**Respiratory - Carbon Impact Dashboard**

**Comparator Descriptions and Specifications**

**Version: 1.1**

**Spring 2023**

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# Background

In line with the NHS Long Term Plan, Greener NHS initiative, and to support the ambition for a net zero NHS, there is a drive to reduce greenhouse gas emissions produced by the prescribing of inhalers for respiratory conditions.

Estimates suggest that around 3% of all greenhouse gas emissions generated by the NHS can be attributed to the prescribing of respiratory inhalers[[1]](#footnote-2), specifically metered-dose inhalers (MDI) which rely on an aerosol propellant to deliver their active chemical ingredient. Prescribing of lower-carbon devices (dry powder inhalers (DPI) or soft-mist inhalers (SMI), neither of which rely on a propellant to deliver their medicines), or lower-carbon MDI variants, is recognised as a more sustainable approach and a way to mitigate the carbon impact of respiratory prescribing, without a deleterious impact on patient outcomes.

# Purpose

The Respiratory - Carbon Impact dashboard sits alongside the existing Respiratory dashboard in ePACT2, providing prescribers and commissioners the insight necessary to understand the impact of respiratory prescribing in the context of sustainability, and a means to monitor and promote better prescribing practice in the respiratory space, with the aim of reducing greenhouse gas emissions.

# Rationale and Evidence Base

The dashboard is intended to support and reflect trends in the greener prescribing of respiratory inhalers. The National Institute for Health and Care Excellence (NICE) has produced a [decision aid](https://www.nice.org.uk/guidance/ng80/resources/inhalers-for-asthma-patient-decision-aid-pdf-6727144573) to help people with asthma make informed decisions about their choice of inhaler in relation to its contribution to climate change, and NHS England have implemented guidance and incentives for practitioners to prescribe lower-carbon inhaler products, where possible. The dashboard is not intended to provide guidance to prescribers, or to establish targets around the proportion or volume of greenhouse gas emissions attributed to prescribing of inhalers.

# Limitations

Historically, primary care prescribing information was derived from the reimbursement processes for dispensed medicines. However, the NHSBSA is now able to capture extra information that undoubtedly adds value to prescribing measures. The NHS number of the recipient of a medicine prescribed in primary care can now be linked to items prescribed. This development enables the data to show how many patients are prescribed a medicine or group of medicines (rather than presentation of drugs prescribed by each GP practice). In this way, we can demonstrate much better the quality of prescribing in key areas.

NHS number is routinely captured through the Electronic Prescription Service (EPS) with complete accuracy. Therefore, sub ICB locations are encouraged to drive up the uptake of EPS.

Information governance is vital, and in the preparation of these comparators all data protection legislation and patient confidentiality has been carefully considered and adhered to. While the comparators are derived from patient level records, personal identifiable data will not be included within the reports.

**This comparator specification document is NOT a prescribing guideline. It simply shows how the comparators were developed and the rationale behind each comparator.**

# Table 1: List of comparators

|  |
| --- |
| **Comparator Title** |
| Prescribing of low carbon SABA inhalers as a proportion of all SABA inhaler prescribing |
| Prescribing of a lower carbon SABA MDI inhaler as a proportion of all SABA MDI prescribing |
| Prescribing of low carbon preventer inhalers as a proportion of all preventer inhaler prescribing |
| Prescribing of very high carbon preventer inhalers as a proportion of all preventer prescribing |

# Prescribing data used in these comparators

Users of these comparators must be aware of the following parameters:

* Covers all items prescribed in primary care by practices and cost centres linked to sub ICB locations. It includes acute and repeat items.
* Does not include hospital prescribing.
* Does not include medicines supplied over the counter.
* Does not include medicines supplied by NHS community services.

Each comparator is derived using prescribing data and reported by month. Historic data is available to allow sub ICB locations and practices to chart their progress in addressing a particular comparator area.

All the comparators show monthly data at practice level (also aggregated to PCN sub ICB location) and are available for all patients.

No personal identifiable data will be released through these comparators.

