



Selecting inhalers for adults and adolescents

Before selecting inhalers



Choose initial treatment



Understand options among treatment regimens



Understand options among treatment regimens



Recommendation

When prescribing inhaled asthma medicines, consider which type of inhaler the person prefers and will be able to use correctly.

Factors to consider in shared decisions with patients include:

- the person's ability to use the device after training (e.g. based on age, developmental stage, cognitive function, inspiratory effort capability, and dexterity)
- minimising the number of inhalers required for multiple medicines
- minimising number of types of inhaler
- the environmental impact of the device in use and when discarded.

Table

Considerations for choice of inhaler

Dexterity and coordination

Pressurised metered-dose inhaler (pMDI)

Patient must coordinate inhalation with actuation unless using with spacer

Delivered dose is independent of inhalation manoeuvre

Most devices need to be shaken well before each inhalation, and primed if not used within a specified period

Requires regular cleaning

Breath-actuated pMDI

Does not require coordinate of inhalation with actuation

Dry powder inhaler (DPI)

Does not require coordination of inhalation with actuation

Must be correctly manipulated to prepare and load each dose to ensure optimal dose available for inhalation

For multi-dose inhalers, device must be kept horizontal after preparing dose and until inhalation completed

For multidose reservoir inhalers, device must be held upright to prepare and load the dose

Patient must not breathe into device to ensure powder remains dry

For single-dose capsule DPIs, capsule must be manually inserted into device before each use

Some single-dose capsule DPIs require regular cleaning

Inspiratory flow rate

Pressurised metered-dose inhaler (pMDI)

Does not require high inspiratory flow rate (tell patients 'slow and steady')

When used with spacer (and mask, if needed), suitable for children, frail adults, and during acute bronchoconstriction

Dry powder inhaler (DPI)

Requires moderate to high inspiratory flow rate required (tell patients 'quick and deep')

Unsuitable for young children

Unsuitable for patients who cannot exhale fully before inhalation and cannot manage a quick and deep inhalation

May not be suitable during acute bronchoconstriction

Deposition in target airways

Pressurised metered-dose inhaler (pMDI)

Significant oropharyngeal deposition of larger particles unless used with spacer
 Slow and steady inhalation over 3–5 seconds required to optimise delivery to the lungs
 Use with spacer reduces oropharyngeal deposition and maximises deposition in lungs

Soft mist inhaler (SMI)

Slow and steady inhalation over 3–5 seconds required to optimise delivery to the lungs

Dry powder inhaler (DPI)

Full exhalation followed by a forceful, deep inhalation over 2–3 seconds required to disperse the powder and deliver the dose

Patient’s cognitive function

Correct handling of device differs between types and designs – choose whichever inhaler the patient is familiar with or can learn to use correctly with training

Using more than one inhaler type increases risk of incorrect technique

For single-dose capsule DPI there is a risk of capsule being swallowed

Environmental impact

DPIs and SMIs have a significantly lower carbon footprint than pMDIs because they contain no propellant

Storage and shelf-life

Multidose reservoir DPIs are more sensitive to humidity than other DPIs

For budesonide-formoterol used only as needed for symptom relief, inhalers with a short in-use shelf-life after the first dose (e.g. 1 month for *Bufomix Easyhaler* DPI) may be more wasteful than a multidose reservoir DPI with a longer in-use shelf life or a pMDI.

Additional information

Single-dose capsule DPI: a capsule must be inserted into the device for each dose

Multi-dose DPI: each actuation releases one dose from pre-loaded individual blisters

Multidose reservoir DPI: each actuation meters out one dose from a pre-loaded reservoir

Table

Available inhaler types for asthma medicines according to pharmacological class and active ingredient

Inhaler type	Pharmacological class	Active ingredient (brand name/s)
Standard pMDI	SABA	Salbutamol (<i>Asmol, Ventolin, Zempreon</i>)
	ICS	Ciclesonide (<i>Alvesco</i>)
		Fluticasone propionate (<i>Axotide, Flixotide, Fluticasone Cipla</i>)
		Beclometasone (<i>QVAR</i>)
	ICS-LABA	Beclometasone-formoterol (<i>Fostair</i>)
		Budesonide-formoterol (<i>Symbicort Rapihaler, Rilast Rapihaler</i>)
		Fluticasone propionate-formoterol (<i>Flutiform</i>)
		Fluticasone propionate-salmeterol (<i>Seretide, Evocair, Fluticasone Salmeterol Cipla, Pavtide, SalplusF</i>)
ICS-LABA-LAMA	Beclometasone-formoterol-glycopyrronium (<i>Trimbow</i>)	
SAMA	Ipratropium (<i>Atrovent</i>)	
Breath-actuated MDI	SABA	Salbutamol (<i>Airomir Autohaler</i>)
	ICS	Beclometasone (<i>QVAR Autohaler</i>)

