

Respiratory Care and the Environment



Summary of resources for **Primary care and Secondary Care** team members that can improve respiratory care and support decision making with an environmental consideration.

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[Picture source](#)



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Respiratory Care and the Environment

Table of Contents

Page 3-11 Primary care Greener respiratory resources

Pages 12-15 Implementation checks and resource comparison

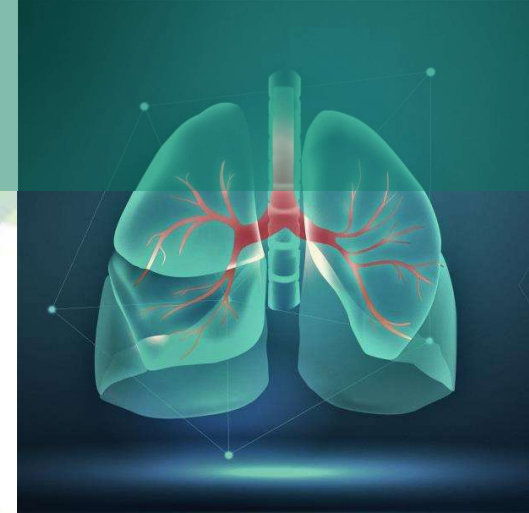
Page 16 Inhaler disposal and recycling

Pages 17 - 22 Secondary care quality improvement resource



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Respiratory Care and the Environment



UK Outcomes

- Patients in the United Kingdom experience poorer outcomes in terms of respiratory disease in comparison to comparable countries.
- Why Asthma Still Kills reports that high use of short acting beta agonists (salbutamol and terbutaline) and poor adherence in the use of inhaled corticosteroids in asthma suggests poorer asthma outcomes (More admissions and deaths)
- Inhalers account for 3% of the total NHS carbon footprint (Delivering a Net Zero Health Service) with salbutamol inhalers being the largest source of carbon emissions from NHS prescribing. Metered dose inhalers in particular have a very high environmental impact.

Shared Decision Making

- The best impact for both patients and the environment is a person who has their respiratory disease well controlled reducing exacerbations and further acute care requirements.
- Key to all respiratory consultations is ensuring shared decision making and patient centred care.
- The correct inhaler for a patient is the one that they can and will use



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Local Resources

Follow Local Inhaler prescribing guidelines

Coventry and Warwickshire

Black Country

Staffordshire and Stoke on Trent (South)

Birmingham

Staffordshire and Stoke on Trent (North)

Shropshire, Telford and Wrekin

Herefordshire and Worcestershire



Understand Diagnostic test availability

Check which confirmatory investigations (Spirometry/FeNO/Peak flow variation) are available. For further information and support with FeNO see [Asthma FeNo - WMAHSN](#)



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Carbon reduction strategies

Consider Dry Powder Inhaler (DPI) or Soft Mist Inhaler (SMI) before Metered Dose Inhaler (MDI)

- Significantly lower carbon impact (20-30 times)
- Easier to teach
- Have a dose counter
- More convenient for patient (no spacer required)

For Asthma consider Maintenance and Reliever Therapy (MART)

- Free training available through [SENTINEL Plus®](#) programme- password and link details available through Health Innovation West Midlands [project manager](#)
- Use licensed inhalers for MART as per local formulary (Fobumix®, Symbicort®, Fostair®, Atecura®, Luforbec®, DuoResp Spiromax®, WockAIR®)

Single device type

- Aim to move patients onto one inhaler device type
- Same device for preventer & reliever if possible and if not, all devices
- Either MDI, SMI or DPI, to ensure same inhalation technique for all

Consider doses

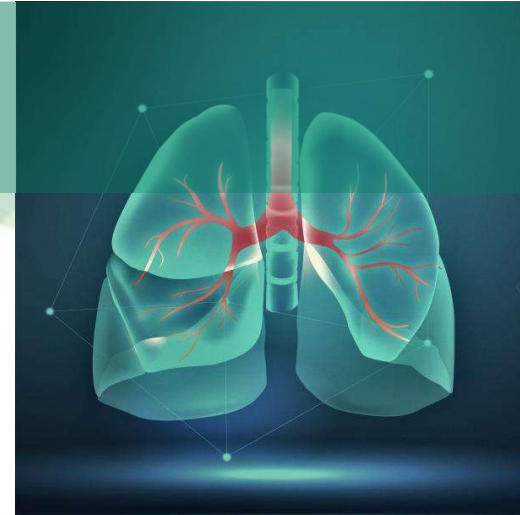
- Can a patient safely have one dose of a higher strength inhaler rather than two doses of a lower strength inhaler?



