

## Sheffield CCG Greener Inhaler Guide

### The Environmental Impacts and UK Facts

- Pressurised metered dose inhalers (pMDIs) contain HFAs as propellants which are powerful greenhouse gases.
- Inhalers contribute to 4% of the NHS carbon footprint - pMDIs account for most of this<sup>1</sup>.
- The UK is far more reliant on pMDIs than any other country in Europe – 70% of inhalers used in the UK are pMDIs compared to less than 50% elsewhere and less than 10% in Sweden<sup>2,3</sup>.
- The NHS Long Term Plan<sup>4</sup> highlights that dry powder inhalers (DPIs) should be considered where clinically appropriate.

### Patient Factors

- Many patients do not use a pMDI correctly or with a spacer device and therefore do not receive the full dose<sup>5</sup>.
- Most patients can use a DPI.
- Some patients lack the inspiratory effort to use DPIs. In-check Dials and whistle devices may be used as training aids.
- For some patients dexterity issues may play a role in inhaler choice.
- Children under 12 years should continue to use pMDI plus spacer first line. For children 12-15 years continue with pMDI plus spacer if there is a clinical need based on ability to use different devices.
- Patient choice continues to be important.
- Any inhaler device switches must be done with the agreement of the patient with compliance and technique being checked.
- Use the [NICE Patient Decision Aid – Inhalers for Asthma](#) to assist with decision making.
- Greener respiratory healthcare should be patient centred, involving the patient in decision making about their overall care as well as inhaler choice.

### Greener inhaler Top Tips

- [Over reliance on short acting beta agonists \(SABA\) should be addressed as a priority.](#)
- Get maintenance treatment right to lower the amount of SABA used in asthma.
- Use DPIs for all maintenance treatment in adults where appropriate and agreed with the patient.
- For SABA we do not advocate a switch to DPI due to the risks of a patient not having the inspiratory effort during an asthma attack. SABA pMDI + spacer is the appropriate treatment for acute asthma episodes.
- Prescribe Salamol<sup>®</sup> pMDI instead of Ventolin<sup>®</sup> as this is a small volume canister containing less propellant.
- Avoid Symbicort<sup>®</sup> pMDI and Flutiform<sup>®</sup> pMDI which contain a more potent HFA (HFA 227). NB Symbicort<sup>®</sup> Turbohaler<sup>®</sup> is a DPI
- [Review unlicensed MDIs being used in COPD first.](#)
- **We do not advocate “blanket switching” of inhalers for the purpose reducing carbon footprint. All inhalers device switches should be done with the agreement of the patient.**

## Addressing over reliance on SABA in asthma

SABA over reliance is a significant issue in the management of asthma. Rather than simply switching an asthma patient's SABA inhaler to a low carbon alternative, it is more important to address the issue of over reliance on SABA. Most asthma patients should be able to achieve complete control of their asthma with appropriate maintenance therapy. Complete control of asthma should be:

- No limitation of activities
- No night time waking
- Little or no SABA use

By ensuring the best and most appropriate maintenance treatment for asthma and reducing over reliance on SABA there could be a considerable reduction in the use of pMDIs. If someone is requiring three or more SABA inhalers in a year then they are possibly over reliant and this should be addressed. Using 3 SABA inhalers in a year means a patient would be using 12 puffs a week or 2 puffs per day; this is indicative of poor asthma control. (See [Asthma Slide Rule](#))

Current guidelines for the management of acute asthma in adults and children recommend treatment with pMDI and spacer for the management of mild and moderate asthma attacks<sup>6</sup>. Therefore, this needs to be taken into account when switching patients from pMDI to DPI. Asthma patients suffering from an exacerbation may not have the inspiratory effort to use a dry powder inhaler.

[See local asthma guidelines](#) (page 6) for appropriate maintenance therapies. A DPI option is listed for each inhaler type, except SABA - for reasons aforementioned.

For further support to address SABA over reliance please see the [PCRS Asthma Right Care Webinar Series](#)

## Addressing the use of unlicensed pMDIs in COPD

There are many ICS/LABA (inhaled corticosteroid/long acting beta agonist) pMDIs being used to treat COPD in Sheffield. A lot of these do not have a licence to treat COPD. By addressing the use of these unlicensed products by using a formulary choice DPI, where appropriate, we can improve clinical care and reduce carbon footprint at the same time.

