current position and anticipated carbon reductions

The immediate ICB target is to: support patient choice of less carbon intensive inhalers, for example dry powder inhalers, where clinically appropriate, *resulting in a 6% reduction of emissions by March 2022*

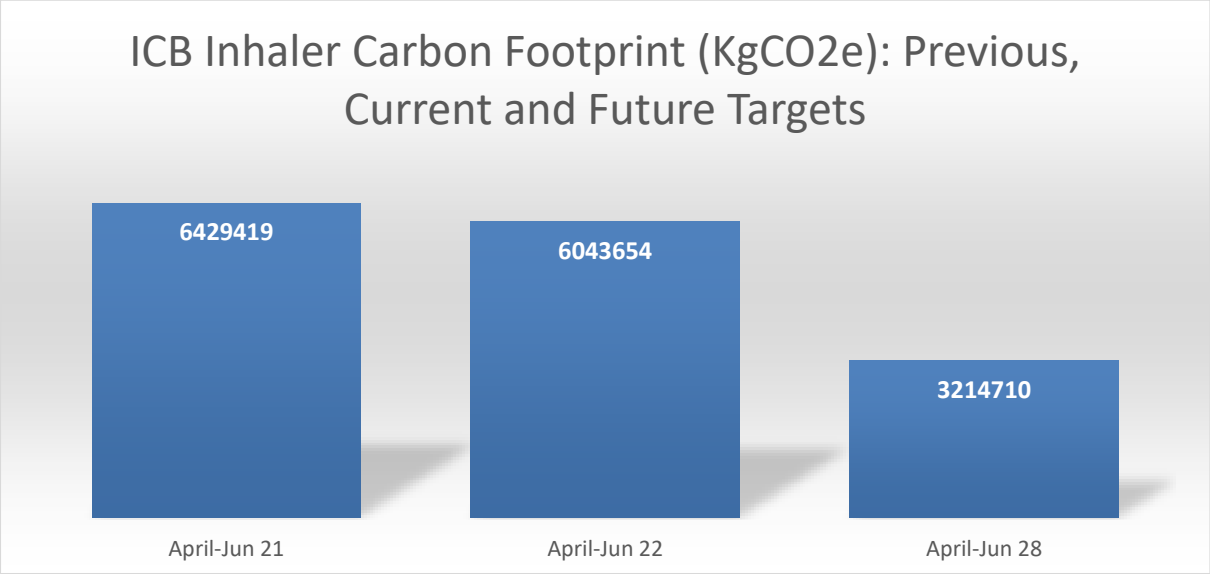
Outcomes will be monitored using Prescqipp Data, published six-monthly.

The ICB inhaler carbon footprint for April to June 2021 = 6, 429, 419Kg CO2e

NHSE Target (from Memorandum of Understanding) **is to reduce by 2% (= 128 588Kg CO2e) by March 2022 to 6, 300 831 Kg CO2e**

ICB Target: 6% reduction: March 2022 CF target = 6 043 654Kg CO2e

2028 Target (50% reduction) = 3, 214, 710 Kg CO2e



In the absence of a published value for the 2019/20 baseline and the unlikelihood of a significant reduction in carbon footprint between 2019 and 2021, the April to June 2021 carbon footprint value is also to be used as a baseline comparator against the April to June 2022 value to measure progress.

Switching patients from Ventolin to Salamol MDI is a key priority in reducing our inhaler carbon footprint.

The forecasted maximum reduction in 3-month CF achieved via 100% Ventolin to Salamol switch is 1 972 758Kg CO2e. A more pragmatic switch rate of 60% would yield a reduction of 1 183 655Kg CO2e.

The ICB target is to reduce by 6% by March 2022

The 60% switch would yield an 18% reduction in the ICB inhaler footprint.

See Appendix 3 for detailed calculations.

