

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.


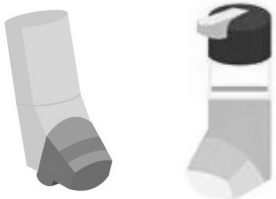


It is important to make a choice that is right for you. Talk to your healthcare professional before making any changes to your treatment. A good time to do this might be at your next routine asthma appointment.

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.

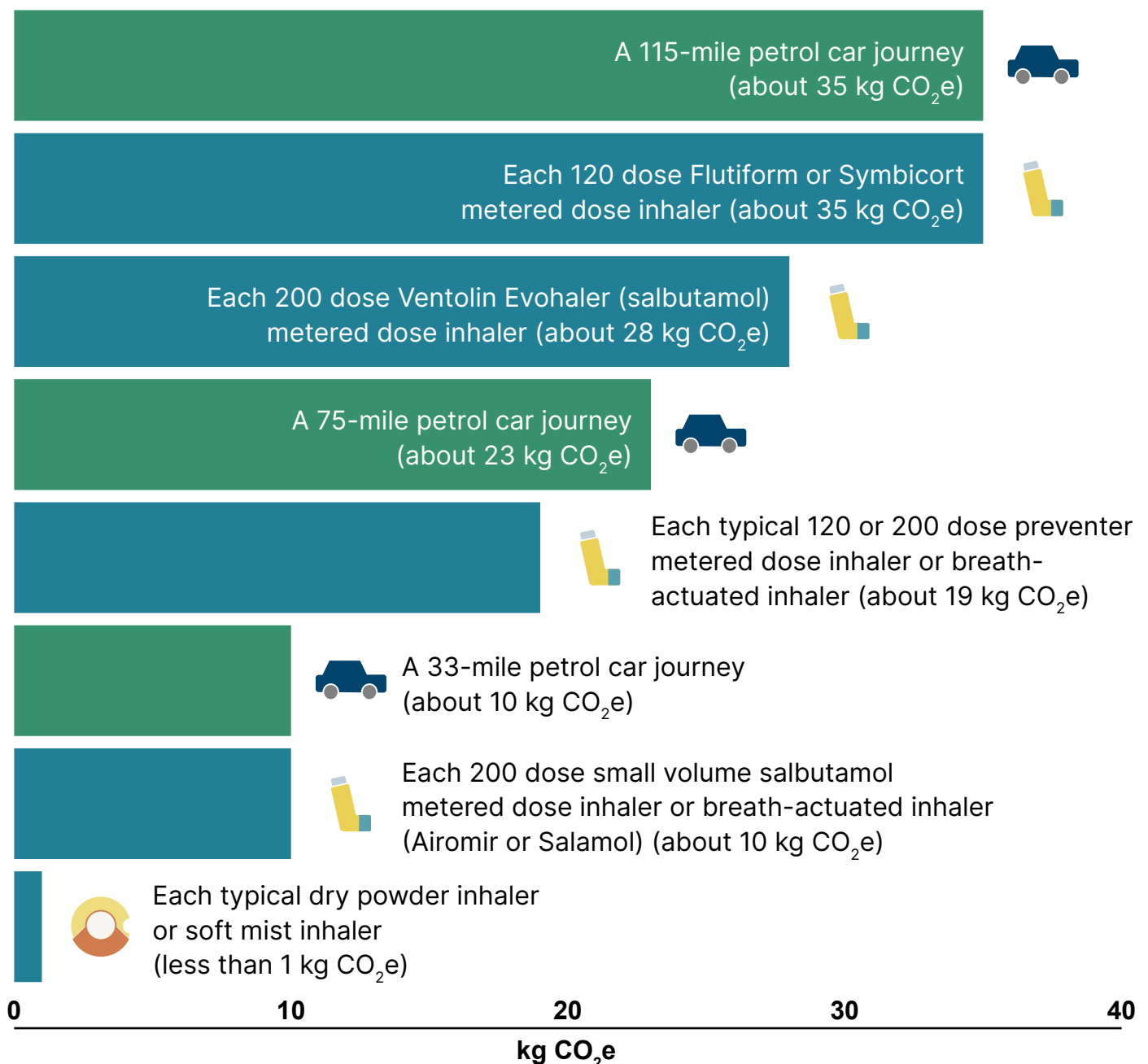
Inhaler type	How are they used?	Do they contain propellant (gas)?
<p>Metered dose inhalers (MDIs)</p> 	<p>You press on a canister in the inhaler to release a puff of medicine and propellant (gas), which you breathe in. Some MDIs have a counter to tell you how many doses you have left, some do not. You can also use an MDI with a spacer to help make it more effective.</p>	<p>Yes</p>
<p>Breath-actuated inhalers (BAIs)</p> 	<p>First, you set the inhaler (how to do this depends on the make of inhaler). When you breathe in, a puff of medicine and propellant (gas) is released automatically. BAIs do not have a counter to tell you how many doses you have left.</p>	<p>Yes</p>
<p>Dry powder inhalers (DPIs)</p> 	<p>You press a button or lever, load a capsule or twist a dial to get the inhaler ready. The medicine is released when you breathe in. You can see how many doses you have left.</p> <p>There are lots of types of dry powder inhaler and not all are shown here.</p>	<p>No</p>
<p>Soft mist inhalers (SMIs)</p> 	<p>You press a button and the medicine is released into a mist, which you breathe in. You can see how many doses you have left.</p> <p>At the moment only a medicine for severe asthma is available in an SMI.</p>	<p>No</p>

