



Dorset

NHS DORSET
GREEN INHALER PRESCRIBING GUIDANCE – SUPPORT PACK

VERSION 2.0 (APRIL 2022)

Contents

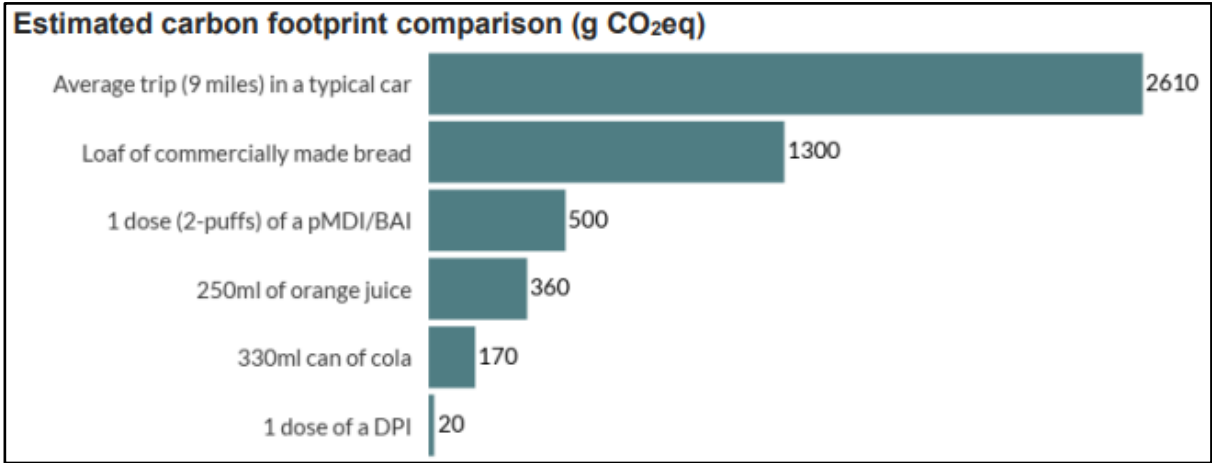
Background: The Environmental Impact of Inhalers	3
Steps to Reduce Carbon Footprint	4
Key Areas for Action	4
1. <i>Think Disease Control</i>	5
2. <i>Think DPI</i>	5
Inhaler Selection – pMDI or DPI?.....	6
3. <i>Think Lowest Carbon Salbutamol pMDI</i>	7
4. <i>Think Disposal</i>	8
Making Changes (The Investment and Impact Fund)	9
Case Study.....	11
Summary	14
APPENDIX: ONE Investment and Impact Fund ES-01: Priority non-Salbutamol pMDI Devices for Review.....	16
APPENDIX: TWO Think Lowest Carbon Salbutamol MDI: Salbutamol Device Order of Preference (Cost and Carbon)	17
APPENDIX THREE Suggested Inhaler Device Changes to Reduce Reliance on pMDI Devices	18

Background: The Environmental Impact of Inhalers

In 2019 the NHS long-Term Plan first committed the NHS to reduce its overall carbon footprint, in part, by halving inhaler related emissions with a shift towards prescribing lower carbon devices. Subsequently, “*Delivering a ‘Net Zero’ National Health Service*” was published in October 2020 building on this by committing the NHS to reaching net zero by 2040 for carbon emissions directly under control of the NHS.

Inhalers alone are responsible for approx. 4% of the entire NHS carbon footprint and up to 25% of General Practice. Most of these emissions derive from hydrofluoroalkanes (or hydrofluorocarbons) (HFCs) propellants present in traditional pressurised Metered Dose Inhalers (pMDI) to assist drug delivery. These propellants were originally introduced to replace ozone depleting CFCs but are themselves, potent greenhouse gases. HFCs are also present in Breath Actuated devices (BAI) such as Easibreathe[®] or Autohaler[®] devices.

Dry Powder inhalers (DPIs) and the Respimat[®] (or Soft Mist inhaler- SMI) devices do not utilise propellants and therefore are the ‘greenest’ prescribing choice. Just one dose from a pMDI has a carbon footprint 18 times greater than that of an equivalent DPI dose and five pMDI doses (10 puffs) has a carbon footprint equivalent to a 9-mile journey in a typical car.



Compared to healthcare services in other countries the NHS is considerably over-reliant on pMDI technology to treat chronic respiratory diseases. Analysis shows that up to 70% of all UK inhaler prescriptions are for a pMDI device compared to less

than 50% in most countries and as low as 10% in the best performing cases. Combined with evidence of better patient outcomes in these countries (Sweden, for example) this strongly suggests that it is possible to reduce reliance on pMDIs whilst maintaining good respiratory disease control. For most patients, pMDIs do **NOT** confer any additional clinical advantage over DPIs (or SMIs where available). Therefore, if clinically appropriate and where the patient is able to correctly use the device, a DPI (or SMI) device should be prioritised over traditional pMDIs. Other steps to minimise the environmental impact of inhaler prescribing is outlined below.

Steps to Reduce Carbon Footprint

The move to more environmentally friendly prescribing should be a priority for Dorset but must be delivered alongside, not instead of the core principles of patient care with respiratory disease, namely ensuring optimised disease control. This remains the single most important intervention for both patient outcomes and addressing Dorset's inhaler carbon footprint.

Key Areas for Action

Reducing the environmental impact of inhalers can be summarised into four key areas

1. **Optimise** disease control – check adherence to local or national respiratory disease guidance
2. Offer a **DPI** (or SMI) as first choice device if clinically appropriate
3. Where **Salbutamol pMDI** devices are needed prescribe the **brand and regimen** with the **lowest carbon footprint**
4. Ask patients to **return used/ unwanted inhalers** to community pharmacy for correct disposal (or recycling where available)

Think Disease Control

Optimising asthma and COPD care is more important than the choice of inhaler device. The clinical and environmental harm of poor disease control outweighs any benefits from the use of different inhaler devices. A comprehensive review must consider optimal use of preventor therapies as this can improve symptoms and reduce excessive reliever use. When possible, confirming good inhaler technique by face-to-face assessment is critical. *Remember:*

“The greenest inhaler is the one the patient can use”

As well as structured annual reviews other opportunities to identify poor control include prescribing/ population system data (DiiS) or searches to note frequent exacerbations, excessive rescue medication requests including, prednisolone tablets, antibiotics, stand-alone use of LABA devices, excessive salbutamol (i.e. SABA) ordering. Other aspects of a good respiratory review should not be forgotten such as written care plans and reviewing diagnosis. Finally other important aspects of respiratory care such as **smoking cessation, pulmonary rehabilitation** and **vaccinations** are themselves useful low carbon interventions.