Financial context

Salamol 100 microgram/dose pMDI: £1.46 each x 120658 = £176,160.68

Ventolin - currently supplied as per The Drug Tariff for generic salbutamol 100 microgram/dose pMDI prescriptions: £1.50 each x 120658 = £180, 987

Three month financial gain from switching from Ventolin MDI to Salamol MDI (100% switch)

= £4, 826.32

This financial saving can be used to offset any potential increases in prescribing costs associated with later work, such as switching of inhaled corticosteroid (ICS) metered dose inhalers to lower carbon alternatives.

Many of the MDI to DPI switches that are being considered are also cost saving. For example, switching a patient from a Fostair MDI to a Fobumix Easyhaler at an equivalent dose would save approximately £95 per patient per year. However, we would need to consider the time taken to undertake such a switch which would need a conversation with the patient.

It is also the case that some later switches may increase costs. For example, switching from a Clenil 100mcg inhaler to a Budesonide Easyhaler at an equivalent dose would cost an extra £11 per patient per year.

It is challenging to calculate overall cost as interventions such as reviewing patients' inhaler technique, providing information about over-ordering, addressing over-reliance on short-acting drugs, switching inhalers and providing a DPI with a dose counter may all reduce the number of inhalers prescribed - leading to cost savings overall.

Levels of Support for the Strategy Recommendations

The level of support from the ICB Medicines Optimisation (MOD) Team to general practices for the Greener Inhaler strategy is dependent on local capacity and priorities. Support may include:

- Patient information leaflet (print and digital format) and patient letter
- Provision of digital promotional screens
- Provision of/support to run clinical system searches
- Support with bulk switching of salbutamol/Ventolin to Salamol MDI.
- Support with reviewing patients for MDI to DPI switches
- Practice updates/presentations

The majority of the MOD Team work remotely. This will impact upon the type of reviews that can be offered. Not all patients can access remote consultations and it is vital that inhaler technique is appropriately assessed. There is opportunity to benefit from the Community Pharmacy New Medicines Service (NMS) in conjunction with remote reviews. Protocols for this are in development.

The Greener Inhaler strategy enables fulfilment of the relevant sections of the IIF, therefore PCN's are supporting with interventions as part of structured medication reviews (SMR's) and respiratory clinics.

There are also opportunities for interventions to be made as part of annual respiratory reviews in general practice.

Inter-dependencies/Partner Organisation Strategies

The Derbyshire Greener Inhaler Prescribing Guidance document (Appendix 1) and formulary changes have been agreed at JAPC which has representation from the acute trusts and other providers. Ongoing collaboration with all providers will ensure consistency of messaging and to align formularies as much as possible.

The Greener Inhaler Prescribing Guidance document (Appendix 1) and strategy will be shared with drug and therapeutics committees and the DCHS MOST committee to increase awareness.

Provider organisations will support the strategy by the following means wherever appropriate:

- Identify a lead team member for the inhaler aspect of the Greener NHS initiative. This is usually (although not limited to) a member of the pharmacy team and/or the prescribing lead or lead respiratory clinician in GP practice.
- Align formularies and ensure that commonly prescribed greener inhalers are available, e.g. Salamol MDI, Fobumix Easyhaler, Fostair Nexthaler, Trimbow Nexthaler, Trelegy Ellipta
- Review patient inhaler technique at every opportunity and reinforce safe inhaler disposal messages
- Consider greener options (including spacers) as preferred when prescribing inhalers
- Display the PIL – Be Greener and Breathe Better in waiting areas
- Promote Greener Inhalers via social media channels
- JUCD Greener Inhalers MS Teams background and a (waiting room) digital screen background are available from the MOD Team

GP Practices and PCNs are being supported by the ICB MOD Team with regular updates, resources and education and training sessions.

We are liaising with the Local Pharmaceutical Committee (LPC) to ensure that community pharmacies are kept updated and involved in the work. Community pharmacies have a vital role to play in terms of supporting communication around changes to inhalers and inhaler technique. The contracted new medicines service can be used where new inhalers are initiated.

Patients are at the heart of all of our work, and we advocate for a person-centred approach to all consultations. We have produced a patient information leaflet: Be Greener and Breathe Better (Appendix 4) and a letter to patients to explain the salbutamol/Ventolin to Salamol MDI switch. We also promote the NICE Patient Decision Aid for Asthma Consultations. Our clinical training sessions will reinforce these areas.