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The carbon footprint of inhalers

The chart below compares the carbon footprints of different types of inhaler. It shows the carbon dioxide equivalent (CO₂e) in kilograms (kg). This is the way that the carbon footprint of things is usually compared. The higher the CO₂e the bigger the effect on the climate. The chart also shows how different inhaler types measure up against some petrol car journeys, so you can get an idea of how big an impact they have.

The Ventolin Evohaler brand of salbutamol contains more propellant (gas) per puff than other salbutamol metered dose inhalers. Flutiform and Symbicort metered dose inhalers contain a type of propellant that has a more powerful greenhouse effect than other metered dose inhalers that contain similar medicines. Dry powder inhalers do not contain propellant.



The carbon footprint of specific inhalers is given in reference 2 (see page 8).

What are my options?

The most important thing is to keep your asthma under the best control possible, using inhalers that suit you well. This will also help reduce the carbon footprint of your treatment. The aim is that you have no or minimal asthma symptoms, and you should not need to use your reliever (rescue) inhaler more than twice a week. Talk to your healthcare professional about your [personal asthma action plan](#).

If you use metered dose inhalers or breath-actuated inhalers, this table shows some options that you might like to think about. There is more information about the options on pages 5 to 7. **It is important to make a choice that is right for you, after talking to your healthcare professionals.**

Things to think about	What if I change to dry powder inhalers? (See page 5)	What if I keep the same inhalers, but try to reduce the environmental impact? (See pages 6 and 7.)	What if I decide to keep everything as it is and not make any changes?
What will the effect be on climate change?	This will have the most benefit on climate change.	This will have some benefit on climate change, but less than changing to a dry powder inhaler.	No effect on climate change.
Will I have to get used to new inhalers?	Yes (but you can always change back if you want to).	No - you will keep using the same type of inhalers you have now.	No - you will keep using the same inhalers you have now.
What will the effect on my asthma control be?	Your asthma control might improve if you find the new inhalers easier to use. If your asthma control gets worse, speak to your healthcare professional as soon as possible.	Your asthma control might improve if you use your inhalers more effectively.	No effect on asthma control.

What do I need to think about if I want to try dry powder inhalers?

If you'd like to try changing to dry powder inhalers, here are some things to talk to your healthcare professional about (a good time to do this might be at your next routine asthma appointment):

1. Will I be able to control my asthma with dry powder inhalers?

Most people with asthma can keep good control of their asthma with dry powder inhalers if they are shown how to use them. To use a dry powder inhaler you will need to breathe in quickly and deeply through your mouth over 2 to 3 seconds. Most people with asthma are able to do this, but not everyone can. Talk to your healthcare professional about making sure you have an inhaler you can use if you have an asthma attack.

Different dry powder inhalers are used in different ways. It's important that you feel confident you know how to use yours. Ask your healthcare professional to show you how to use your inhalers, and check your technique. There are also some helpful videos that show you [how to use dry powder inhalers on the Asthma + Lung UK website](#).

2. What should I do if my asthma is not well controlled?

It is very important to keep a check on your asthma. Agree your [personal asthma action plan](#) with your healthcare professional so you know if your asthma starts to get out of control and what to do if it does. Use your preventer inhaler(s) regularly as prescribed.

If dry powder inhalers are not suitable for you, it is better for you and the environment to use metered dose inhalers to keep your asthma under the best control possible.

Do not throw any inhalers away or put them in your home recycling, because they cannot be recycled that way. Take them to your pharmacy to be disposed of safely.

What can I do to reduce the effect of my usual inhalers on climate change if I do not change to dry powder inhalers?