Warning for Inhaler Switch Programmes

SABA switch programmes:

- e.g. from Ventolin® & generic Salbutamol to Salamol® or Airomir®
- This should be undertaken with caution as it may undermine changes particularly if looking to undertake Maintenance and Reliever Therapy (MART) programmes. Switching should be undertaken as part of a structured medication review and frequency of use of Short acting beta agonists can be an indicator of poor respiratory control.
- This does not deal with underlying problems but can provide a quick carbon reduction. Further details seen in [Greener Practice Toolkit](#)



Other inhaler switches including ICS:

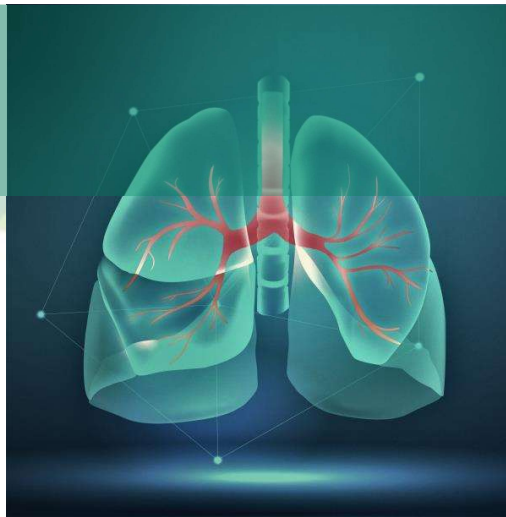
Should be done in consultation with patients as part of an asthma review or structured medication review

**All patients: Check inhaler technique.
Use Community Pharmacy New Medicines Service**



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Key Resources



NICE: National Institute for Health and Care Excellence Decision Aid

- Information for patients on the differences between types of inhalers and their impact on the environment
- [NG80 Asthma inhalers and the environment patient decision aid \(nice.org.uk\)](#)

Asthma inhalers and climate change

What is this decision aid about?

Inhalers are a key part of treating your asthma. The most important thing is that your asthma is kept as well controlled as possible, using inhalers that suit you well.

Some types of inhaler have a bigger carbon footprint than others. That is, they have a bigger effect on climate change (global warming). Everyone has a carbon footprint. If you would like to think about reducing the carbon footprint of your asthma treatment, this decision aid explains the options. It is intended to help discussions between people aged 12 and over and their healthcare professionals.

Do not stop using the inhalers you already have without talking to your healthcare professional.

It is important to make a choice that is right for you. Talk to your healthcare professional before making any changes to your treatment. A good time to do this might be at your next routine asthma appointment.

If you stop your treatment, your asthma might get out of control, which can be dangerous for your health. It will also have a higher carbon footprint because you will need to use your reliever (rescue) inhaler more and may need more visits to your GP or hospital.

How do inhalers affect the environment?

Most people with asthma have one or more preventer inhalers (which control your asthma) and a reliever or rescue inhaler (usually blue), which relieves symptoms. Some types of inhalers contain a propellant (gas) to carry the medicine into the lungs. The propellant has a greenhouse gas effect, which contributes to climate change (global warming). Other types of inhaler do not contain propellants.

The table on page 2 explains the different types of inhaler. The pictures shown are just examples. Your inhaler might look slightly different. If you are not sure what type of inhaler you have, ask your healthcare professional.