How the work meets the ICB strategic objectives –

Objective 1. Reduce health inequalities by improving the physical and mental health of the people of Derbyshire

The climate emergency is widely acknowledged as a health emergency. Environmental pollution is a cause of respiratory health decline. By contributing to the NHS wide effort to reduce carbon emissions locally, we are improving the health of the whole population, including that of Derbyshire.

By supporting GP practices with respiratory medicines optimisation, we are promoting health improvement at a local level. There are clinical system searches available to identify patients who appear to be ordering excessive amounts of inhalers. These patients can be contacted to ensure that are aware of how to use their inhalers correctly and referred for a healthcare review if needed.

Objective 2. Continue to reduce variation in the quality of care across Derbyshire

Respiratory illness is a leading cause of death in Derbyshire.

By providing resources and training for GP practices we aim to improve the quality of services provided to patients.

Part of our work will be actively seeking out patients who appear to not be using their inhalers efficiently and supporting improvements in their care.

Objective 3. Take the strategic lead in planning and commissioning care for the population of Derbyshire

A 'Greener Inhaler Prescribing Guidance' document (Appendix 1) has been issued to publicise the preferred inhaler choices and offer guidance for undertaking Greener Inhaler work.

The Medicines Management Website has been updated with the respiratory guidelines making clear which are the preferred inhaler choices.

Clinical Systems have OptimiseRx messages added to promote the selection of the preferred inhaler at the point of prescribing.

GP Practice Prescribing Leads will be updated regularly at the local forums, facilitated by the ICB.

Objective 4. Make best use of available resources which includes achieving our statutory financial duties

This objective is supported through the GP Clinical System Formulary and OptimiseRx, the salbutamol to Salamol inhaler switch, education sessions and the targeting of salbutamol overuse.

Objective 5. Deliver improvements in communications, including to all patients and stakeholders

We are developing patient information and communications in order to empower patients to make decisions about their healthcare. Our training sessions will support clinicians to better communicate with patients.

Regular updates will be provided to GP Practices via the Prescribing Leads forum and education sessions are open to all clinicians working in GP Practices.

The Medicines Management Website is kept updated with the latest formulary and treatment guidelines.

We will use established and newer ways of communicating, with information accessible in hard and electronic formats. We are liaising with the ICB Communications Team to benefit from their expertise in this area.

Key risks and mitigations

- *All dry powder inhalers contain lactose as an excipient. Hypersensitivity to lactose can be life threatening* – warnings have been added to the Patient Information Leaflet and Green Inhaler Prescribing Guidance Documents (Appendix 1) as of May 2022. This information will be reiterated via the ICB Key Messages, Prescribing Leads Forums, ICB Green Inhaler Bulletin and future education sessions. Clinical System messages will be reviewed with pop up alerts added where viable.
- *Patients stopping inhalers without seeking advice as a result of publicity around Greener Inhalers* – the message to not make any changes without checking with healthcare providers is featured prominently within our patient information.
- *Patients who are unable to manage a DPI being switched from an MDI* – education to ensure that all prescribers are aware of the criteria needed to be suitable for DPI.
- *Patients switched without sufficient counselling or information* – we do not advocate for bulk device switches as the evidence suggests this leads to poorer outcomes. Inhalers should only be changed following a full consultation and after ensuring inhaler technique is satisfactory. The recommended action is to send our approved letter and patient information leaflet by post when switching brands, e.g. salbutamol/Ventolin to Salamol.
- *Out of stock inhalers resulting from switching prescriptions* – we have contacted the manufacturers of inhalers where prescribing may increase to ensure the supply chain is resilient.

Timescales

Phase 1: Ensure the ICB Position is aligned with our resources – guideline, formulary update. Information given to MOD and wider ICB teams via Teamtalk, MOD team meeting. Completed November 2021

Phase 2: Develop education and training materials, piloting in selected practices. Large scale MS Teams training sessions delivered January 2022. Further general practice training via Prescribing Leads sessions (Jan/Feb 22) and annual prescribing reviews (April – June 22). Further MS Teams sessions delivered/due June/July 2022.