If dry powder inhalers do not suit you, or you'd prefer not to change, do not worry or feel guilty. We all have a carbon footprint, and there may be other things you might like to do to reduce yours. Here are 6 things that could help reduce the carbon footprint of your asthma treatment (you could discuss these with your care team at your next routine asthma appointment):

1. Try to get your asthma under the best control you can.

You'll feel better and use fewer doses of your reliever (rescue) inhaler, so the carbon footprint of your treatment will be less. If you need to use your reliever (rescue) inhaler more than twice a week your asthma may not be well controlled. Uncontrolled asthma has a higher carbon footprint than well-controlled asthma. Talk to your healthcare professional about your [personal asthma action plan](#) and use your inhalers as prescribed.

2. Make sure you use your inhalers properly.

Not everybody does this, even if they think they do. Using your inhalers properly will help you get better control of your asthma. **Ask your healthcare professional to check how you use your inhalers**, even if you have been using them for many years. A spacer can also help you get the most out of your metered dose inhaler. There are also some helpful videos that show you [how to use your inhalers properly on the Asthma + Lung UK website](#).

3. Take your inhaler to the pharmacy for disposal.

Even when there is no medicine left, metered dose inhalers and breath-actuated inhalers still contain propellant (gas). If you just throw them away or put them in home recycling, this will leak out over time.

Some pharmacies have access to recycling schemes. If your inhalers cannot be recycled, they can be incinerated (burned) in medicines waste collected from the pharmacy. This will destroy the propellant (gas).

4. Talk to your healthcare professional to see if you can change the strength of your inhaler.

You might be able to use fewer puffs to get the same dose of medicine. This will avoid using extra propellant (gas). Make sure you understand clearly what dose you need to take.

(Continued on page 7.)

(Continued from page 6.)

5. **Avoid building up a big stock of inhalers that could go to waste.**

It is important that you do not run out of inhalers, but if you find you have too many talk to your community pharmacist or GP practice.

6. **Talk to your healthcare professional about changing to a brand of metered dose inhaler with less effect on climate change.**

Some brands of metered dose inhalers have a bigger carbon footprint than others (see page 3). In particular:

- the Ventolin Evohaler brand of salbutamol contains more propellant (gas) per puff than other brands of salbutamol metered dose inhaler
- Flutiform and Symbicort metered dose inhalers contain a type of propellant that has a more powerful greenhouse effect than other inhalers that contain similar medicines.

In the future, metered dose inhalers which contain a propellant with a smaller greenhouse gas effect may become available. You could see if it is possible to change to these at that time.

Making a decision

Talk to your healthcare professional about your decision and before making any changes.

- Do you feel sure about the best choice for you?
- Do you know the advantages and disadvantages of each option?
- Are you clear about which advantages and disadvantages matter most to you?
- Do you have enough support and advice to make a choice?

Things I want to talk to my healthcare professional about:

About this patient decision aid

Feedback to NICE from stakeholders indicated that a decision aid would help people with asthma make informed decisions about their choice of inhaler in relation to its contribution to climate change.

This decision aid reflects the commitment of NICE, the Scottish Intercollegiate Guidelines Network (SIGN) and the British Thoracic Society (BTS) to environmental sustainability. It is consistent with the [NICE guideline on asthma](#) and the jointly produced [SIGN/BTS guideline on asthma](#). It was developed in line with the [NICE process guide for decision aids](#), with an oversight group that included clinical and patient experts. A wide range of stakeholders, including patient, professional and industry groups, were invited to comment on an earlier draft.

The content is based on the best available evidence and the oversight group's experience and expertise. The carbon footprint of inhalers (page 3) is taken from published sources including manufacturers' data. For dry powder inhalers and the soft mist inhaler this is the product lifecycle, for metered dose inhalers it may be the propellant only or the product lifecycle, depending on data source. The carbon footprint of car journeys is calculated from UK Government data.

References

1. Wilkinson AJK, Braggins R, Steinbach I, Smith J (2019) [Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England](#). BMJ Open 9:e028763.
2. PrescQIPP (2022) [Bulletin 295: Inhaler carbon footprint](#). (inhaler carbon footprint data 2.1.5).
3. UK Government Department for Business, Energy & Industrial Strategy (last updated January 2022) [Greenhouse gas reporting: conversion factors 2021](#).
4. NHS London Procurement Partnership (accessed August 2022) [Rightbreathe](#).
5. Greener Practice Network (2021) [How to reduce the carbon footprint of inhaler prescribing](#). Version 3.3.2.
6. Légaré F, Kearing S, Clay K, Gagnon S, D'Amours D, Rousseau M, O'Connor A (2010) [Are you SURE? Assessing patient decisional conflict with a 4-item screening test](#). Canadian Family Physician 56:e308-e314.

This decision aid will be reviewed in conjunction with the development of the joint [NICE, BTS and SIGN guideline on asthma: diagnosis, monitoring and chronic asthma management](#) (expected November 2023).

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