NICE National Institute for Health and Care Excellence

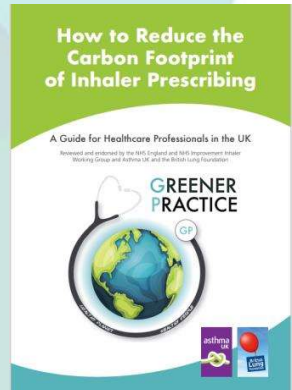
British Thoracic Society

Healthcare Improvement Scotland

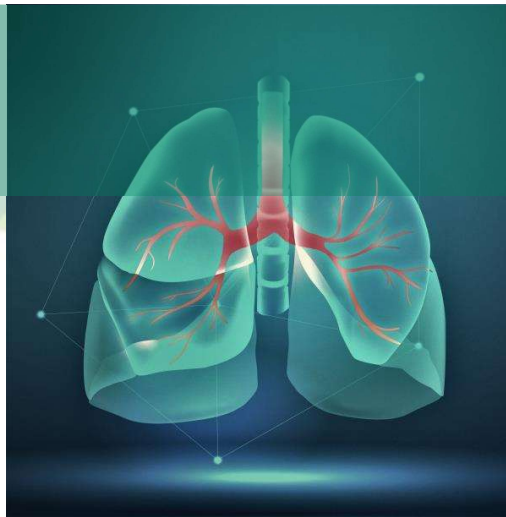
SIGN

Greener Practice- High Quality and Low Carbon Asthma Care

- Toolkit and Stepwise QI projects [High Quality and Low Carbon Asthma Care – Greener Practice](#)
- Guide which includes table of low-high carbon inhalers [Reducing-Carbon-Footprint-of-Inhaler-Prescribing-v3.3.2.pdf \(pcdn.co\)](#)



Key Resources



Primary Care Respiratory Society (PCRS) Toolkit

- Quality Improvement Toolkit for Greener Inhaler Prescribing
- [QI toolkit \(pcrs-uk.org\)](http://pcrs-uk.org)
- Creates good structure for QI work
- Follows PCRS greener respiratory pathway [The Greener Respiratory Pathway | Primary Care Respiratory Society \(pcrs-uk.org\)](http://pcrs-uk.org)
- Guides and further information for each step of QI programme



FutureNHS Greener NHS Knowledge Hub

- Collection of resources to aid clinicians and patients- [Greener NHS Knowledge hub](http://greener.nhs.net)
- Patient support and Inhaler choices posters
- [Communications toolkit](http://greener.nhs.net)
- NHS [Right Care Asthma Toolkit](http://rightcareasthma.org)
- [Different language Guides](http://greener.nhs.net) to managing Asthma

Greener NHS 

High quality, low carbon respiratory care Communications Toolkit

Prepared by the NHS England Sustainable Medicines Unit for use by NHS workforce involved in delivering this policy. For more information, please contact: greener.nhs@nhs.net



Key Resources



PrescQIPP - Inhaler carbon footprint tools and resources

- wealth of resources to support QI projects around inhalers and their carbon footprint including
- Searches, Inhaler awareness campaigns, patient information materials including safe disposal of inhalers



Bulletin 295: Inhaler carbon footprint

[Search](#) | [Information](#) | [News](#) | [Resources](#)

This resource supports the NHS objective for lowering the inhaler carbon footprint. The bulletin, briefing and attachment 1 have been endorsed by NHS Inhaler Working Group. Inhaler carbon emissions data for each inhaler are provided. The data tool provides comparative inhaler prescribing data at all levels. The inhaler switch tool allows users to view the impact of any inhaler switches on the inhaler carbon footprint and costs. There will be monthly data updates of the visual data pack for a total of 12 months. For subscribers, 2 new associated indicators will be available from December 2021 (updated monthly): Salbutamol carbon footprint per inhaler (gCO₂e/gPMD) excluding salbutamol to DPI & DPI (excluding salbutamol) as a % of total items (excluding salbutamol). A full download pack of bulletins and attachments are also available. For queries or comments on these resources, please visit <https://info.prescqipp.nhs.uk/>

[Bulletin 295: Inhaler carbon footprint | PrescQIPP C.I.C](#)