Phase 3: Salbutamol/Ventolin MDI to Salamol MDI switch - start roll out in practice. Start January 2022. Due for completion by end of September 2022.

Phase 4: Plan and develop switch strategy for other MDIs. Start Jan 2022. Protocol for Fostair MDI to Fobumix Easyhaler review in development. Chesterfield Royal Hospital Strategy approved.

References

The NHS Long Term Plan (January 2019) Accessed on 7th December 2021 at https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf

Delivering a 'Net Zero' National Health Service (October 2020) Accessed on 7th December 2021 at Greener NHS » Delivering a 'Net Zero' National Health Service (england.nhs.uk)

Prescqipp Data: Bulletin 295. Accessed on 10th December 2021 at Bulletin 295: Inhaler carbon footprint | PrescQIPP C.I.C

Drug Tariff – December 2021 Accessed 10th December 2021 at Tariff.book (nhsbsa.nhs.uk)

Annex B – Investment and Impact Fund (IIF): 2021/22 and 2022/23 PCN DES Annex B (england.nhs.uk)

Appendices

1. NHS Derby and Derbyshire ICB & System Partners: Greener Inhaler Prescribing Guidance - Greener_Inhaler_Prescribing_Guidance.pdf (derbyshiremedicinesmanagement.nhs.uk)

2. Partner organisation strategies

Report on the Greener Usage of Inhalers at Chesterfield Royal Hospital

Rationale

Inhalers are responsible for 3% of the NHS carbon footprint. Most of these emissions come from the propellant used in pressurised metered dose inhalers (pMDIs) rather than the drug itself; therefore increasing the use of dry powder inhalers (DPIs) over pMDIs will result in a reduction in carbon emissions.

Switching inhaler devices will require shared decision-making between patients and clinicians: a 30% uptake would result in a reduction of 374 $ktCO_2e$ per year in the throughout NHS[1]. It is important to note that prior to a switch a variety of factors such as device set up and ease of use, inspiratory flow and patient preference should be considered.

Using a co-ordinated approach with the ICB, CRH plans to reduce carbon emissions through targeting and changing key inhalers to dry powder equivalents. The following tables outline the most common inhalers used at CRH and the potential CO_2 savings from changing to greener alternatives.

Long-acting beta-agonists (LABAs)

At CRH the use of LABA only inhalers is low. The formoterol DPI is the greenest option and already our formulary choice. Given that the salmeterol MDI produces 57x the emissions of a formoterol DPI and switching between them is relatively low risk, all patients admitted on LABA only inhaler should be assessed for a switch.

	Type	Annual CO2eq (Kg)	Inhalers issued per year at CRH	Annualised CO2eq (Kg) saved if 100% switched to greenest option	Annual Cost to switch 100% to greenest option
Formoterol Easyhaler (F)*	DPI	3.3	36		
Formoterol (Atimos Modulite)	MDI	94.6	6	547	-£54
Salmeterol (Soltel)	MDI	189.2	12	2231	+£15

*(F) = current formulary choice

Long-acting Muscarinic Antagonists (LAMAs)

	Type	Annual CO2eq (Kg)	Inhalers issued per year at CRH	Annualised CO2eq (Kg) saved if 30% switched to greenest option	Annual Cost to switch 30% to greenest option

Tiotropium (Spiriva Respimat)	SMI	0.007	66		
Tiotropium (Braltus/ Zonda) (F)	DPI	6.8	361	735.7	+£396.38
Aclidinium Bromide (Eklira Genuair)	DPI	6.3	8	15.1	- £24.43

Moving from Braltus to Respimat devices has the potential to save 735kg CO2eq annually. However, it is also worth considering that the device set up can be challenging and the technique different to a Braltus inhaler. Patients would need to be counselled accordingly. Respimat is also a more expensive option and cost may need to be considered.

