

Guidance for choosing the right inhaled medicine for respiratory diseases is plentiful, but advice on choosing an inhaler device is sparse. This article looks at how to decide which device is appropriate

How to ensure the correct inhaler device is selected for each patient

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Inhaled medicines are an integral component of asthma and chronic obstructive pulmonary disease (COPD) management. Despite this, little advice is provided in guidelines regarding the selection of an appropriate inhaler device.

The devices used to deliver medicines to the lungs are, in many respects, as important as the medicines themselves. If drug delivery is inefficient, or if the patient struggles to learn or remember how to use the device, the effectiveness of therapy will be reduced.¹

Several factors need to be considered when choosing an inhaler device:

- Patient's age — most children under five years of age cannot generate sufficient suction to use dry-powder inhalers, while some elderly patients cannot use metered-dose inhalers due to a lack of co-ordination or dexterity
- Availability — no medicines are available in all inhalation devices

IN SHORT

Ideally, inhaler devices should only be prescribed after a patient has received training in the use of the device and has, subsequently, demonstrated satisfactory inhaler technique.

Patients should be encouraged to bring their inhalers to every respiratory clinic appointment so that their inhaler technique can be checked. Also, during discussions with patients about their medicines (eg, during medicines use reviews), pharmacists should make a point of checking inhaler technique. This will facilitate patients' acceptance of treatment and their understanding of how to use the inhaler device.

If the patient is unable to use a particular device, an alternative should be sought.

- Patient's preference — ideally, patients should try a range of devices before choosing the one with which they are most comfortable
- Physical or cognitive impairment — a patient with arthritic hands might not have sufficient dexterity to, for example, depress the canister on a metered-dose inhaler

- Local formularies might show preference for one device over another (eg, because of cost)

There are several devices currently available. The advantages, disadvantages and usage instructions for the most common devices are described in the Box (p323).

In a study assessing inhaler use and patient preference,³ only 79% of patients could use a pressurised metered-dose inhaler properly — even after being given full instructions — yet such devices remain the most commonly prescribed. Breath-actuated inhalers emerged as the preferred device for most patients and were found to be used appropriately by over 90% of patients.

Good inhaler technique is vital. Poor drug delivery can decrease disease control and increase inhaler use. This has financial implications in terms of the cost of extra medicines used, and might result in additional GP visits or hospital admissions. Any time spent educating patients on the use of their inhalers could, potentially, reduce these costs.

References

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- 3 Lenney J, Innes J, Crompton G. Inappropriate inhaler use: assessment of use and patient preference of seven inhalation devices. *EDICI. Respiratory Medicine* 2000;94:496–500.

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Advantages, disadvantages and usage instructions for common inhaler devices

Pressurised metered-dose inhalers

(eg, Evohaler)

Advantages Generally inexpensive; small size; convenient to carry; widely available for most inhaled medicines; can be used with “spacer” devices to aid administration.



Disadvantages Requires good co-ordination and technique (when used without spacer; contains a propellant that causes some patients to stop inhaling when the medicine hits the back of the throat (known as the “cold freon” effect) — this results in about 80% of the dose depositing in the oropharynx, rather than the lungs.²

Instructions for use

- Remove the mouthpiece and shake the inhaler
- Breathe out as far as is comfortable then place the mouthpiece between the teeth and close the lips around it
- As you begin to breathe in, press the top of the inhaler canister downwards to release the medicine (but continue to breathe in steadily and deeply)
- Remove the inhaler from mouth and hold breath for up to 10 seconds (if possible)
- If a second dose is needed, wait 30 seconds before repeating

Dry-powder inhalers

(eg, Accuhalers, Turbhalers, Diskhalers, Clickhalers, Twisthalers, Cyclohalers, Aerocaps, Spincaps)

Advantages Formulations do not contain a propellant; use of device does not require co-ordination of inspiration and actuation.



Disadvantages Generally not suitable for young children or elderly people since they often cannot breathe in strongly enough to inhale the powder.

Instructions for use (Turbhaler)

- Remove the lid, hold inhaler upright and turn base as far as possible in one direction, then the other
- Breathe out gently, place the mouthpiece between teeth, close lips and breathe in as deeply and as hard as possible through mouth
- Remove inhaler from mouth, breathe out and replace the inhaler cover tightly

Instructions for use (Accuhaler)

- Open the outer case with thumb until a click is heard — this reveals a mouthpiece and a lever
- With the mouthpiece facing you, slide the lever away until you hear a click
- Breathe out as far as is comfortable
- Place mouthpiece between lips and breathe in steadily and deeply
- Remove the device and hold your breath for about 10 seconds, then breathe out slowly
- Close the outer case

For other dry-powder inhalers, refer to patient information leaflets (accessible at www.emc.medicines.org.uk).

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Breath-actuated devices

(eg, Autohalers, Easibreathe inhaler)

Advantages Does not require co-ordination of inspiration and actuation.

Disadvantages Slightly larger than a metered-dose inhaler; not many medicines are manufactured for delivery using these devices; can cause cold freon effect.



Instructions for use (Easibreathe)

- Open the mouthpiece and shake the device
- Breathe out and place lips around the mouthpiece
- Breathe in slowly and deeply until the device clicks
- Hold breath for about 10 seconds, then breathe out slowly
- If a second dose is needed, close mouthpiece then reopen

Inhalation powder in hard capsule

(eg, Spiriva Handihaler)

Advantages Small and portable; capsules allows easy check of how many doses remain.



Disadvantages Can be inconvenient (each dose needs to be loaded immediately before use); inhalation process sometimes needs to be repeated to ensure the capsule is empty (this can cause dose variability); device can be difficult to use if the patient has impaired dexterity.

Instructions for use

- Open the cover completely by pulling it upwards, then repeat with the mouthpiece
- Place one capsule inside the Handihaler chamber
- Close the mouthpiece until it clicks, then press and release the button on the side of the device
- Breathe out completely, raise Handihaler to mouth and close lips tightly around the mouthpiece
- Breathe in slowly and deeply but with sufficient force to hear (or feel) the capsule vibrate, then hold breath for as long as is comfortable
- Repeat the process to make sure the capsule is empty
- Tip out capsule and close mouthpiece and cover

Soft mist inhalers

(eg, Spiriva Respimat)

Advantages Device has a clear dosing counter; fairly easy to use for patients who have impaired dexterity; does not cause cold freon effect.

Disadvantages Every new inhaler must be loaded with a medicine cartridge.



Instructions for use (after cartridge has been loaded)

- Hold the inhaler upright with its green cap closed and turn the base until it clicks
- Open the green cap, breathe out slowly and fully, then close your lips around the end of the mouthpiece
- While taking a slow, deep breath, press the dose-release button (continue to breathe in for as long as possible)
- Hold breath for 10 seconds or for as long as is comfortable