Single-dose capsule DPI	ICS-LABA	Mometasone - indacaterol (<i>Aectura Breezhaler</i>)
	ICS-LABA-LAMA	Mometasone-indacaterol-glycopyrronium (<i>Enerzair Breezhaler</i>)
Multi-dose DPI	ICS	Fluticasone furoate (<i>Arnuity Ellipta</i>)
		Fluticasone propionate (<i>Axotide Accuhaler, Flixotide Accuhaler</i>)
	ICS-LABA	Fluticasone furoate-vilanterol (<i>Breo Ellipta</i>)
		Fluticasone propionate-salmeterol (<i>Fluticasone Salmeterol Ciphalex, Seretide Accuhaler, Pavtide Accuhaler</i>)
ICS-LABA-LAMA	Fluticasone furoate-vilanterol-umeclidinium (<i>Trelegy Ellipta</i>)	
Multidose reservoir DPI	SABA	Terbutaline (<i>Bricanyl Turbuhaler</i>)
	ICS	Budesonide (<i>Pulmicort Turbuhaler</i>)
	ICS-LABA	Budesonide-formoterol (<i>Bufomix Easyhaler, DuoResp Spiromax, Rilast Turbuhaler, Symbicort Turbuhaler</i>)
		Fluticasone propionate-salmeterol (<i>Salflumix Easyhaler</i>)
Soft mist inhaler	LAMA	Tiotropium (<i>Spiriva Respimat</i>)

Additional information

DPI: dry powder inhaler; ICS: inhaled corticosteroid; LABA: long-acting beta₂ agonist; LAMA: long-acting muscarinic antagonist; MDI: metered dose inhaler; pMDI: pressurised metered-dose inhaler; SABA: short-acting beta₂ agonist; SAMA: short-acting muscarinic antagonist

Single-dose capsule DPI: a capsule must be inserted into the device for each dose

Multi-dose DPI: each actuation releases one dose from pre-loaded individual blisters

Multidose reservoir DPI: each actuation meters out one dose from a pre-loaded reservoir

Table

In-use shelf life of asthma inhalers

Class	Active ingredient	Brand names	Expiry after opening
SABA	Salbutamol (pMDI)	<i>Ventolin</i> <i>Asmol</i> <i>Zempreon</i>	
	Salbutamol (breath-actuated MDI)	<i>Airomir Autohaler</i>	
	Terbutaline (DPI)	<i>Bricanyl Turbuhaler</i>	
SAMA	Ipratropium (pMDI)	<i>Atrovent</i>	
LAMA	Tiotropium (SMI)	<i>Spiriva Respimat</i>	1 year (reusable inhaler)
ICS	Beclometasone (pMDI)	<i>Qvar</i>	
	Beclometasone (breath-actuated MDI)	<i>Qvar Autohaler</i>	
	Budesonide (DPI)	<i>Pulmicort Turbuhaler</i>	
	Ciclesonide (pMDI)	<i>Alvesco</i>	
	Fluticasone propionate (pMDI)	<i>Flixotide</i> <i>Axotide</i> <i>Fluticasone Cipla</i>	
		Fluticasone propionate (DPI)	<i>Flixotide Accuhaler</i>