LAMA/LABA combination inhalers

	Type	Annual CO2eq (Kg)	Inhalers issued per year at CRH	Annualised CO2eq (Kg) saved if 30% switched to greenest option	Annual Cost to switch 30% to greenest option
Tiotropium and olodaterol (Spiolto Respimat) (F)	SMI	0.007	8		
Aclidinium and formoterol (Duaklir Genuair) (F)	DPI	6.7	14	28.1	+ £4.07
Indacaterol and glycopyrronium (Ultibro) (F)	DPI	6.8	77	156.9	+ £40.66
Umeclidinium and vilanterol (Anoro Ellipta)	DPI	8.7	8	20.8	+ £44.47

All LABA/ LAMA combinations available at CRH are soft mist or dry powder and moving from one combination to another will not result in large reductions in carbon emissions. The same considerations outlined above will apply when moving from a dry powder to Respimat device.

Inhaled Corticosteroid (ICS)/LABA combinations

	Type	Annual CO2eq (Kg)	Inhalers issued per year at CRH	Annualised CO2eq (Kg) saved if 30% switched to greenest option	Annual Cost to switch 30% to greenest option
Fobumix Easyhaler (budesonide + formoterol) (F)	DPI	5.9	81		
Fostair 100/6 (beclometasone + formoterol) (F)	MDI	136	322	12,567.66	-£883.89

Luforbec 100/6 (beclometasone + formoterol) (F)	MDI	136	56	2,185.68	+ £19.15

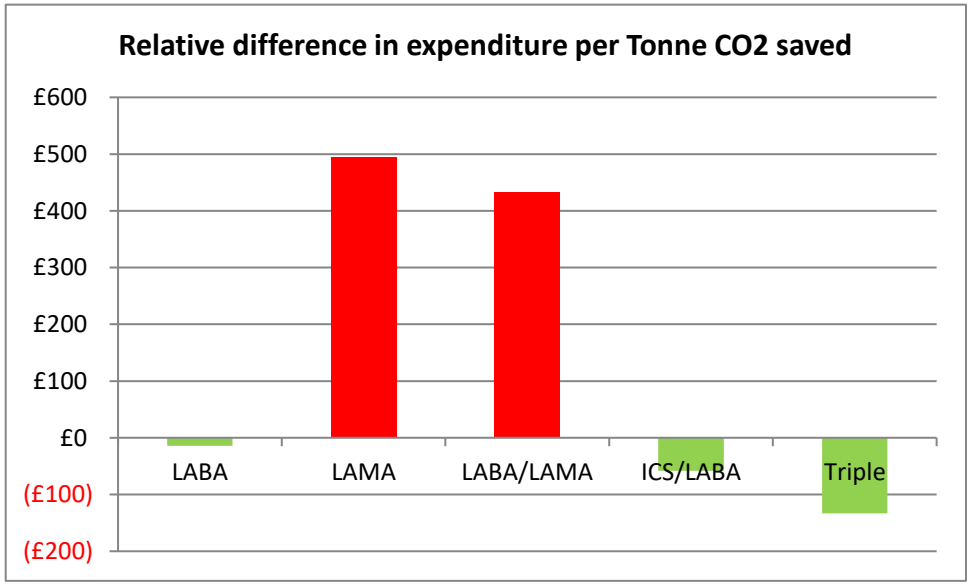
Fostair and the equivalent alternative pMDI, Luforbec, are the most common ICS/LABA combination used at CRH. Switching 30% of these inhalers to a dry powder alternative such as Fobumix could save almost 15,000kg CO_2eq. Fostair and Luforbec should be key inhalers to target in order to reduce greenhouse emissions.

Triple Inhalers (ICS/LABA/LAMA)

	Type	Annual CO2eq (Kg)	Inhalers issued per year at CRH	Annualised CO2eq (Kg) saved if 30% switched to greenest option	Annual Cost to switch 30% to greenest option
Trelegy Ellipta (Fluticasone, vilanterol and umeclidinium) (F)	DPI	9.49	72		
Trimbow (Beclometasone, formoterol and glycopyrronium) (F)	MDI	172	230	11,213.19	-£1491.78

Trimbow is another commonly used pMDI at CRH – switching to Trelegy would result in significant savings in both cost and carbon emissions. Trelegy is also a once daily preparation which will be more appealing to many patients. However, although Trimbow is licensed for both asthma and COPD, Trelegy is licensed for COPD only and a switch should be avoided in those on Trimbow for asthma.