Think DPI

Although DPI devices should now be offered first line where clinically appropriate the selection of inhaler device should still be matched to the patient’s inspiratory flow rate and ability to manipulate and operate the device. If a patient can inhale through their mouth quickly and deeply then a DPI device is **very likely to be suitable**. Adults and older children with mild to moderate disease are likely to have sufficient flow to operate a DPI, however:

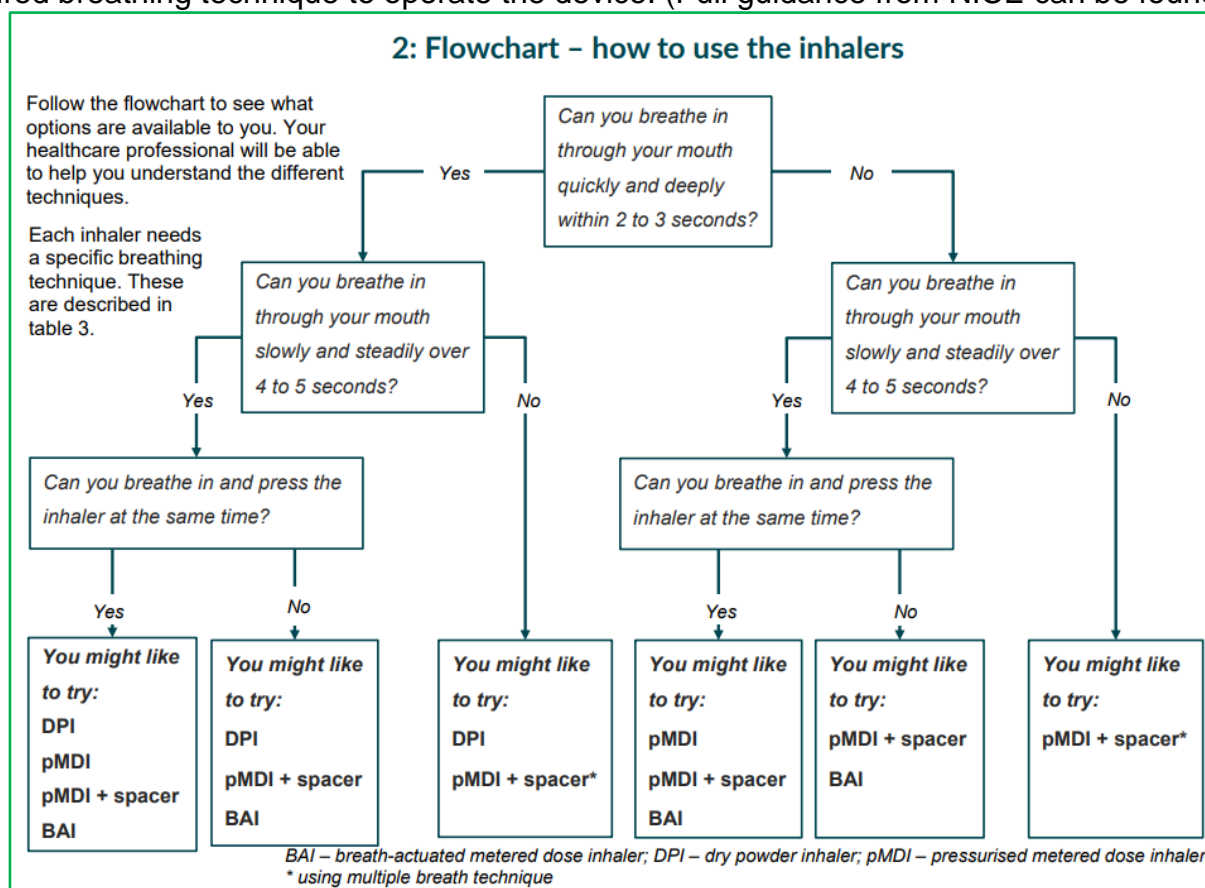
- Frail and elderly patients are less likely to be able to manage a DPI and younger children should continue to be prescribed a pMDI with a matching spacer device (with face mask) as needed.
- Where there is concern about operating a DPI reliever device during exacerbations a salbutamol and preventor ICS pMDI device via a spacer device is still clinically appropriate.

Inhaler Selection – “pMDI or DPI?”

Basic inhaler prescribing principles recommend matching the right device to the right patient - based on the patient’s inspiratory flow rate and ability to understand and follow device administration instructions.

If a patient **can inhale quickly and deeply (or hard and deep)** then a **DPI** is most likely a clinically suitable option

NICE have produced a useful decision aid which can aid clinicians to select the most appropriate device based on the required breathing technique to operate the device. (Full guidance from NICE can be found [here](#))



Think Lowest Carbon Salbutamol pMDI

Where a salbutamol pMDI is required, prescribers are now encouraged to consider the most environmentally friendly option wherever possible.

The relative lifecycle of carbon emissions (Kg CO_{2e}) for each salbutamol inhaler device is listed in **Appendix ONE**, including the updated Dorset formulary position on each device. Although very commonly used, the **Ventolin Evohaler**[®] has more than **double the carbon footprint** of other salbutamol devices (equivalent to 28kg of CO₂ per 200 dose inhaler device or a 175mile car journey).

Consequently, Dorset CCG has agreed to accept that **BRANDED** prescribing of salbutamol pMDI prescriptions is the best method of ensuring that patients receive the intended product. This is because national analysis of prescribing data confirms that Ventolin Evohaler[®] will be dispensed against *generic* salbutamol prescriptions approximately 81.5% of the time (Salamol inhalers 18.4%, Airomir 0.1%) . Going forward “**Salamol CFC-Free inhaler 100 microgram**” inhaler device will be recommended as the first-line SABA pMDI inhaler in Dorset. The Salamol device contains a much lower volume of HFA - 137a propellant and consequently a much lower carbon footprint (11.95kg CO₂)

- * If a practice or PCN is to undertake focused work to make this prescribing change in a short period of time it is recommended that this is coordinated with local community pharmacies in order to minimise the risk of stock shortages or dispensing delays.
- Other methods of minimising the impact of pMDI devices include:
 - * Rationalise pMDI regimens to **minimise** the number of doses required to obtain the required dose (e.g., 1 dose of a 200mcg Clenil[®] device twice daily rather than 2 doses of a 100mcg device twice daily). This approach effectively halves the carbon footprint of that prescription by reducing propellant emissions.
 - * Avoid prescribing inhalers that contain the HFC propellants with the highest global warming potential, namely the **HFA227ea excipient**. This propellant is found in the **Flutiform pMDI** (and **Symbicort pMDI** products. (Flutiform products are classified as **BLACK** on the Dorset Formulary [not recommended]) and until further notice Symbicort pMDI is technically a formulary option.