# How to use these comparators

We envisage that the comparators will be used by commissioners in sub ICB locations in collaboration with local GP practices and with the relevant and appropriate education and training support in place.

**Data Sources**

Prescribing data taken from the NHSBSA’s data warehouse system which contains all NHS prescription data, except for prescriptions which are dispensed in prisons, hospitals, and private prescriptions.

Additional data are used, based upon research commissioned by NHS England and carried out by PrescQIPP. This data is available at <https://www.prescqipp.info/our-resources/bulletins/bulletin-295-inhaler-carbon-footprint/>.

Analysis is based on drugs that were reimbursed by the NHSBSA. It excludes items not dispensed and disallowed. If a prescription was issued, but not presented for dispensing or was not submitted to NHS Prescription Services by the dispenser, then it is not included in the data provided.

**Data owner & contact details:** [nhsbsa@nhs.net](mailto:nhsbsa@nhs.net)

**Periodicity:** Refreshed monthly

# Data quality assurance

NHS Prescription Services have their own internal quality process to assure the data they provide matches what was originally submitted as part of the prescription processing activity. Some processes are complex and manual therefore there may be random inaccuracies in capturing prescription information which are then reflected in the data, but checks are in place to reduce the chance of issues occurring.

The processes operate to a number of key performance indicators, one of which is the percentage Prescription Information Accuracy, the target being 99.8%; as of November 2022 prescribing, the accuracy level achieved over the latest 12 month rolling period was 99.91%.

The comparators take advantage of the developments linking the NHS number to prescription items. Currently[[2]](#footnote-3), nearly 97% of all prescription items can be linked to identified patients, and age and date of birth can be linked to 97.5% of all prescription items.

# Notes on methodology

The dashboard comparators show the total prescribed quantity of respiratory products rather than the number of prescription items. This allows detailed analysis of prescribing rates and – in future releases – carbon dioxide equivalent (CO2e) emissions.

In the prescribing data held by NHSBSA, the total prescribed quantity is calculated by multiplying the prescribed quantity by the number of prescription items that use that quantity. This data is sometimes referred to as ‘quantity x items’ and is expressed in the unit of measure that is relevant for type of product; for example, the number of tablets, capsules, millilitres etc. of the medicine that was prescribed to a patient.

The total prescribed quantity as reported in the comparators differs from that held in quantity x items, depending on the type of product which has been prescribed.

For inhalers, total prescribed quantity represents the number of inhalers that were prescribed on the form. For capsules or blister packs the total prescribed quantity represents the number of doses, so in order to report more consistently across the respiratory products the total prescribed quantity for capsules and blisters reported in the dashboard has been adjusted to translate the number of doses into an equivalent number of packs of a given size.

Blister packs and capsules are typically prescribed for preventer products (often with a device), rather than for reliever products, so this calculation is more relevant to the two preventer comparators in the dashboard.

The calculation is based on the following logic:

* where the prescribed item is an inhaler device, the total number of inhalers are reported - that is, no adjustment is made.
* where the prescribed item is a blister pack or capsules, the number of packs are reported, calculated using the pack size of the pack that was used as the basis of the reimbursement calculation - that is, prescribed quantity multiplied by the number of prescription items, divided by the size of the pack.

For example:

* One item for 2 Seretide 250 Evohaler inhalers; total quantity = 2; **reported as 2.**
* One item for Ultibro Breezhaler 85microg/43microg powder capsules with device, 60 capsules, pack size 30; total quantity = 60, **reported as 2**

In the second example, the adjustment allows us to capture the number of packs prescribed as capsules and blisters, which is more consistent with the number of inhaler devices prescribed. There are however some limitations that should be noted:

1. Products are often available in different pack sizes, the quantity prescribed may or may not match an available pack size. The prescription form does not specify the pack size or the number of packs that were dispensed.

The reimbursement cost for each prescription item uses the price of a pack of a given size. The pack used in pricing each item can vary according to:

* 1. the rules in the Drug Tariff;
  2. how a product was written on the prescription form;
  3. and, whether the dispenser made an applicable endorsement.