Cumulative total



Given the relatively high cost and low carbon savings of changing LABA/LAMA and LABA only inhalers to greener Respimat devices, the focus of switches will be on LABA only, ICS/ LABA and triple inhalers

	Annualised CO2eq (Kg) saved	Cost of switch to CRH/ year	Cost per C02 (Tonne)
LABA (100% switch)	2,778	-£39	-£14
ICS/LABA (30% switch)	14,754	-£865	-£58
Triple (30% switch)	11,213	-£1,492	-£133
Total	29,702	-£1,935	

The total carbon saved equates to almost 30 tonnes CO2eq – approximately the carbon it would take to fly 33 people (or a full ward of patients!) from London to New York.

Actions to take

- Update formulary to reflect preferred choices in line with primary care.
    - Remove Atimos,
    - Change Fobumix and Trelegy to first line
    - Fostair and Trimbow to second line if unwilling to switch / unable to use DPI device
- Education and training
    - Take to weekly pharmacy team meetings
    - Create guide including script to talk to patients about switching to a greener inhaler
- Circulate green inhaler PIL made by ICB
- Add green inhaler switches into pharmacist enabling policy – to be considered at D&TC
- Monitor usage of green inhalers compared to pMDIs
- Maintain communication with the ICB about their green agenda

References

1. *Delivering a 'Net Zero' National Health* Service https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2020/10/delivering-a-net-zero-national-health-service.pdf

3. Calculations: Current position and anticipated carbon reductions

The immediate ICB target is to: support patient choice of less carbon intensive inhalers, for example dry powder inhalers, where clinically appropriate, *resulting in a 6% reduction of emissions by March 2022*

Outcomes will be monitored using Prescqipp Data, published six-monthly.

The ICB inhaler carbon footprint (CF) for April to June 2021 = 6 012Kg CO2e per 1000 patients

ICB list size = 1,069 431 patients

The ICB inhaler carbon footprint for April to June 2021 = 6, 429, 419Kg CO2e

NHSE/ICB Target (from Memorandum of Understanding) is to reduce by 2% = 128 588Kg CO2e by March 2022

The ICB are also required to reduce the carbon impact of inhalers, in line with the commitment of a 50% reduction by 2028 and a 6% reduction in 2021/22 on a 2019/20 baseline.

ICB Target: 6% reduction: March 2022 CF target = 6 043 654Kg CO2e

In the absence of a published value for the 2019/20 baseline and the unlikelihood of a significant reduction in carbon footprint between 2019 and 2021, the April to June 2021 carbon footprint value is also to be used as a baseline comparator against the April to June 2022 value to measure progress.

3 month forecast for Ventolin/salbutamol to Salamol switch – based on April to June 21 figures:

Total carbon footprint from **all** salbutamol inhaler (pMDI and DPI) prescribing

= 4 138 698Kg Co2e

This represents 64%of the entire ICB inhaler carbon footprint

Carbon footprint from Ventolin MDI and salbutamol cfc metered dose inhaler prescribing (n = 120,658 inhalers, April to June 21) represents 90.6 % of salbutamol prescribed in Derbyshire:

= 4 013 575Kg CO2e (97% of total salbutamol CF)

Carbon footprint of 120 658 Ventolin pMDI

= 120 658 x 28.3 = 3 414 621Kg CO2e

For comparison: carbon footprint of 120 658 Salamol inhalers =

= 120 658 x 11.95 = 1 441 863Kg CO2e

(= 42% of CF of Ventolin or potential CF reduction from salbutamol inhalers of 58% if 100% switch achieved)

The forecasted maximum reduction in 3-month CF achieved via 100% Ventolin to Salamol switch is 1 972 758Kg CO2e. A more pragmatic switch rate of 60% would yield a reduction of 1 183 655Kg CO2e.This would be an overall reduction of