Think Disposal

Finally, patients should be asked and continually encouraged to return used inhaler (or unwanted) devices to either their community pharmacy or dispensing practice for correct disposal by incineration with other pharmaceutical waste. Regrettably access to inhaler re-cycling schemes have reduced in recent years and no centrally operated national scheme exists. However, returning devices to community pharmacies is the best way destroy excess HFC gases and avoid continued release via landfill after disposal in household waste.

Ensuring pMDIs are not discarded before they are empty and helping patients to know how many doses their pMDI device contains when new may be helpful (especially where there is no dose counter present on the device).

Research shows that many pMDI are discarded when still **50% full**.

Inhaler devices should **not** be included in domestic recycling waste

Making Changes (The Investment and Impact Fund)

The [Investment and Impact Fund \(IIF -2022/23 update\)](#) forms part of the Direct Enhanced Service (DES) for PCNs and contains 'Respiratory Care' and 'Sustainable NHS' domains which encourage optimised disease control and greener inhaler prescribing in primary care. **These indicators should not be seen in isolation because they are all interlinked in the context of good patient care.** This work also compliments QOF (long-term condition reviews for COPD/ Asthma)

Respiratory Care Domain

Domain	Area	Indicators
Providing high quality care	Respiratory care	RESP-01: Percentage of patients on the QOF Asthma Register who received three or more inhaled corticosteroid (ICS, inclusive of ICS/LABA) prescriptions over the previous 12 months
		RESP-02: Percentage of patients on the QOF Asthma Register who received six or more Short Acting Beta-2 Agonist (SABA) inhaler prescriptions over the previous 12 months

- **Indicator RESP-01** aims to increase use of inhaled corticosteroids (ICS) as the most effective preventor for adults and older children with asthma as nationally prescribing rates are still low. Regular use improves symptoms, reduces SABA reliance, exacerbations and mortality. Increasing use of ICS/LABA combination devices counts as increased ICS use. This indicator therefore satisfies action point one “**Think Disease Control**” because NICE guidance recommends ICS as the first-line maintenance therapy for asthma and poor adherence to ICS correlates with poor asthma-related outcomes.
 - **NOTE** Most ICS can be delivered via DPI devices, **but** prescribing rates of common ICS devices suggest that pMDIs are far more commonly used than DPI alternatives. Therefore, this indicator links directly to **ES-01** (see below)

- **Indicator RESP-02** aims to reduce the number of patients being prescribed excess SABA devices per year (defined as *more than six prescriptions per year*). Overuse of SABA devices is a problem in the NHS compared to other European countries and is linked to an increased risk of exacerbations and mortality. Case finding and prioritising patients with the highest volume of SABA can therefore be a useful method of identifying patients with poor disease control and encouraging these patients to use a regular ICS preventor whilst use offering the SABA device with the lowest carbon footprint

Environmental Sustainability Domain

Evidence indicates that many patient's **would** change their pMDI device for environmental reasons if adequately consulted and educated about environmental concerns using shared decision making. Changes to inhaler prescribing would be easier to achieve if the new device can be aligned with a patient's pre-existing regimen (not always possible) and matched to inspiratory flow rate. Providing an option to switch back if required can also be helpful.

Domain	Area	Indicators
A Sustainable NHS	Environmental sustainability	ES-01: Metered Dose Inhaler (MDI) prescriptions as a percentage of all non-salbutamol inhaler prescriptions issued to patients aged 12 years or over
		ES-02: Mean carbon emissions per salbutamol inhaler prescribed (kg CO ₂ e)

- **Indicator ES-01** aims to **reduce pMDI usage** as a percentage of all **non-salbutamol prescriptions** (patients over 12 years). Effectively this means encouraging appropriate use of non-pMDI devices for ICS preventor medications or patients on a MART regimen. For example, switching a pMDI ICS, for example *Fostair*[®] pMDI to the equivalent DPI *Fostair NEXThaler*[®] or, if clinically appropriate, combining separate devices to the equivalent double or triple device would all count as a reduction in volume of non-salbutamol pMDIs and move the PCN towards the desired threshold on this metric. **(See Appendix ONE - Priority non-salbutamol pMDI devices for review)**

- **Indicator ES-02** recognises that it is not clinically appropriate to completely eliminate use of salbutamol devices but where they are indicated prescribers are encouraged to offer the **lowest carbon salbutamol pMDI option** in order to reduce emissions without compromising disease control. This does not necessarily mean avoiding *all pMDI* devices, but jointly considering if a non-pMDI device (e.g. Easyhaler® DPI) is a suitable option and if not, offering the pMDI device with the lowest carbon emission per Kg CO₂e (e.g. *branded* Salamol® pMDI over either generic salbutamol or branded Ventolin®) (**See Appendix TWO – Salbutamol devices order of preference**)

Case Study

Case finding highlights an adult patient prescribed 13 Ventolin Evohalers per year, sporadic use of their beclomethasone pMDI ICS device (Clenil 100mcg). Patient feels asthma control is poor and a low Asthma Control Test (ACT Score) of <19 is measured at a face-to-face review. The review also identified poor coordination and timing with their inhaler technique for administering doses via a pMDI device and a coarse cough following ICS dose. Patient was forgetting to rinse mouth after ICS use. Patient is also a current smoker.