### Suggested actions

- Search for patients with COPD only who are prescribed an unlicensed pMDI ([see list below](#))
  - Review continued need for ICS in patients with COPD alone. See [Sheffield ICS withdrawal protocol](#) – bearing in mind advice not to withdraw ICS during COVID-19 pandemic
  - Review patients to discuss whether it is appropriate to change to:
    - [a formulary choice](#) licensed DPI ICS/LABA combination. These are Relvar<sup>®</sup> Ellipta<sup>®</sup> 92/22, Symbicort<sup>®</sup> Turbohaler<sup>®</sup> 400/12 and Fostair<sup>®</sup> NEXThaler<sup>®</sup> 100/6
- or**

- a [formulary choice](#) LABA/LAMA (long acting muscarinic antagonist). These are Anoro Ellipta<sup>®</sup> ▼ 55 micrograms/22 micrograms, Duaklir Genuair<sup>®</sup> ▼ 340 micrograms/12 micrograms or Ultibro Breezhaler<sup>®</sup> 85 micrograms/43 micrograms inhalation capsules and device
- Ensure [correct inhaler technique](#) with any new inhaler prescribed
- If a pMDI ICS/LABA is still required, choose Fostair<sup>®</sup> pMDI if appropriate as this has a COPD licence and follow the advice below - [Continuing pMDI for maintenance therapy](#) where appropriate
- There is currently no LABA/LAMA combination available as a pMDI. If a patient is unable to use any of the dry powder formulary choice inhalers you may wish to consider Spiolto Respimat<sup>®</sup> which is a soft mist inhaler and also has a lower carbon footprint. Please ensure [correct training](#) to use this device and ensure that the patient is able to insert the canister correctly themselves or get assistance to do so
- Use triple therapy inhaler if patient also uses LAMA to rationalise inhaler use:
  - DPI - Trelegy<sup>®</sup> Ellipta<sup>®</sup> ▼ if dry powder is appropriate **or**
  - pMDI - Trimbaw<sup>®</sup> if pMDI required - following the [Continuing pMDI for maintenance therapy](#) where appropriate advice

#### ICS/LABA pMDIs which do not have a licence for the management of COPD

- Seretide<sup>®</sup> Evohaler<sup>®</sup> 50/125/250
- Sirdupla<sup>®</sup> pMDI 125/250
- AirFluSal<sup>®</sup> pMDI 125/250
- Sereflo<sup>®</sup> pMDI 125/250
- Aloflute<sup>®</sup> pMDI 125/250
- Combisal<sup>®</sup> pMDI 125/250

### Continuing pMDI for maintenance therapy where appropriate

There may be patients who simply can't use a DPI due to inhalation or dexterity issues. In all instances pMDI still remains an option where clinically appropriate for the patient.

If patients are continuing using a pMDI:

- Ensure [inhaler technique](#) is optimised
- Use a spacer with either a [single breath](#) or [tidal breathing](#)
- Advise patients to keep a track of the number of doses (where there is no dose counter) so that inhalers are not discarded before they are empty
- Advise patients to use the whole inhaler and not to order a new one monthly if the inhaler will last them longer; see [NICE Patient Decision Aid - How to work out when to replace your inhaler if it does not have a counter or indicator](#) for further advice for patients
- Rationalise the number of puffs required, for example if someone is using Clenil Modulite<sup>®</sup> 100 2 puffs BD change this to Clenil Modulite<sup>®</sup> 200 1 puff BD where appropriate

Note: Breath actuated metered dose inhalers (BAIs) are estimated to contain a similar amount of propellant as pMDIs and therefore they are not a suitable alternative when considering an inhaler change for the green agenda.

A transition to low carbon propellants from 2025 is likely for many manufacturers. This will significantly lower the carbon footprint of their pMDI inhalers.

## Prescribing data

OpenPrescribing has produced a graph to show [MDIs prescribed as a proportion of all inhalers](#) in BNF Chapter 3, excluding salbutamol. The data can be seen at [practice](#) and [PCN](#) level – Enter practice/PCN then filter graphs to show respiratory graphs, the environmental impact graph is one of the three respiratory graphs.

## Waste and Recycling

Encourage all patients to return inhalers to the pharmacy to be disposed of safely.

See [Greener prescribing – Waste and Sustainability Resources](#) for further support, including PrescQIPP receptionist guide '[How to manage inhaler supplies](#)'. Log in required to access this resource; to register see [link](#).

## References

1. NHS Sustainability Unit, Tackling the Environmental Impact of inhalers <https://www.sduhealth.org.uk/news/688/tackling-the-environmental-impact-of-inhalers/>
2. Hillman T et al. Inhaled drugs and global warming: time to shift to dry powder inhalers. *BMJ* 2013;346:f3359
3. Ford S. Climate friendly asthma inhaler swap encouraged. *Nursing Times* March 2017 <https://www.nursingtimes.net/news/policies-and-guidance/climate-friendly-asthma-inhaler-swap-encouraged-23-03-2017/> [accessed 7.10.20]
4. The NHS Long Term Plan 2019 [www.longtermplan.nhs.uk/](http://www.longtermplan.nhs.uk/)
5. Fink JB, Rubin BK. Problems with inhaler use: a call for improved clinician and patient education. *Respir Care*. 2005;50(10):1360-1375.
6. BTS/SIGN British Guideline on the Management of Asthma, A National Clinical Guideline 2003 revised July 2019 <https://www.brit-thoracic.org.uk/quality-improvement/guidelines/asthma/>

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