Class	Active ingredient	Brand names	Expiry after opening
		<i>Axotide Accuhaler</i>	
	Fluticasone furoate (DPI)	<i>Arnuity Ellipta</i>	1 month
	Beclometasone dipropionate-formoterol (pMDI)	<i>Fostair</i>	2 months unrefrigerated
	Budesonide-formoterol (pMDI)	<i>Symbicort Rapihaler</i> <i>Rilast Rapihaler</i>	3 months
	Budesonide-formoterol (DPI)	<i>Symbicort Turbuhaler</i> <i>Rilast Turbuhaler</i>	
	Budesonide-formoterol (DPI)	<i>DuoResp Spiromax</i>	6 months
	Budesonide-formoterol (DPI)	<i>Bufomix Easyhaler</i>	1 month
	Fluticasone propionate-salmeterol (pMDI)	<i>Seretide</i> <i>Pavtide</i> <i>SalplusF</i> <i>Fluticasone+ Salmeterol Cipla</i> <i>Evocair</i>	
ICS-LABA	Fluticasone propionate-salmeterol (DPI)	<i>Seretide Accuhaler</i> <i>Pavtide Accuhaler</i>	
	Fluticasone propionate-salmeterol (DPI)	<i>Fluticasone Salmeterol</i> <i>Ciphaler</i>	
	Fluticasone propionate-salmeterol (DPI)	<i>Salflumix Easyhaler 250/50</i>	1 month
	Fluticasone propionate-salmeterol (DPI)	<i>Salflumix Easyhaler 500/50</i>	2 months
	Fluticasone propionate-formoterol (pMDI)	<i>Flutiform</i>	3 months
	Fluticasone furoate-vilanterol (DPI)	<i>Breo Ellipta</i>	1 month
	Mometasone-indacaterol (DPI)	<i>Aectura Breezhaler</i>	Remove capsules from foil strip immediately before use
ICS-LABA-LAMA	Beclometasone-formoterol-glycopyrronium (pMDI)	<i>Trimbow</i>	2 months unrefrigerated
	Mometasone-indacaterol-glycopyrronium (DPI)	<i>Energair Breezhaler</i>	Remove capsules from foil strip immediately before use
	Fluticasone furoate-vilanterol-umeclidinium (DPI)	<i>Trelegy Ellipta</i>	1 month

Additional information

DPI: dry powder inhaler; ICS: inhaled corticosteroid; LABA: long-acting beta₂ agonist; LAMA: long-acting muscarinic antagonist; MDI: metered dose inhaler; pMDI: pressurised metered-dose inhaler; SABA: short-acting beta₂ agonist; SAMA: short-acting muscarinic antagonist; SMI: soft mist inhaler

Sources & rationale

Recommendation type: Consensus recommendation

Clinical outcomes do not differ significantly between inhaler devices when they are used correctly, but incorrect inhaler technique and poor adherence are associated with worse outcomes.[Rigby 2024]

Inhalers for asthma medicines differ according to procedures for preparing doses before inhaling, required manual dexterity, required inspiratory flow rate, cleaning requirements, and environmental impacts.[Rigby 2024]

References

Rigby D. Inhaler device selection for people with asthma or chronic obstructive pulmonary disease. Aust Prescr 2024; 47: 140-147.

Resources

Rigby D. [Inhaler device selection for people with asthma or chronic obstructive pulmonary disease](#). Aust Prescr 2024; 47: 140-147.

National Asthma Council Australia information paper: [Inhaler technique for people with asthma or COPD](#)

National Asthma Council Australia information paper: [Reducing the environmental impact of asthma treatment. Information for health professionals](#)

Notes

Inhaler types for asthma medicines include:

- pressurised metered-dose inhalers – preferably used with a spacer
- breath-actuated metered-dose inhalers
- dry powder inhalers – multi-dose or capsule
- soft mist inhalers.



Recommendation

Train the patient to use their inhaler by physically demonstrating using a placebo inhaler and providing a list of correct steps for the specific inhaler type.

Sources & rationale

Recommendation type: Consensus recommendation

Incorrect inhaler technique for inhaled asthma medicines is very common in Australia and worldwide.[NACA 2018] Adults and adolescents are unlikely to use inhalers correctly unless they are given clear instruction, including a physical demonstration, and have their inhaler technique checked regularly.[NACA 2018] When inhalers are used incorrectly, the full dose may fail to reach the target area in the lung. Poor inhaler technique can result in poor symptom control and exacerbations.[NACA 2018]

Patients need training to use inhalers correctly – just reading the manufacturer’s leaflet is ineffective. The best way to train patients to use their inhalers correctly is one-to-one training by a health professional (e.g. nurse, pharmacist, GP) that involves both verbal instruction and physical demonstration. Australian randomised controlled trials have shown that adults with asthma are more likely to use their inhaler correctly after a health professional demonstrated the correct technique using a placebo inhaler as well as explaining and providing written instructions, than after receiving only written and verbal instructions or after written instructions only.[NACA 2018]

An effective method is to assess the individual’s technique by comparing each step to a checklist specific to the type of inhaler, and then provide written instructions highlighting the steps that were incorrect (e.g. a sticker attached to the device). This helps patients maintain correct technique longer.[NACA 2018]

References

National Asthma Council Australia. Inhaler technique in people with asthma or COPD. National Asthma Council Australia, Melbourne, 2018.