Several relatively straightforward actions can *optimise disease control, reduce the carbon footprint* of the prescription and *achieve the targets of the IIF*

Possible Actions could be:

- Counselling to advise that salbutamol does not control asthma (common patient perception), but the ICS does treat underlying airways inflammation
- Offer a DPI device as an alternative to the pMDI clenil – for example ‘*Easyhaler Beclomethasone*’
- Reminding patient to rinse mouth after use.
- Offer an environmentally friendly salbutamol device – if possible, a DPI – for example ‘*Easyhaler Salbutamol*’ or if a DPI is not an option due to exacerbations risk offer ‘*Salamol* pMDI’ via a Spacer device to address coordination issues.
- Offer smoking cessation advice/ referral

Positive long-term outcomes therefore could be (with link to relevant IIF domain):

- Optimised, consistent use of an ICS preventor **[RESP-01]**
- Prescribed a low carbon ICS device (reduction in non-SABA pMDI devices) **[ES-01]**
- Disease control optimised, therefore able to reduce excessive SABA prescriptions to ≤ 6 devices per year **[RESP-02]**
- Prescribed a low carbon SABA device **[ES-02]**
- Non-pharmacological low carbon intervention offered, chance to improve long term patient outcome if patient can quit smoking
- Patient QoL improves (cough resolves and Asthma ACT score increases at next review – patient feels better)

However proactive work is needed

In order for PCNs in Dorset to reach the targets set in the NHSE IIF and work towards NHS environmental aims in a timely manner it is clear that patients will need to be **actively identified and reviewed** (case finding, prioritisation, raising awareness amongst all clinical staff at practice/ PCN level). Those patients currently using pMDIs will need to be **actively considered** for a switch to DPI devices. It will not be enough to simply ensure that new initiations are started on greener options given the pre-existing volume of pMDI prescribing, although factoring environmental considerations into prescribing habits in the long-term will be critical.

- **NOTE: Blanket switching (or batch switches)** of patients from one type of inhaler device to another (e.g., pMDI to DPI) or one drug to another (e.g., change of ICS) is **NOT** recommended as patient-centred care is still critical and evidence indicates that switching without consent can lead to poorer disease control. This approach also overlooks other aspects of respiratory review as outlined. It may be possible to coordinate larger scale changes of generically prescribed salbutamol to the first line Salamol option with good use of communication software or strategies to inform patients (e.g. AccuRx or similar)

Considered individually, certain patients **may be more suitable for active changes** than others. This may include those with:

- * Poor disease control with current regimen
- * Poor technique with current device
- * Poor compliance (or excessive use) of current device(s) including excessive use of SABA (6+ per year)
- * Already prescribed *mixed* devices (e.g., historically using pMDI and DPI)
- * Prescribed *separate* devices where a suitable combination device is available (e.g., LABA/ LAMA or triple device) or would benefit from a MART regimen where a single device can be prescribed.
- * Patients prescribed non-formulary or expensive devices

- * Lack of knowledge about the environmental impact of their prescribed inhaler devices e.g. Ventolin Evohaler

APPENDIX THREE outlines possible device (and/ or drug) switches to reduce pMDI usage.

Clinicians must use their clinical judgement on a case-by-case basis. These are suggestions only and decisions to alter therapy in any way should be taken with the individual patient using shared decision making. It is recognised that sometimes specialist tertiary centres make non-formulary recommendations. In such cases, any consideration for improving carbon footprint should be done with the specialist who initiated the original prescription.

These suggestions also factor in the new Dorset Adult Asthma Guidance which focuses on increasing use of DPIs. Particular focus is given to items such as Clenil and Fostair which are frequently used in Dorset and need reviewing in order to meet the aims of the IIF 2022/23. The [British Thoracic Society guideline](#) contains a useful guide to the approximate dose equivalents of inhaled corticosteroids (see table 12 in the BTS guidance).

As a last resort it may be possible to prescribe inhalers with the largest carbon footprint (i.e., Ventolin Evohaler®) as the minimum number of puffs required to achieve good symptom control if their condition is otherwise stable or where patients use SABAs despite good symptom control because of habit. Fewer puffs (if not clinically required) would clearly result in less propellant emissions. Safety netting advice about what to do if symptoms are worsening should be provided if this approach is followed

Summary

- Ensure **disease control is optimised**, with a specific focus on:
 - Good compliance of **preventor** therapies, i.e. **ICS compliance**
 - Checking and Optimising **inhaler technique**
- Offer a **DPI first line** whenever appropriate, not just new initiations. Evidence indicates that many patients would change their pMDI device for environmental reasons if adequately consulted.
- Evidence indicates that for the majority of patients pMDIs do not confer any additional clinical advantage over DPIs
- Actively review patients with poor compliance with ICS preventor therapy and/ or **excess SABA** use as a priority. Use population health tools and prescribing system searches to assist with case finding and prioritisation or workload
- Where a Salbutamol pMDI is absolutely required, Dorset now supports branded **Salamol**[®] as the first line option for environmental reasons
- No switch of drug or device should be made without a conversation with the patient and a full respiratory review. No blanket switching should occur as evidence states that switching without patient consent and education leads to poorer disease control
- Ask patient to return used inhalers to community pharmacy for correct disposal

APPENDIX ONE: Investment and Impact Fund ES-01 - Priority non-Salbutamol pMDI devices for Review

Based on current prescribing levels in Dorset (2021-2022), practices should prioritise the following non-Salbutamol pMDI devices for active consideration for device changes to DPI alternatives in order to meet the requirements of IIF indicator ES-01 devices. **See Appendix THREE** for further details about switching.








Non-Salbutamol pMDI to review	Options for consideration for active switch
Fostair 100/6mcg (or generically prescribed Beclometasone 100/ formoterol 6mcg)	<ol style="list-style-type: none"> 1) Fostair NEXThaler 100/6mcg 2) Fobumix Easyhaler 80/4.5mcg or 160/4.5mcg (depending on dose of fostair) 3) Symbicort turbohaler 200/6mcg 4) Relvar Ellipta 92/22mcg
Fostair 200/6mcg	<ol style="list-style-type: none"> 1) Fostair NEXThaler 200/6mcg 2) Fobumix Easyhaler 320/4.5mcg 3) Relvar Ellipta 184/22mcg
Clenil Modulite 100mcg	<ol style="list-style-type: none"> 1) Easyhaler Beclometasone 200mcg 2) Pulmicort Turbohaler 100mcg 3) Easyhaler Budesonide 100mcg
Qvar 50mcg	<ol style="list-style-type: none"> 1) Pulmicort Turbohaler 100mcg 2) Easyhaler Budesonide 100mcg
Qvar 100mcg	<ol style="list-style-type: none"> 1) Easyhaler Beclometasone 200mcg 2) Pulmicort Turbohaler 100mcg 2) Easyhaler Budesonide 200mcg
Trimbow 87/5/9mcg	If Trimbow pMDI is being used in COPD then it may be possible to switch to the DPI: Trimbow NEXThaler

APPENDIX TWO: Think Lowest Carbon Salbutamol pMDI [Salbutamol Device - Order of Preference (Carbon and Cost)]