UCL Partners Asthma and COPD Proactive Care Framework

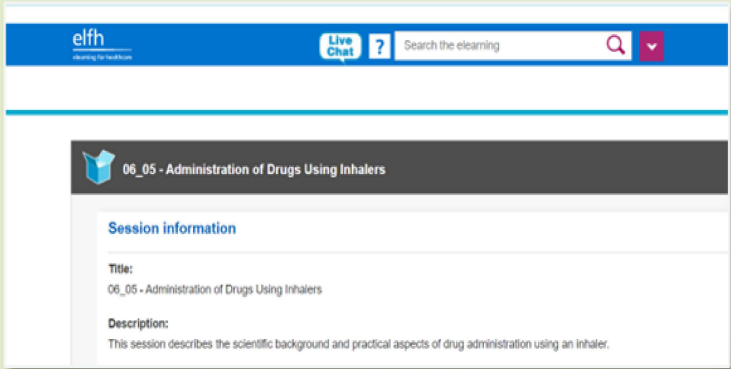
- [UCL Respiratory resources – UCLPartners](#)
- Framework to manage [Asthma](#) and [COPD](#)
- **Includes:**
- Risk stratification tool [Search and risk stratification tools – UCLPartners](#)
- Prioritisation of patients for review using Asthma Control Test [Take the Asthma Control Test | Asthma.com](#) or COPD Assessment Test* (CAT) [HCP Home \(catestonline.org\)](#)
- Digital resources to support patients



Key Resources

Inhaler technique for health professionals

- Brief summary on different types of inhalers and how they work
- Includes information on environmental difference between inhalers
- [HEE elfh Hub \(e-lfh.org.uk\)](http://e-lfh.org.uk)

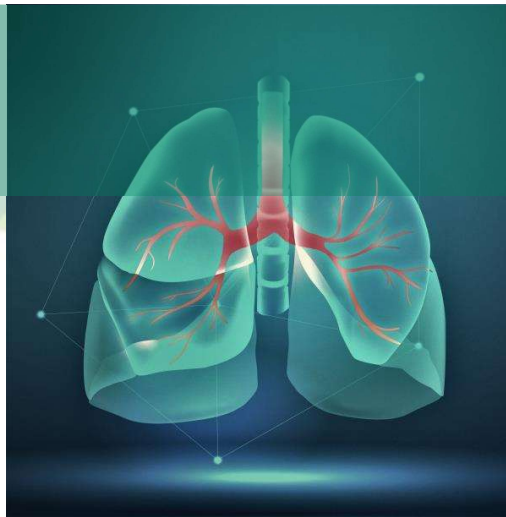


RCGP Net Zero Hub

- Training course on High Quality low carbon respiratory care
- Green impact for Health toolkit
- [Course: Net Zero Hub \(rcgp.org.uk\)](http://rcgp.org.uk)



Key Resources

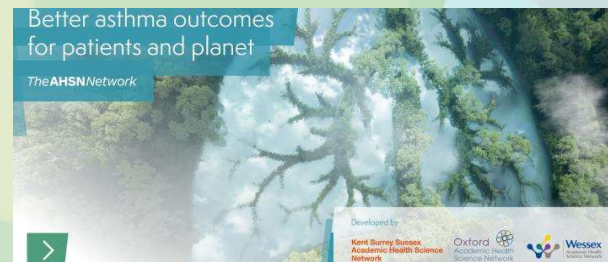
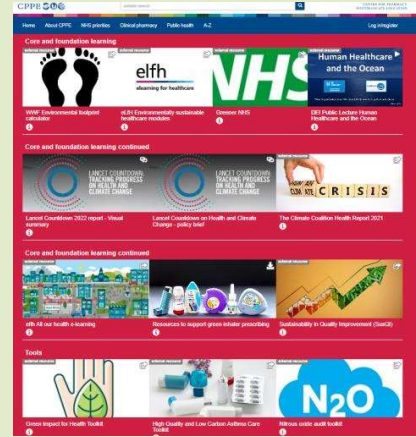