Resources

National Asthma Council Australia information paper: [Inhaler technique for people with asthma or COPD](#) (2018)

National Asthma Council Australia’s [inhaler demonstration videos](#)

NPSMedicinewise [Checklist](#) for correct use of common inhaler types

National Asthma Council Australia’s [videos demonstrating correct use of inhalers](#)



Recommendation

For patients using ICS via a pMDI, advise use of a spacer.

Sources & rationale

The use of a spacer with a pMDI reduces oropharyngeal deposition and increases deposition in the lungs.[Lavorini 2009]
Avoidance of oropharyngeal deposition may reduce the risk of local side-effects such as dysphonia and oral candidiasis.
[Lavorini 2009]

References

Lavorini F, Fontana GA. Targeting drugs to the airways: The role of spacer devices. Expert Opin Drug Deliv 2009; 6: 91-102.

Resources

National Asthma Council Australia information paper: [Inhaler technique for people with asthma or COPD](#)

National Asthma Council Australia's [inhaler demonstration videos](#)

National Asthma Council Australia's [Spacer use and care](#)

National Asthma Council Australia's [fact sheet on spacers for pressurised metered-dose inhalers](#)

Notes

[Technical information on pMDIs and spacers](#)



Recommendation

For patients using reliever via pMDI, advise use of a spacer.

The use of a spacer with a pMDI is essential when symptoms are frequent or worsening.

Advise single-breath technique, except during acute asthma.

Sources & rationale

The use of a spacer, one actuation at a time, minimises local adverse effects and optimises deposition of the medicine in the lungs.[GINA 2025]

References

Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention, 2025. Available from: www.ginasthma.org

Resources

National Asthma Council Australia information paper: [Inhaler technique for people with asthma or COPD](#) (2018)

[How to use a metered dose inhaler \(puffer\) with a spacer for adults](#)

National Asthma Council Australia's [Spacer use and care](#)

National Asthma Council Australia's [fact sheet on spacers for pressurised metered-dose inhalers](#)

Notes

There are two methods for inhaling reliever from a pMDI plus spacer.

The standard, recommended method (single-breath technique) is to take a single slow deep breath after each actuation into the spacer, then hold the breath for 5 seconds, then exhale away from the spacer.

The alternative method (tidal breathing) is used during acute exacerbations, when people usually cannot coordinate actuation and breathing. Up to 2 actuations are released into the spacer at the same time, and the patient takes multiple breaths, breathing in and out through the spacer mouthpiece.

The tidal breathing method is usually used in EDs to deliver SABA in acute asthma, but patients should revert to the preferred single-breath technique after discharge.



Recommendation

Do not prescribe or recommend nebulised medicines.

Nebulisers should only be used when necessary to deliver salbutamol in a patient with severe or life-threatening acute asthma.

Sources & rationale

Recommendation type: adapted from GINA

The use of a pMDI with spacer delivers inhaled asthma medicines to the lungs more quickly and at least as effectively as a nebuliser.[Newman 2002]

The association between SABA use and increased risk of exacerbations is stronger for nebulized salbutamol than salbutamol delivered by pMDI.[Paris 2008]

The use of nebulisers is unnecessary except in some cases of severe acute asthma.

The use of nebulisers may increase the risk of viral transmission.[Hui 2009, Biney 2024, Goldstein 2021] Healthcare workers should follow infection control procedures including use of personal protective equipment such as face masks.

References

Biney IN, Ari A, Barjaktarevic IZ, et al. Guidance on mitigating the risk of transmitting respiratory infections during nebulization by the COPD Foundation Nebulizer Consortium. *Chest* 2024; 165: 653-668.