Prescribing Item	Device	Item cost	Dorset Formulary Status
Easyhaler Salbutamol 100mcg	DPI	£3.31	1st line if <i>DPI</i> device Offer DPI over MDI wherever possible
Ventolin Accuhaler 200mcg	DPI	£3.60	Less Preferable DPI based on cost but environmentally friendly choice
Salbulin Novolizer 100mcg	DPI	£4.95	Less Preferable DPI based on cost but environmentally friendly choice
Salamol CFC-free	pMDI	£1.46	1st line salbutamol <i>MDI</i> in Dorset <u>PRESCRIBE BY BRAND</u> to ensure patient receives Salamol Preferred MDI device for environmental/cost reasons if DPI not suitable
Airomir 100mcg inhaler	pMDI	£1.97	2nd line salbutamol MDI in Dorset <u>PRESCRIBE BY BRAND</u> to ensure patient receives Airomir
Easyhaler Salbutamol 200mcg	DPI	£6.63	Non-Formulary 200mcg Easyhaler Salbutamol more expensive
Airomir Autohaler 100mcg	BAI pMDI	£6.02	Non-Formulary BAI (Breathe Actuated) Devices = High Carbon Footprint
Salamol Easi-Breathe	BAI pMDI	£6.30	Non-Formulary BAI (Breathe Actuated) Devices = High Carbon Footprint
Salbutamol CFC-free Breath Actuated 100mcg [GENERIC]	BAI pMDI	£6.30	Generic Prescribing NOT Recommended BAI (Breathe Actuated) Devices = High Carbon Footprint
Salbutamol CFC-free 100mcg [GENERIC]	pMDI	£1.50	Generic Prescribing NOT Recommended Generic prescribing will result in Ventolin Evohaler being dispensed for majority of items
Ventolin Evohaler 100mcg	pMDI	£1.50	NOT Recommended - Highest Carbon Footprint 3 rd line pMDI if patient cannot tolerate Salamol or Airomir pMDI (or any DPI)







APPENDIX THREE: Suggested Inhaler Device Changes to Reduce Reliance on pMDI Devices (Adults)

(NHS price per item highlighted with each medical product – correct at time of writing (March 2022))

SABA (Short -acting Beta ₂ agonist) 1st LINE - DPI -as (<i>Easyhaler</i>) 2nd LINE - lowest carbon impact pMDI (<i>Salamol</i>)							
Switch FROM (pMDI)	1 st LINE Switch TO: (DPI)	2 nd LINE (if DPI not possible) Switch TO:	Different Drug(s)?	Different Dose?	Dorset Formulary Position	Est. Change in Carbon Footprint	Link to device technique counselling
[GENERIC prescription] Salbutamol CFC-free inhaler 100 mcg (2 puffs QDS)	Easyhaler Salbutamol 100mcg (£3.31) 	Salamol 100mcg (£1.46) 	No	Yes (to Easyhaler 1-2 dose PRN up to QDS) <i>NOTE: Salamol dose remains unchanged</i>		<i>NOTE: Most generic prescribing results in Ventolin being dispensed</i> High to Low (to Easyhaler) High to Medium (to Salamol)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/ pMDI (same device as dispensed against any generic salbutamol prescription) https://www.asthma.org.uk/advice/inhaler-videos/pmdi/
Ventolin Evohaler 100 mcg (Salbutamol) (2 puffs QDS) (£1.50) 	Easyhaler Salbutamol 100mcg (£3.31) 	Salamol 100mcg (£1.46) 	No	Yes (to DPI) (Easyhaler 1-2 dose PRN up to QDS) <i>NOTE: Salamol dose remains unchanged</i>		High to Low (to Easyhaler) High to Medium (to Salamol)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/ pMDI (same device as Ventolin) https://www.asthma.org.uk/advice/inhaler-videos/pmdi/



LABA (Long -acting Beta₂ agonist)





Priority is to review these patients for poor asthma control – consider **ICS/LABA combination** as DPI if possible e.g. *Fostair NEXThaler / Fobumix Easyhaler / Symbicort Turbohaler / Relvar Ellipta*. Note: NICE recommends **montelukast 10mg** instead of stand-alone LABA. **If Stand-alone LABA is required** then follow below:

Switch FROM (pMDI)	Switch TO (DPI)	Different Drug(s)?	Different Dose?	Dorset Formulary Position	Est. Change in Carbon Footprint	Link to device technique counselling
<p>Salmeterol 25mcg Generic or Branded e.g. [Serevent Evohaler] (2 puff BD) ASTHMA & COPD (£29.26)</p> 	<p>Serevent Accuhaler 50mcg (£35.11) ASTHMA & COPD</p>  <p>NOTE: Prescribe by brand</p>	No	<p>Yes (1 dose BD)</p> <p>NOTE: 2 dose salmeterol pMDI = 1 dose serevent accuhaler</p>	 GREEN	High to Low (to Accuhaler)	<p>Accuhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/accuhaler/</p>
<p>Atimos Modulite 12mcg (Formoterol) (1 puff BD) (£30.06) ASTHMA & COPD</p> 	<p>Formoterol Easyhaler 12mcg (Formoterol) (£23.75) ASTHMA & COPD</p> 	No	<p>No (1 dose BD)</p>	 GREEN	High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>

Triple Device ICS, LABA and LAMA inhalers






Patients requiring an ICS, LABA, LAMA and prescribed these as separate devices might be potentially suitable for a combination triple device.
 ICS = inhaled corticosteroids. LAMA= long-acting antimuscarinic, LABA = Long -acting Beta₂ agonist








Switch FROM (pMDI)	Switch TO (DPI)	Different Drug(s)?	Different Dose?	Dorset Formulary Position	Est. Change in Carbon Footprint	Link to device technique counselling
Separate ICS/ LABA/ LAMA devices	<p><u>Option 1</u> Enerzair Breezhaler 136/114/46mcg (Mometasone, indacaterol, glycopyrronium) (£44.50) (contains High dose ICS)</p>  <p>ASTHMA only</p>	(Depends on starting inhalers)	Depends on starting inhalers Enerzair (1 dose OD)	 Initiation or switch requires secondary care referral or advice as HIGH dose corticosteroid	High or medium to Low <i>NOTE: triple devices reduce the number of devices needed therefore lower carbon footprint – also 3 in 1 device provides a cost saving</i>	Breezhaler: https://www.asthma.org.uk/advice/inhaler-videos/breezhaler/ NOTE Enerzair Breezhaler only licenced for ASTHMA