CPPE Environmental sustainability gateway

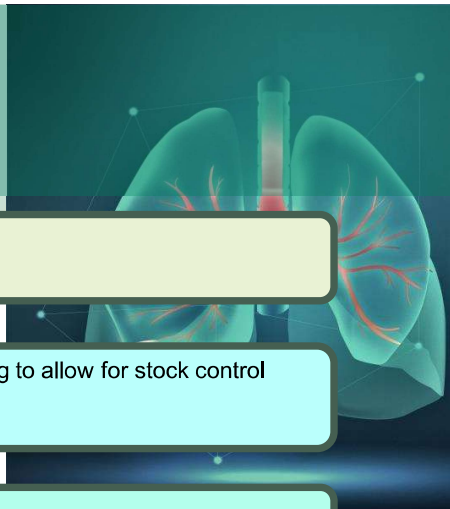
Collation of resources around environmental sustainability
Overview
Medicines impact
[Environmental sustainability \(cppe.ac.uk\)](http://cppe.ac.uk)

AHSN Better asthma outcomes for patient and planet

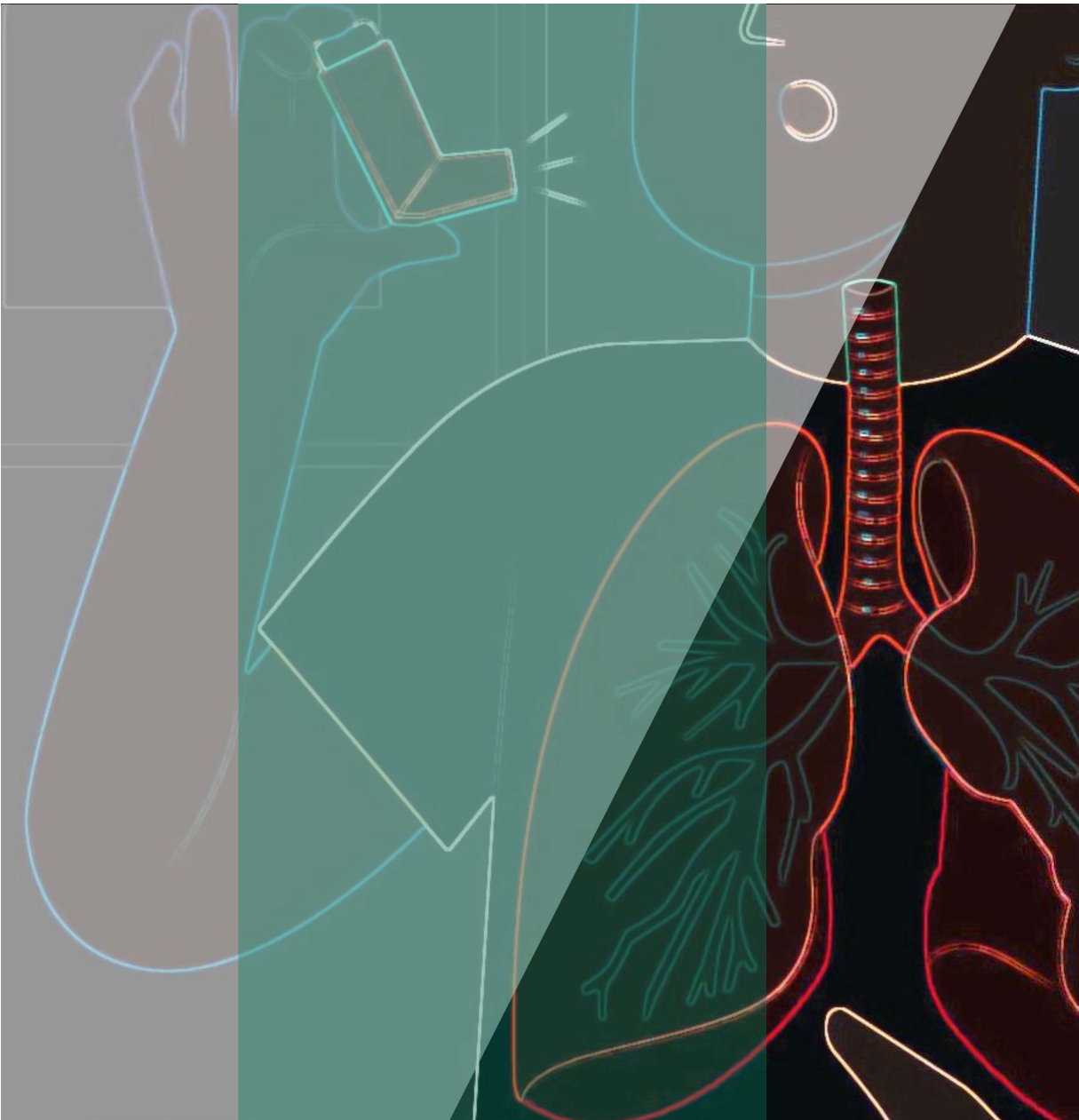
Collation of resources and innovation solutions for asthma
[Asthma-Better-Outcomes-FINAL.pdf \(oxfordahsn.org\)](#)