6, 429, 419 - 1 183 655 = 5 245 764Kg CO2e

The ICB target is to reduce by 6% (= 385, 764 Kg CO2e) by March 2022

4. Patient Information Leaflet [Green Inhaler leaflet (derbyshiremedicinesmanagement.nhs.uk)]

NHS
Derby and Derbyshire
Integrated Care Board

Be Greener and Breathe Better

A Patients Guide to Green Inhalers

HEALTHIER PLANET HEALTHIER PEOPLE

Going 'Greener'

Everyone is talking about 'going greener', 'reducing my carbon footprint' and 'harmful carbon dioxide'. But what does this mean for me and my health? How can I make a difference and make sure that I stay well?

Our Carbon Footprint

The amount of greenhouse gases released by a place or person is known as its 'carbon footprint'.

The NHS is responsible for 5% of the UK's total carbon footprint. To help combat climate change, the NHS has made a commitment to reduce its carbon footprint to net zero by 2040.

How are inhalers linked to climate change?

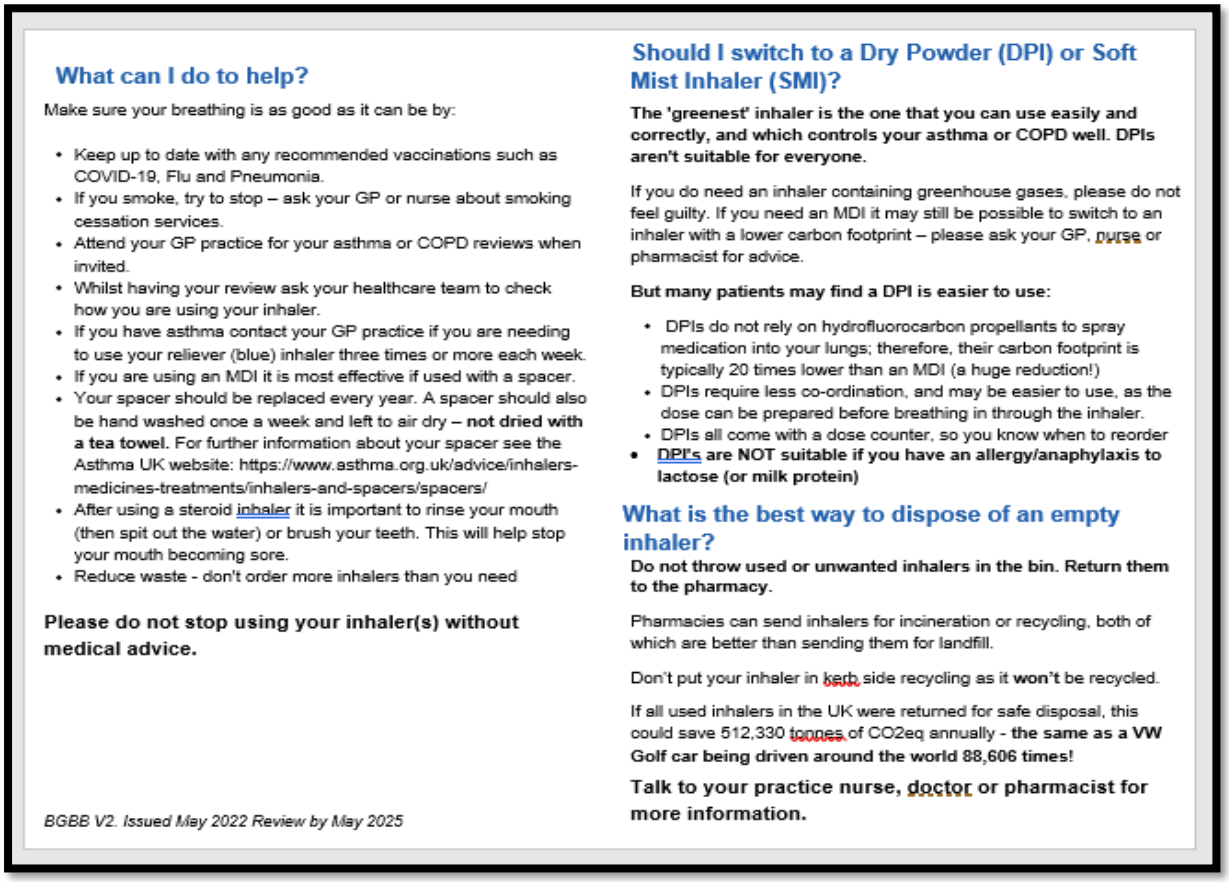
In England, more than 65 million inhalers are prescribed every year, and about 70% of these are pressurised metered dose inhalers (MDIs). **MDIs have a much higher carbon footprint than other types of inhalers, such as Dry Powder Inhalers (DPIs) and Soft Mist Inhalers (SMIs)**