	<p><u>Option 2</u> Trelegy Ellipta 92/55/22mcg (Fluticasone, umeclidinium/ vilanterol) (£44.50)</p>  <p>COPD only</p>	(Depends on starting inhalers)	<p>Trelegy (1 dose OD)</p>		<p>High or medium to Low</p>	<p>Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/</p>
	<p><u>Option 3</u> Trimbow NEXThaler (or Trimbow pMDI 87/5/9mcg) 88/5/9mcg (Beclomethasone dipropionate, formoterol, glycopyrronium) (£44.50 - pMDI & DPI)</p>  <p>NOTE: DPI licence: COPD only pMDI licence: ASTHMA & COPD</p>	(Depends on starting inhalers)	<p>Trimbow (2 dose BD) NOTE: <i>Same dose pMDI & DPI</i></p>		<p>High or medium to Low (to Nexthaler)</p> <p>NOTE: <i>Even Trimbow pMDI has a HIGH footprint but likely to reduce carbon footprint due to reduction in number of inhaler devices</i></p>	<p>NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/</p> <p>pMDI: https://www.asthma.org.uk/advice/inhaler-videos/pmdi/</p>








ICS (inhaled Corticosteroids)






Always check the relative potencies of inhaled steroids when considering step changes or switching devices for any reason








Switch FROM (pMDI)	Switch TO (DPI)	Different Drug(s)?	Different Dose?	Dorset Formulary Position	Est. Change in Carbon Footprint	Link to device technique counselling
Clenil modulite 50mcg (beclometasone) (2 puffs BD) (£3.70) ASTHMA only (Very Low dose ICS) 	<u>Option 1</u> 1) Pulmicort Turbohaler 100mcg (budesonide) (£14.25) ASTHMA only 	Yes	Yes (1 dose BD) <i>Note: 2 puffs Clenil 50mcg = 1 dose Pulmicort 100mcg</i>	 GREEN	High to Low (to Turbohaler)	Turbohaler: https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/
	<u>Option 2</u> Easyhaler Budesonide 100mcg (£8.86) ASTHMA only 	Yes	Yes (1 dose BD)	 GREEN	High to Low (to Easyhaler)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/







<p>Clenil modulite 100mcg (beclometasone) (2 puffs BD) (£7.42) ASTHMA only (Low dose ICS)</p> 	<p><u>Option 1</u> Easyhaler Beclometasone 200mcg (£14.93) ASTHMA only</p> 	No	<p>Yes (1 dose BD)</p> <p>NOTE: There is no 100mcg beclomethasone easyhaler</p>		High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>
	<p><u>Option 2</u> Pulmicort Turbohaler 100 mcg (budesonide) (£14.25) ASTHMA only</p> 	Yes	No (2 puff BD)		High to Low (to Turbohaler)	<p>Turbohaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
	<p><u>Option 3</u> Easyhaler Budesonide 100mcg (£8.86) ASTHMA only</p> 	Yes	Yes (2 puff BD)		High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>




<p>Clenil modulite 200mcg (beclometasone) (2 puffs BD) (£16.17) ASTHMA only (Medium dose ICS)</p> 	<p><u>Option 1</u> Easyhaler Beclometasone 200mcg (£14.93) ASTHMA only</p> 	No	No (2 dose BD)	 GREEN	High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>
	<p><u>Option 2</u> Pulmicort Turbohaler 200 mcg (budesonide) (£14.25) ASTHMA only</p> 	Yes	No (2 dose BD)	 GREEN	High to Low (to Turbohaler)	<p>Turbohaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
	<p><u>Option 3</u> Easyhaler Budesonide 200mcg (£17.21) ASTHMA only</p> 	Yes	No (2 dose BD)	 GREEN	High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>

<p>Clenil modulite 250mcg (beclometasone) (2 puffs BD) (£16.29) ASTHMA only (High dose ICS)</p> 	<p><u>Option 1</u> Easyhaler Beclometasone 200mcg (£14.93) ASTHMA only</p> 	No	No (2 dose BD)		High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>	
	<p><u>Option 2</u> Pulmicort Turbohaler 200mcg (budesonide) (£14.25) ASTHMA only</p> 	Yes	No (2 dose BD)	<i>Note: Clenil 250mcg 20% more potent than budesonide 200mcg</i>		High to Low (to Turbohaler)	<p>Turbohaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
	<p><u>Option 3</u> Easyhaler Budesonide 200mcg (£17.21) ASTHMA only</p> 	Yes	No (2 dose BD)			High to Low (to Easyhaler)	<p>Easyhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>







<p>QVAR 50mcg (Beclometasone) (1 puff BD) (£7.87) (Low Dose ICS)</p> <p>ASTHMA only</p> <p><i>-extra fine particle twice as potent as clenil</i></p> 	<p><u>Option 1</u> Pulmicort Turbohaler 100mcg (budesonide) (£14.25) ASTHMA only</p> 	<p>Yes</p>	<p>No (1 puff BD) (Low Dose ICS) (1 puff QVAR 50 = 1 dose Pulmicort 100)</p>		<p>High to Low (to Turbohaler)</p>	<p>Turbohaler: https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
	<p><u>Option 2</u> Easyhaler Budesonide 100mcg (£8.86) ASTHMA only</p> 	<p>Yes</p>	<p>No (1 puff BD) (Low Dose ICS)</p>		<p>High to Low (to Easyhaler)</p>	<p>Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>





<p>QVAR 100mcg (Beclometasone) (1 puff BD) (£17.21) (Medium Dose ICS)</p> <p>ASTHMA only</p> <p><i>-extra fine particle twice as potent as clenil</i></p> 	<p><u>Option 1</u> Easyhaler Beclometasone 200mcg (£14.93) ASTHMA only</p> 	No	No (1 dose BD)	 GREEN	High to Low (to Easyhaler)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/	
	<p><u>Option 2</u> Pulmicort Turbohaler 200mcg (budesonide) (£14.25) ASTHMA only</p> 	Yes	No (1 dose BD)	(1 puff QVAR 100mcg = 1 puff Pulmicort 200mcg)	 GREEN	High to Low (to Turbohaler)	Turbohaler: https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/
	<p><u>Option 3</u> Easyhaler Budesonide 200mcg (£17.21) ASTHMA only</p> 	Yes	No (1 dose BD)		 GREEN	High to Low (to Easyhaler)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/