Implementation checklist



Determine baseline using data searches	<ul style="list-style-type: none">• PrescQIPP• Open Prescribing• ePACT2
Community pharmacy	<ul style="list-style-type: none">• Identify local community pharmacies, liaise and describe project you are undertaking to allow for stock control• New Medicines Service Reviews• Share training resources
Engage whole PCN team	<ul style="list-style-type: none">• Undertake learning session• Highlight changes to staff, including reception• Use staff upskilling videos
Prioritise patients	<ul style="list-style-type: none">• Use searches to determine which patients to target first• EMIS or SystemOne created by Primary Care IT, including searches, visibility alerts and an asthma review template
Engage patients	<ul style="list-style-type: none">• Text or template letter to patients with no mobile• Links to ACT, leaflets and inhaler technique videos
Trial on small cohort	<ul style="list-style-type: none">• Undertake QI project on decided cohort
Measure Outcomes	<ul style="list-style-type: none">• Data capture review using appropriate tool; Open prescribing, ePACT2, PrescQIPP
Patient review and follow up	<ul style="list-style-type: none">• Ensure follow up review at appropriate intervals• Application of support resources via text/email
Further rollout	<ul style="list-style-type: none">• Additional rollout as capacity allows• Regular review of impact



Prioritise those at worse risk of adverse outcomes

Searches and guidelines are available to help prioritise patients for review.

1. Greener Practice has a useful list of prioritisation categories within their toolkit these include links to searches in [EMIS](#) or [SystemOne](#) created by [Primary Care IT](#) to help decide which patients to target first. These include searches, visibility alerts and an asthma review template.
2. [Spectra tool](#) helps identify suspected Severe Asthma in Adults and also has Searches and alerts for EMIS, SystemOne and Vision, a Referral Extract Template and Impact reporting
3. [Recommendations | Asthma: diagnosis, monitoring and chronic asthma management | Guidance | NICE ° sign158-updated.pdf °](#)
4. Poorly controlled and severe asthma: triggers for referral for adult or paediatric specialist care – a PCRS pragmatic guide [Layout 1 \(pcrs-uk.org\)](#)



[Picture source](#)



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Assess current symptom burden



Asthma

Asthma control test

FeNo (where available)

Peak flow readings

Frequency or use of SABA

One or more hospital admission with asthma

COPD

Spirometry

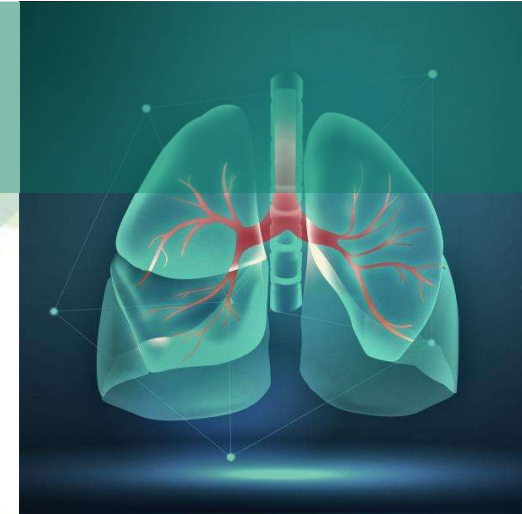
CAT score

Exacerbations

Hospitalisations



Review and educate on inhaler technique as a priority



A copy of the inspiratory flow resistance chart can be found [here](#)