The pack size used in this calculation is that of the pack used as the basis for the reimbursement calculation for each prescription item. No ‘standard’ pack size has been used in the calculation of the data.

1. The comparators combine prescribing totals from different types of products (for example, inhalers, refills etc.) to arrive at their results, and no differentiation is made between product types or individual presentations in the comparator totals.
2. The ‘total quantity of inhalers or packs’ as defined in the comparator specifications means the total quantity of inhalers or equivalent packs of capsules or blister packs, derived by the calculation described above.

This is not the same as total quantity or “quantity x items” that is used in other parts of ePACT2. The translation into “quantity equivalent packs” should only be used in the context of the comparators described in this document.

**Additional considerations for carbon dioxide equivalent (CO2e) measurement**

(Please note, CO2e emissions data are not shown in the initial version of the dashboard but will be released in a subsequent release).

The CO2e values used by NHSBSA in the development of this dashboard are based upon data released by PrescQIPP (see Data Sources section).

For branded inhalers, PrescQIPP provide CO2e data based upon the number of doses in a particular pack, linked to the SNOMED code for that presentation and pack. In the case of metered-dose inhalers the pack size is significant in that the amount of propellant contained in a device has an impact on the levels of CO2e generated by that device. For dry powder and soft mist inhalers where no propellant is used, emissions are linked to production, materials and packaging; for these inhalers the number of doses is less relevant as the CO2e associated with different pack sizes should be nominally the same.

For generic inhalers, PrescQIPP release CO2e data at presentation level. To derive CO2e values at pack level, a process is carried out to calculate a per-dose CO2e value and then aggregate that value up to the number of doses in the pack. As above, this calculation is only relevant for metered dose inhalers – all packs or any presentation of a dry powder and soft mist inhaler hold the same CO2e values, regardless of number of doses.

# Comparator Specifications

**Note**: please refer to the *Notes on methodology* section of this document for details on how numerator and denominator values have been derived.

## Prescribing of low carbon SABA inhalers as a proportion of all SABA inhaler prescribing

|  |  |  |
| --- | --- | --- |
| **Section 1: Introduction / Overview** | | |
| 1.1 | **Title** | Prescribing of low carbon SABA inhalers as a proportion of all SABA inhaler prescribing |
| 1.2 | **Definition** | The proportion of MDI and DPI prescribing for SABA (short-acting beta agonist) inhalers. |
| 1.3 | **Reporting Level** | Practice level (also aggregated to PCN and sub ICB location). |
| 1.4 | **Numerator** | The total quantity of all SABA DPI inhalers prescribed. |
| 1.5 | **Denominator** | The total quantity of all SABA inhalers prescribed (both MDI and DPI). |
| 1.6 | **Methodology** | Numerator divided by denominator, presented as a percentage. |

## Prescribing of a lower carbon SABA MDI inhaler as a proportion of all SABA MDI prescribing

|  |  |  |
| --- | --- | --- |
| **Section 1: Introduction / Overview** | | |
| 1.1 | **Title** | Prescribing of a lower carbon SABA MDI inhaler as a proportion of all SABA MDI prescribing |
| 1.2 | **Definition** | The proportion of prescribing of lower-carbon salbutamol MDI inhalers, from all salbutamol MDI prescribing. |
| 1.3 | **Reporting Level** | Practice level (also aggregated to PCN and sub ICB location). |
| 1.4 | **Numerator** | The quantity of Airomir and Salamol inhalers prescribed. |
| 1.5 | **Denominator** | The quantity of all salbutamol MDI inhalers prescribed. |
| 1.7 | **Methodology** | Numerator divided by denominator, presented as a percentage. |

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## Prescribing of low carbon preventer inhalers as a proportion of all preventer inhaler prescribing