<p>Flixotide evohaler 50mcg (fluticasone propionate) (2 puffs BD) (£6.53) ASTHMA only (Low Dose ICS)</p> 	<p>Flixotide Accuhaler 100mcg (fluticasone propionate) (£8.00) ASTHMA only</p> 	<p>No</p>	<p>Yes (1 puff BD)</p> <p>NOTE: 2 puffs evohaler 50mcg = 1 dose accuhaler 100mcg</p> <p>(Low Dose ICS)</p>		<p>High to Low (to Accuhaler)</p>	<p>Accuhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/accuhaler/</p>
<p>Flixotide evohaler 125mcg (fluticasone propionate) (2 puffs BD) (£21.26) ASTHMA only (Medium Dose ICS)</p> 	<p>Flixotide Accuhaler 250mcg (fluticasone propionate) (£25.51) ASTHMA only</p> 	<p>No</p>	<p>Yes (1 puff BD)</p> <p>NOTE: 2 puff evohaler 125mcg = 1 dose accuhaler 250mcg</p> <p>(Medium Dose ICS)</p>		<p>High to Low (to Accuhaler)</p>	<p>Accuhaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/accuhaler/</p>








<p>Flixotide evohaler 250mcg (fluticasone propionate) (2 puffs BD) (£36.14) ASTHMA only (High Dose ICS)</p> 	<p>Flixotide Accuhaler 500mcg (fluticasone propionate) (£43.37) ASTHMA only</p> 	<p>No</p>	<p>Yes (1 puff BD)</p> <p><i>NOTE: 2 puffs evohaler 250mcg = 1 dose accuhaler 500mcg</i></p> <p>(High Dose ICS)</p>		<p>High to Low (to Accuhaler)</p>	<p>Accuhaler: https://www.asthma.org.uk/advise/inhaler-videos/accuhaler/</p>
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ICS/ LABA (Combination inhaled Corticosteroids + Long -acting Beta₂ agonist)





Switch FROM (pMDI)	Switch TO (DPI)	Different Drug(s)?	Different Dose?	Dorset Formulary Position	Est. Change in Carbon Footprint	Link to device technique counselling
<p>Fostair 100/6mcg (beclomethasone/ formoterol)</p> <p>Note: >1 puff BD of 100/6 is low dose ICS) >2 puffs BD of 100/6 is medium dose ICS</p> 	<p><u>Option 1</u> Fostair NEXThaler 100/6mcg (beclomethasone/ formoterol) (£29.32) ASTHMA & COPD</p> 	No	<p>If low dose ICS 100/6 pMDI 1 puff BD then new dose = (1 dose BD)</p> <p>If medium dose ICS 100/6 pMDI 2 puff BD then new dose = (2 dose BD)</p>	 GREEN	High to Low (to NEXThaler)	<p>NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/</p>
 <p>(£29.32)</p> <p>-extra fine particle beclomethasone.</p> <p>ASTHMA & COPD</p>	<p><u>Option 2</u> Fobumix Easyhaler 80/4.5mcg or 160/4.5mcg (Budesonide/ formoterol) (£21.50)</p>  <p>Note: - 80/4.5mcg =LOW ICS dose, licence ASTHMA ONLY - 160/4.5mcg =MEDIUM ICS dose, licence ASTHMA & COPD</p>	Yes	<p>80/4.5mcg (2 dose BD) ASTHMA ONLY (Low Dose ICS)</p> <p>Or</p> <p>160/4.5mcg (2 dose BD) ASTHMA & COPD (Medium Dose ICS) Use 160/4.5mcg fobumix If on medium dose fostair pMDI</p>	 GREEN	High to Low (to Easyhaler)	<p>Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/</p>






	<p><u>Option 3</u> Symbicort Turbohaler 200/6mcg (budesonide/ formoterol) (£28.00) ASTHMA & COPD</p> 	Same ICS (different LABA)	<p>If low dose fostair 100/6 [1 puff BD] then dose unchanged = (1 dose BD) (Low Dose ICS)</p> <p>If medium dose fostair 100/6 [2 puff BD] then dose unchanged = (2 dose BD) (Medium Dose ICS)</p> <p>Note: 1 puff fostair pMDI 100/6mcg = 1 dose Symbicort 200/6mcg</p>	 GREEN	High to Low (to Turbohaler)	<p>Turbohaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
	<p><u>Option 4</u> Relvar Ellipta 92/22mcg (Fluticasone furoate/ vilanterol) (£22.00) ASTHMA & COPD</p> 	Yes	<p>Yes (1 dose OD)</p> <p>Note: Relvar 92/22 is a Low to Medium dose ICS device</p>	 GREEN	High to Low (to Ellipta)	<p>Ellipta:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/ellipta/</p>






<p>Fostair 200/6mcg (Beclomethasone/ formoterol) (2 puffs BD)</p> <p>Note: > 2 puff BD is high dose ICS</p>  <p>(£29.32)</p> <p>-extra fine particle beclomethasone.</p> <p>ASTHMA only</p>	<p><u>Option 1</u> Fostair NEXThaler 200/6mcg (Beclomethasone/ formoterol) (£29.32) ASTHMA ONLY</p> 	No	No (2 dose BD) (High dose ICS)	 GREEN	High to Low (to NEXThaler)	NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/
	<p><u>Option 2</u> Fobumix Easyhaler 320/4.5mcg (Budesonide/ formoterol) (£21.50) ASTHMA & COPD</p> 	Yes	Yes (2 dose BD) (High dose ICS)	 GREEN	High to Low (to Easyhaler)	Easyhaler: https://www.asthma.org.uk/advice/inhaler-videos/easyhaler/
	<p><u>Option 3</u> Relvar Ellipta 184/22mcg (Fluticasone furoate/ vilanterol) (£29.50) ASTHMA ONLY</p> 	Yes	Yes (1 dose OD) (High dose ICS)	 GREEN	High to Low (to Ellipta)	Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/





<p>Seretide Evohaler 50</p> <p>50/25mcg (Fluticasone propionate/ salmeterol)</p> <p>(2 puffs BD)</p> <p>Note: >2 puffs BD of Seretide 50 is low dose ICS</p>  <p>(£17.46)</p> <p>ASTHMA ONLY</p>	<p><u>Option 1</u></p> <p>Fostair NEXThaler 100/6mcg (beclomethasone/ formoterol) (£29.32) ASTHMA & COPD</p> 	Yes	Yes (1 dose BD) (Low Dose ICS) NOTE: 2 puffs Seretide 50 = 1 dose fostair 100/6	 GREEN	High to Low (to NEXThaler)	NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/
	<p><u>Option 2</u></p> <p>Symbicort Turbohaler 200/6mcg (budesonide/ formoterol) (£28.00) ASTHMA & COPD</p> 	Yes	Yes (1 dose BD) (Low Dose ICS) NOTE: 2 puffs Seretide 50 = 1 dose Symbicort 200/6	 GREEN	High to Low (to Turbohaler)	Turbohaler: https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/
	<p><u>Option 3</u></p> <p>Relvar Ellipta 92/22mcg (Fluticasone furoate/ vilanterol) (£22.00) ASTHMA & COPD</p> 	Yes (Different salt form of fluticasone)	Yes (1 dose OD) NOTE: Relvar 92/22mcg is low-medium dose ICS	 GREEN	High to Low (to Ellipta)	Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/