Community Pharmacy New Medicines Service

The Community Pharmacy New Medicines service can be utilised to ensure correct inhaler technique for switched to an alternative device [New Medicine Service \(NMS\) – Drug Lists | NHSBSA](#)

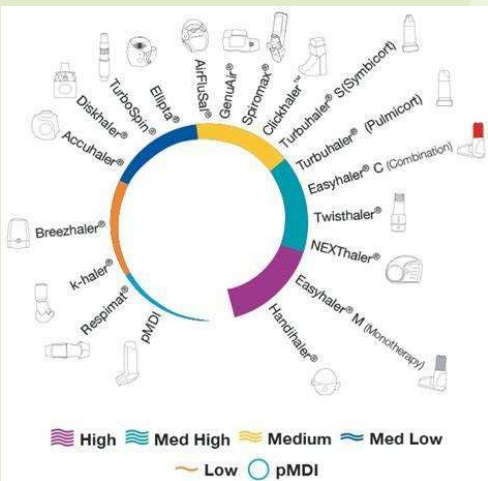
Patient support material

- Available on [Greener practice](#) and [PrescQIPP](#)
- Asthma and Lung UK [How to use your inhaler | Asthma UK](#)
- Various inhaler suppliers have device specific patient support material

Inspiratory Flow check device

For example, In-Check DIAL®

- Visual tool to give confidence that the patient has enough inhalation power to use a specific DPI correctly.
- mimic 14 types of inhalers
- useful to show how poor their technique is with an MDI (without a spacer).



Picture taken from: [In-Check DIAL G16 - Haag Streit \(haag-streit.com\)](#)

What to do with used inhalers: disposal and recycling



Inhaler disposal

- Inhalers should be returned to pharmacies for safe and environmentally friendly disposal.
- If inhalers are disposed of in household waste, residual Greenhouse gases are emitted into the environment, whereas if inhalers are returned for incineration these greenhouse gases are denatured.
- A summary can be found [PSNC-Briefing-024.21-Inhaler-disposal-factsheet.pdf](#)
- Posters and resources to support return of inhalers to pharmacy:
- [Resources – Greener Practice](#)
- [Bulletin 295: Inhaler carbon footprint | PrescQIPP C.I.C](#)
- [PSNC-Patient-Briefing-sheet-inhaler-disposal-PDF.pdf](#)

Inhaler recycling

- A pilot on inhaler recycling was undertaken by Chiesi
- A link to their toolkit on implementation can be found here: [Sustainability & Inhaler Recycling | Chiesi Medical](#)
- Other proof on concepts are being undertaken nationally including one in the Black Country.



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Secondary Care Inhaler Improvement Projects



Secondary Care overview

Although often seen as a region for primary care there are a number of initiatives that can be undertaken within secondary care to improve the carbon impact of inhalers.

These have been collated in the sections below providing a range of quality improvement projects that can be undertaken as part of a trusts Net Zero improvements.

Environmental impact improvements often accompany patient care or cost saving improvements and should be considered in conjunction. There are a number of ways this may be referred to such as the Centre For Sustainable Healthcare's [Triple bottom line](#) which seeks to line financial and social benefits with environmental sustainability improvements.

Key reading for staff is the High quality, Low Carbon Communications Toolkit from NHSE [High quality, low carbon respiratory care - Communications Toolkit - Greener NHS Knowledge Hub - FutureNHS Collaboration Platform](#)



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Secondary Care Inhaler Improvement Projects

Patient information

There are number of resources available to inform patients of sustainable inhaler choices and raise awareness that can be utilised in secondary care settings

Checklist of possible projects

Download and review the High quality, Low Carbon Communications Toolkit from NHSE [High quality, low carbon respiratory care - Communications Toolkit - Greener NHS Knowledge Hub - FutureNHS Collaboration Platform](#)

Posters for clinics and pharmacy waiting areas available through NHSE High quality, low carbon respiratory care toolkit [Inhaler choices | Asthma + Lung UK \(asthmaandlung.org.uk\)](#)

This includes posters and leaflets to download, including additional language versions

Videos on monitors in hospital clinic and pharmacy waiting areas available to download through [PrescQIPP®](#)

Consider introducing inhaler return bins in clinics, following local safe storage of medicines policies.



