

When individuals are first prescribed inhaled medication it is essential to teach them about the correct use of their inhaler to ensure optimal drug delivery

How to teach inhaler technique

In this article...

- › The importance of using inhalers correctly
- › Detailing different types of inhalers and how to use them
- › Correctly using training aids

Inhalation is the preferred method of delivering medication for respiratory conditions such as asthma and chronic obstructive pulmonary disease (COPD). The drug is delivered directly to the affected organ, allowing a lower dose to be used.

The need for teaching

Incorrect use of inhalers reduces any potential benefit of the medication, so respiratory guidelines recommend that patients are carefully taught how to use prescribed inhalers (British Thoracic Society/Scottish Intercollegiate Guidelines Network, 2008).

Most pressurised metered dose inhalors (pMDIs) involve users coordinating correct timing and appropriate inspiratory flow rate (IFR). Some pMDIs (Autohaler, Easibreathe) and all dry powder inhalers (DPIs) do not require timing, but do demand that the inspiration produces a certain IFR or peak inspiratory flow (PIF).

Written instructions alone on how to use an inhaler are insufficient. When patients are first prescribed inhaled medication they must be taught how to use their inhaler, and their technique should be checked at subsequent consultations.

It is crucial that health professionals who teach inhaler technique can perform it correctly themselves (Crompton et al, 2006). However, a recent study showed that 93% of those tested were unable to demonstrate both the various stages of inhaler use and the correct IFR (Baverstock et al, 2010). The techniques and IFRs are not the same for all devices, so health professionals must learn how to use all the inhalers they prescribe. For all inhalers the

instructions in the patient information leaflet should be followed.

Pressurised metered dose inhalers

pMDIs consist of a pressurised canister containing the medication. When the inhaler is activated by pressing the canister, releasing a measured aerosol dose of the drug, the user must inhale slowly at a low IFR; if they don't do this, most of the respirable dose will stick to the back of the throat rather than reaching the lungs (Box 1). This requires a degree of coordination that may be beyond the ability of some, such as children or older people.

For those who find pMDI technique difficult or need a high dose of corticosteroid, a spacer device can be attached to the inhaler. After the canister is pressed, the medication remains in suspension in the spacer for a short time allowing the user to inhale the drug by either taking one deep gentle breath in or through tidal breath (inhale and exhale at normal, resting rate – this is usually at a rate of one press of the inhaler and five tidal breaths).

A spacer with a mask attached is available for children and adults who have difficulty sealing their lips around a mouthpiece. The mask must be closely applied to the face while the pMDI is activated. Manufacturers recommend washing spacer devices in warm soapy water when new, and then weekly, leaving to air dry to reduce static.

Spring-loaded pMDIs (Autohaler/Easibreathe)

These inhalers must be primed before each use. The Autohaler is primed by pushing a

lever on top of the inhaler upwards and the Easibreathe by closing the cap on the mouthpiece. The devices are activated when the user inhales, which removes the need to coordinate activation and inspiration, although an appropriate IFR and continued breathe-in is still vital.

Fine mist pMDI (Respimat)

This device requires initial priming and activation in accordance with the manufacturer's instructions. The outer case is turned before each use and the cap is removed. The lips should then be sealed around the mouthpiece before the device is activated. A long, gentle breath in is required.

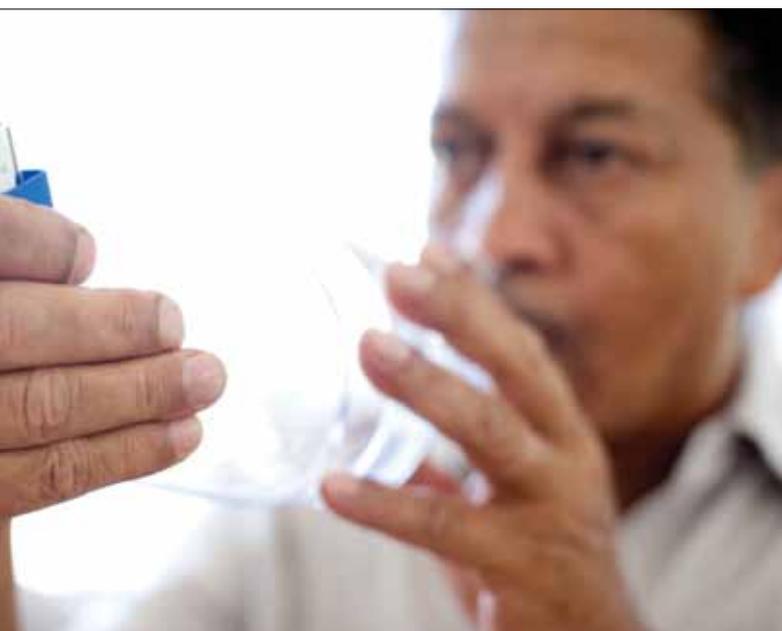
Dry powder inhalers

A wide range of DPIs is available; Box 2 outlines how to use them. The list below is not exhaustive but explains how some of those most commonly prescribed in the UK work. The drug is held within sealed blisters, capsules or a reservoir and the inhaler prepared by, for example:

- » Pressing a trigger, which moves an opened blister to the inhalation port (Accuhaler);
- » Loading and piercing the capsule (Handihaler);
- » Twisting the base of the reservoir (Turbohaler).

Inhalation breaks up the powder into an aerosol of respirable sized particles, drawing the drug out of the inhaler into the lungs. This means a more forceful inspiration is required when using a DPI, compared with a pMDI, although the PIF needed varies according to the inhaler's design.





Training aids

Placebo inhalers, which are available from inhaler manufacturers, can help with demonstrating correct inhaler technique. It is important to note that these placebo devices are for single-person use only.

A range of devices is available to help train health professionals and patients. These include: zTone Trainer Turbutest, In-CheckDial, Mag-Flo inhaler flow indicator, Aerosol Inhalation Monitor, Inhalation Manager, SmartMist and Multimedia training tools (Lavorini et al, 2010).

Summary

If adherence with therapy is to be achieved, when selecting a suitable device it is important to take into account individuals' ability to use inhalers as well as their attitude towards their disease, therapy and the acceptability of the selected device. Adherence and inhaler technique should be assessed at every consultation. **NT**

Linda Pearce is respiratory nurse consultant and clinical lead, Suffolk COPD Services

References

- Baverstock M et al** (2010) Do healthcare professionals have sufficient knowledge of inhaler technique in order to educate their patients effectively in their use? *Thorax*; 65: (Suppl 4), A119.
- British Thoracic Society, Scottish Intercollegiate Guidelines Network** (2008) British guideline on the management of asthma. *Thorax*; 63: (suppl.4), 1-121.
- Crompton G et al** (2006) The need to improve inhalation technique in Europe: a report from the Aerosol Drug Management Improvement Team. *Respiratory Medicine*; 100: 1479-1494.
- Lavorini F et al** (2010) The ADMIT series - Issues in inhalation therapy. Training tools for inhalation devices. *Primary Care Respiratory Journal*; 19: 4, 335-341.

5 key points

1 Failure to use inhalers correctly reduces their benefit

2 Patients should be taught how to use their inhaler when they are first prescribed inhaled medication

3 Their technique should be checked at subsequent consultations

4 Individuals' abilities should be taken into account when selecting inhaler devices

5 Placebo inhalers can be useful to demonstrate correct inhaler technique

BOX 1. USING PMDIS

- Remove the cap
- Shake the inhaler
- Breathe out gently
- Place mouthpiece between lips
- Actuate the inhaler and breathe in slowly and deeply at a low inspiratory flow rate
- Hold breath for 5-10 seconds then breathe out
- Wait a few seconds then repeat the process if the second dose is needed
- Replace inhaler cap

BOX 2. USING DPIS

- Remove cap
- Prime device for delivery
- Breathe out gently
- Place mouthpiece between lips
- With Accuhaler breathe in steadily and deeply
- With Turbohaler and Handihaler breathe in as deeply as possible
- Hold breath for 5-10 seconds
- Wait a few seconds then repeat process if a second dose is needed
- Replace inhaler cap



Dry powdered inhalers require less coordination than standard metered dose inhalers

BOX 3. COMPETENCIES REQUIRED BY NURSES

- Ability to carry out loading and activation procedure for the various inhalers
- Knowledge of appropriate inspiratory flow rates for pressurised metered dose inhalers, and peak inspiratory flows for dry powder inhalers
- Ability to understand and teach how to use each inhaler
- Ability to recognise poor inhaler technique

BOX 4. DETAILS TO DOCUMENT

- Diagnosis and disease severity
- Type of inhaler and appropriate inspiratory flow rate/peak inspiratory flow (this may change if inhaler is changed)
- Checklist of correct inhaler use (Boxes 1 and 2)
- Details of reinstruction and re-checking where necessary
- If inhaler device has been changed, state the reason for this