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| --- | --- | --- |
| **Section 1: Introduction / Overview** | | |
| 1.1 | **Title** | Prescribing of low carbon preventer inhalers as a proportion of all preventer inhaler prescribing |
| 1.2 | **Definition** | The proportion of the combined prescribing of dry-powder inhalers (DPI) and soft mist inhalers (SMI), based on prescribing of all preventer inhalers. |
| 1.3 | **Reporting Level** | Practice level (also aggregated to PCN and sub ICB location). |
| 1.4 | **Numerator** | The total quantity of DPI and SMI preventer inhalers or packs prescribed. |
| 1.5 | **Denominator** | The total quantity of all preventer inhalers or packs prescribed. |
| 1.6 | **Methodology** | Numerator divided by denominator, presented as a percentage. |

## Prescribing of very high carbon preventer inhalers as a proportion of all preventer prescribing

|  |  |  |
| --- | --- | --- |
| **Section 1: Introduction / Overview** | | |
| 1.1 | **Title** | Prescribing of very high carbon preventer inhalers as a proportion of all preventer prescribing |
| 1.2 | **Definition** | The proportion of inhalers with a RAG rating classification of ‘High’ (indicating high carbon), based on prescribing of all preventer inhalers. |
| 1.3 | **Reporting Level** | Practice level (also aggregated to PCN and sub ICB location). |
| 1.4 | **Numerator** | The total quantity of preventer inhalers or packs with a ‘High’ RAG rating prescribed. |
| 1.5 | **Denominator** | The total quantity of all preventer inhalers or packs prescribed. |
| 1.6 | **Methodology** | Numerator divided by denominator, presented as a percentage. |

## Appendices

## 1. Working group

|  |  |  |
| --- | --- | --- |
| **Name** | **Organisation** | **Role** |
| Vince Mak | Imperial College Healthcare NHS Trust | Consultant in Respiratory and Critical Care Medicine |
| Grainne d’Ancona | Guy's and St Thomas' NHS Foundation Trust | Consultant Pharmacist, Respiratory and Sleep Medicine |
| Margaret Dockey | NHS Business Services Authority | Data and Insight Senior Manager - Prescriptions |
| Mark Gordon | NHS Business Services Authority | Senior Information Analyst - Prescriptions |

## 2. Drug Lists

The drug lists for each metric are provided in a separate document available from our website at <https://www.nhsbsa.nhs.uk/access-our-data-products/epact2/dashboards-and-specifications/respiratory-carbon-impact-dashboard>

## 3. Glossary

**CO2e:** Carbon dioxide equivalent.

**MDI**: Pressurised Metered Dose Inhaler; a type of inhaler that uses a pressurised gas (typically Heptafluoropropane, a propellant which contributes to climate change) to deliver a set dose of medicine.

**DPI**: Dry Powder Inhaler; a type of inhaler that uses a dry powder to deliver a dose of medicine, which is inhaled by the patient, and contains no propellant gases.

**SMI**: Soft Mist Inhaler; a type of inhaler that delivers medicine through a mist that is breathed in. Contains no propellants, but not appropriate for all respiratory conditions.

**SABA**: Short-Acting Beta Agonist; also known as bronchodilators, relievers or rescue treatments, SABA inhalers are used for short-term control of symptoms, typically if a patient is having an exacerbation, or to pre-empt an exacerbation occurring. SABAs are the most commonly prescribed inhaler in primary care in England.

**Preventer**: refers to the group of inhalers used for longer-term management of respiratory conditions, such as inhaled corticosteroid inhalers (ICS) and long-acting beta agonist inhalers (LABA). Usually taken in combination, often in a single device, preventer inhalers are the next most often prescribed type of inhaler, after SABAs.

**RAG Rating**: a rating system applied to inhalers based upon the volume of CO2e contained in a typical device.

1. https://www.england.nhs.uk/greenernhs/whats-already-happening/improving-health-outcomes-for-respiratory-patients-while-reducing-carbon-emissions [↑](#footnote-ref-2)
2. Based on analysis of NHSBSA prescribing data for all prescribing in English primary care settings between December 2021 and November 2022. [↑](#footnote-ref-3)