<p>Seretide Evohaler 125</p> <p>125/25mcg (Fluticasone propionate/ salmeterol)</p> <p>(2 puffs BD)</p> <p>Note: >2 puffs BD of Seretide 125 is medium dose ICS</p>  <p>(£23.45)</p> <p>ASTHMA ONLY</p>	<p><u>Option 1</u></p> <p>Fostair NEXThaler 100/6mcg (beclomethasone/ formoterol) (£29.32) ASTHMA & COPD</p> 	Yes	No (2 doses BD) (Medium Dose ICS) NOTE: 2 puffs Seretide 125 = 2 dose fostair 100/6	 GREEN	High to Low (to NEXThaler)	NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/
	<p><u>Option 2</u></p> <p>Symbicort Turbohaler 200/6mcg (budesonide/ formoterol) (£28.00) ASTHMA & COPD</p> 	Yes	No (2 doses BD) (Medium Dose ICS) NOTE: 2 puffs Seretide 125 = 2 dose symbicort 200	 GREEN	High to Low (to Turbohaler)	Turbohaler: https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/
	<p><u>Option 3</u></p> <p>Relvar Ellipta 92/22mcg (Fluticasone furoate/ vilanterol) (£22.00) ASTHMA & COPD</p> 	Yes (Different salt form of fluticasone)	Yes (1 dose OD) NOTE: relvar 92/22mcg is low-medium dose ICS	 GREEN	High to Low (to Ellipta)	Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/

<p>Symbicort pMDI 100/3mcg (budesonide/ formoterol)</p> <p>2 puffs BD Or 4 puffs BD</p>  <p>(£14.00)</p> <p>ASTHMA ONLY</p>	<p>Symbicort Turbohaler 100/6mcg (budesonide/ formoterol) (£28.00) ASTHMA & COPD</p> 	No	<p>Yes,</p> <p>If on 100/3mcg pMDI [2 puff BD] then new dose with DPI = (1 dose BD) (Low Dose ICS)</p> <p>If on 100/3mcg pMDI [4 puff BD] then new dose with DPI = (2 dose BD) (Medium Dose ICS)</p> <p><i>Note: 2 puffs Symbicort 100/3mcg MDI = 1 dose Symbicort 200/6mcg DPI</i></p>	 GREEN	<p>High to Low (to Turbohaler)</p>	<p>Turbohaler:</p> <p>https://www.asthma.org.uk/advice/inhaler-videos/turbohaler/</p>
<p>Symbicort pMDI 200/3mcg (budesonide/ formoterol) 2 puffs BD (£28.00)</p>  <p>ASTHMA ONLY</p>		No	<p>No (2 dose BD)</p> <p><i>Note: 1 puff Symbicort 200/3mcg pMDI = 1 dose Symbicort 200/6mcg DPI</i></p>		<p>High to Low (to Turbohaler)</p>	

<p>Flutiform pMDI 50/5mcg (fluticasone/ formoterol) (2 puffs BD)</p> <p>Note: >2 puffs BD of flutiform 50/5mcg is low dose ICS</p> <p>(£14.40)</p>  <p>ASTHMA ONLY</p>	<p><u>Option 1</u> Fostair NEXThaler 100/6mcg (beclomethasone/ formoterol) (£29.32) ASTHMA & COPD</p> 	<p>Yes (same LABA (different ICS)</p>	<p>Yes (1 dose BD) (Low Dose ICS) NOTE: 2 puffs flutiform 50/5mcg pMDI = 1 dose fostair 100/6mcg DPI</p>	 GREEN	<p>High to Low (to NEXThaler)</p>	<p>NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/</p>
	<p><u>Option 2</u> Relvar Ellipta 92/22mcg (Fluticasone furoate/ vilanterol) (£22.00) ASTHMA & COPD</p> 	<p>Yes (different salt form of fluticasone)</p>	<p>Yes (1 dose OD) NOTE: Relvar 92/22mcg is low-medium dose ICS,</p>	 GREEN	<p>High to Low (to Ellipta)</p>	<p>Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/</p>

<p>Flutiform pMDI 125/5mcg (fluticasone/ formoterol) (2 puffs BD)</p> <p>Note: >2 puffs BD of flutiform 125/5mcg is medium dose ICS</p> <p>(£28.00)</p>  <p>ASTHMA ONLY</p>	<p><u>Option 1</u> Fostair NEXThaler 100/6mcg (beclomethasone/ formoterol) (£29.32) ASTHMA & COPD</p> 	Yes (same LABA (different ICS)	No (2 dose BD) (Medium Dose ICS)	 GREEN	High to Low (to NEXThaler)	NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/
	<p><u>Option 2</u> Relvar Ellipta 92/22mcg (Fluticasone furoate/ vilanterol) (£22.00) ASTHMA & COPD</p> 	Yes (different salt form of fluticasone)	Yes (1 dose OD) NOTE: Relvar 92/22mcg is low-medium dose ICS,	 GREEN	High to Low (to Ellipta)	Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/

<p>Flutiform pMDI 250/10mcg (fluticasone/ formoterol) (2 puffs BD)</p> <p>Note: >2 puffs BD of flutiform 250/10mcg is high dose ICS</p> <p>(£45.56)</p>  <p>ASTHMA ONLY</p>	<p><u>Option 1</u> Fostair NEXThaler 200/6mcg (Beclomethasone/ formoterol) (£29.32) ASTHMA ONLY</p> 	Yes (same LABA (different ICS)	No (2 dose BD) (High dose ICS)	 GREEN	High to Low (to Ellipta)	NEXThaler: https://www.asthma.org.uk/advice/inhaler-videos/nexthaler/
	<p><u>Option 2</u> Relvar Ellipta 184/22mcg (Fluticasone furoate/ vilanterol) (£29.50) ASTHMA ONLY</p>	Yes (different salt form of fluticasone)	Yes (1 dose OD) (High dose ICS)	 GREEN	High to Low (to Ellipta)	Ellipta: https://www.asthma.org.uk/advice/inhaler-videos/ellipta/

Disclaimer: These recommendations are suggested options based on possible clinical suitability with a direct focus on improving environmental considerations. The overall appropriateness of each suggestion must be considered on a case by case basis and clinicians are expected to use their judgement at all times.

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