This is because MDIs contain propellants which are very strong greenhouse gases, thousands of times more powerful than carbon dioxide. Inhalers contribute 3-4% of the entire NHS carbon footprint. DPIs and SMIs have a much lower carbon footprint and will be suitable and work well for most patients.

ONE MDI produces equivalent carbon emissions to driving **125 miles** in a small car (from Derby to London)

DPI

ONE DPI produces equivalent carbon emissions to driving **6 miles** in a small car (from Derby to ..... another bit of Derby!)



What can I do to help?

Make sure your breathing is as good as it can be by:

- Keep up to date with any recommended vaccinations such as COVID-19, Flu and Pneumonia.
- If you smoke, try to stop – ask your GP or nurse about smoking cessation services.
- Attend your GP practice for your asthma or COPD reviews when invited.
- Whilst having your review ask your healthcare team to check how you are using your inhaler.
- If you have asthma contact your GP practice if you are needing to use your reliever (blue) inhaler three times or more each week.
- If you are using an MDI it is most effective if used with a spacer.
- Your spacer should be replaced every year. A spacer should also be hand washed once a week and left to air dry – **not dried with a tea towel.** For further information about your spacer see the Asthma UK website: https://www.asthma.org.uk/advice/inhalers-medicines-treatments/inhalers-and-spacers/spacers/
- After using a steroid inhaler it is important to rinse your mouth (then spit out the water) or brush your teeth. This will help stop your mouth becoming sore.
- Reduce waste - don't order more inhalers than you need

Please do not stop using your inhaler(s) without medical advice.

BGBB V2. Issued May 2022 Review by May 2025

Should I switch to a Dry Powder (DPI) or Soft Mist Inhaler (SMI)?

The 'greenest' inhaler is the one that you can use easily and correctly, and which controls your asthma or COPD well. DPIs aren't suitable for everyone.

If you do need an inhaler containing greenhouse gases, please do not feel guilty. If you need an MDI it may still be possible to switch to an inhaler with a lower carbon footprint – please ask your GP, nurse or pharmacist for advice.

But many patients may find a DPI is easier to use:

- DPIs do not rely on hydrofluorocarbon propellants to spray medication into your lungs; therefore, their carbon footprint is typically 20 times lower than an MDI (a huge reduction!)
- DPIs require less co-ordination, and may be easier to use, as the dose can be prepared before breathing in through the inhaler.
- DPIs all come with a dose counter, so you know when to reorder
- **DPI's are NOT suitable if you have an allergy/anaphylaxis to lactose (or milk protein)**

What is the best way to dispose of an empty inhaler?

Do not throw used or unwanted inhalers in the bin. Return them to the pharmacy.

Pharmacies can send inhalers for incineration or recycling, both of which are better than sending them for landfill.

Don't put your inhaler in kerb side recycling as it **won't** be recycled.

If all used inhalers in the UK were returned for safe disposal, this could save 512,330 tonnes of CO2eq annually - **the same as a VW Golf car being driven around the world 88,606 times!**

Talk to your practice nurse, doctor or pharmacist for more information.

Date	
May 2022	V1: Produced by Deb Howe/Jon Vinson. Approved by Derbyshire Prescribing Group
June 2022	V2: Chesterfield Royal Hospital Strategy/ Updated ICB/JUCD references
July 2022	V3: Minor amendments: clarified names of supporting documents
Review by June 2025	