Secondary Care Inhaler Improvement Projects

Formulary and ward stock alignment

Checklist of possible projects	
Assess and influence local and regional guidelines ensuring dry powder inhaler options available and as potential first line choice (In over 12's)	
Review formulary and guideline position of high carbon inhalers. Guides to high Carbon inhalers can be found in the Greener practice guide or PrescQIPP inhaler carbon footprint bulletin	
Consideration of Maintenance and reliever therapy for Asthma within respiratory pathways and guidelines as this promotes a reduction in SABA use and often uses dry powder inhalers.	
Review Short acting Beta agonist inhaler- Salamol® is half the carbon footprint of Ventolin®	
Reviewing ward stock lists and ensure dry powder inhaler options available	
Review TTO pack supply to ensure dry powder inhaler options	



Secondary Care Inhaler Improvement Projects

Provide staff with inhaler carbon footprint knowledge and updates

Checklist of possible projects

Presentation to upskill staff

- Carbon footprint of inhalers
- Concerns about SABA overuse, low ICS adherence and other markers of poor disease control
- Formulary choice
- Choosing appropriate inhaler device for inspiratory flow
- Inhaler technique and counselling
- Appropriate disposal

NHS England has a High Quality, Low Carbon respiratory care video for healthcare staff [High quality and low carbon respiratory care – YouTube](#)

RCGP have a free to access course on sustainable respiratory care [Course: Net Zero Hub \(rcgp.org.uk\)](#)

General presentation available upon request from Health Innovation- West Midlands

Inhaler technique review- training devices (and often training) available from Pharma companies

Include multidisciplinary team

- Medical – Nursing - Allied health- Pharmacy teams- Paediatrics

Consider utilising technician or appropriately trained pharmacy support staff to conduct inhaler technique reviews- see case study of secondary care implementation [here](#)

Link to training resources such as relevant sections of [SENTINEL Plus](#) for Maintenance and reliever therapy (Access details available through Health Innovation West Midlands)



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Secondary Care Inhaler Improvement Projects

Supply of Inhalers

Checklist of possible projects	
Avoiding duplication/resupply of inhalers already with patient or supplied by primary care	
Introduce a guideline to withhold supply of inhalers for around 48 hours while patients on acute treatment such as oral corticosteroids and nebulisers, particularly if inhaler changes are likely as an inpatient	
Consideration of combined devices, using a double or triple therapy regime will reduce the carbon impact	
Alignment of devices- ensure on devices with similar techniques <ul style="list-style-type: none">• For example all MDI or all DPI rather than mixed devices	
Consider Maintenance and Reliever therapy MART therapy, this can reduce use of short acting beta agonist inhalers and also often uses lower carbon dry powder inhalers.	
Linking to Severe Asthma Services and identifying patients for Biologics as well controlled patients will have an overall lower carbon footprint and likely to use less SABA.	
For patients still requiring metered dose inhalers- ensure spacer provision	
Apply security seals to inhalers at dispensing to enable a return to stock scheme, this can apply a cost saving alongside reducing greenhouse gas emissions from unused inhalers	



Secondary Care Inhaler Improvement Projects

Electronic prescribing systems, labels, letters and TTO's

Checklist of possible projects

Highlight high, medium and low carbon choices- consider implementation of traffic light carbon footprints- available through [PrescQIPP](#)

Ensure desired formulary choices (and low carbon inhalers) are easily identifiable within picklists

Consider automated searches for high carbon inhalers, or specific metered dose inhalers to allow prioritisation of inhaler review to inpatient clinical pharmacy teams for review.

Have good medicine disposal wording as an addition to inhaler labels. An example of this is: "Return all medicines (Including inhalers) to your pharmacy for safe disposal"

Have good medicine disposal wording as an addition to discharge letters. "Return all medicines (Including inhalers) to your pharmacy for safe disposal"

Have good medicine disposal wording as an addition on outpatient clinic letters- particularly respiratory. "Return all medicines (Including inhalers) to your pharmacy for safe disposal"





Picture source

For more information

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