Global Initiative for Asthma (GINA). Global Strategy for Asthma Management and Prevention, 2025. Available from: www.ginasthma.org

Goldstein KM, Ghadimi K, Mystakelis H, et al. Risk of transmitting coronavirus disease 2019 during nebulizer treatment: a systematic review. *J Aerosol Med Pulm Drug Deliv* 2021; 34: 155-170.

Hui DS, Chow BK, Chu LC, et al. Exhaled air and aerosolized droplet dispersion during application of a jet nebulizer. *Chest* 2009; 135: 648-654.

Newman KB, Milne S, Hamilton C, Hall K. A comparison of albuterol administered by metered-dose inhaler and spacer with albuterol by nebulizer in adults presenting to an urban emergency department with acute asthma. *Chest* 2002; 121: 1036-1041.

Paris J, Peterson EL, Wells K, et al. Relationship between recent short-acting beta-agonist use and subsequent asthma exacerbations. *Ann Allergy Asthma Immunol* 2008; 101: 482-487.



Consideration

For patients using a separate inhaler for ICS and for reliever, prescribe the same type of device, if possible.

Sources & rationale

Recommendation type: Consensus recommendation

Ideally, each patient should be prescribed only a single inhaler type, because this may reduce errors and improve adherence. [Braido 2015, Bosnic-Anticevich 2018, Doyle 2010, Levy 2016]

References

Braido F, Lavorini F, Blasi F et al. Switching treatments in COPD: implications for costs and treatment adherence. *Int J Chron Obstruct Pulmon Dis* 2015; 10: 2601-2608.

Bosnic-Anticevich S, Callan C, Chrystyn H et al. Inhaler technique mastery and maintenance in healthcare professionals trained on different devices. *J Asthma* 2018; 55: 79-88.

Doyle S, Lloyd A, Williams A et al. What happens to patients who have their asthma device switched without their consent? *Prim Care Respir J* 2010; 19: 131-139.

Levy ML, Dekhuijzen PN, Barnes PJ et al. Inhaler technique: facts and fantasies. A view from the Aerosol Drug Management Improvement Team (ADMIT). *NPJ Prim Care Respir Med* 2016; 26: 16017.

Resources

Rigby D. [Inhaler device selection for people with asthma or chronic obstructive pulmonary disease](#). *Aust Prescr* 2024; 47: 140-147.

National Asthma Council Australia information paper: [Inhaler technique for people with asthma or COPD](#)



Practice point

If more than one type of inhaler is available for the required medicine, involve the patient in deciding between inhalers.



Practice point

If the use of multiple inhaler types is unavoidable, patients need clear instructions for each to avoid confusion between different handling requirements. For example, always shake versus never shake, slow and steady inhalation versus quick and deep inhalation, wash inhaler versus keep inhale dry.



Practice point

Assess each patient's inhaler technique repeatedly, even for patients who have been using the inhaler for many years.

To assess:

- Have the patient demonstrate their inhaler technique, while checking against a checklist of steps for the specific device.
- Demonstrate correct technique using a placebo device and correct any specific errors identified.
- Have the patient repeat the demonstration to check they can now use the device correctly. If necessary, repeat instruction until the patient has all steps correct.
- Provide the checklist as a reminder, and write down or highlight any steps that were done incorrectly (e.g. on a sticker attached to their inhaler or on a pictorial instruction sheet).

Resources



National Asthma Council Australia's information paper: Inhaler technique for people with asthma or COPD

<https://files.nationalasthma.org.au/resources/Inhaler-Technique-info-paper-20180607-web.pdf>



Practice point

For patients using maintenance ICS treatment, rinsing out the mouth with water after each dose may reduce the risks of dysphonia and oropharyngeal candidiasis.



Practice point

After a patient has attended ED for acute asthma, recheck inhaler technique and explain that those using a spacer should revert to the recommended single-breath technique – not multiple breaths after each actuation or multiple actuations (tidal breathing).



Practice point

For adults and adolescents who are unable to seal their lips firmly around an inhaler mouthpiece, the use of a pMDI with spacer and adult-sized mask is preferable to using a nebuliser.

Resources



National Asthma Council Australia's video[JH11.1]: How to use a metered dose inhaler (puffer) with a spacer for adults

<https://www.nationalasthma.org.au/living-with-asthma/how-to-videos/how-to-use-a-puffer-with-a-spacer-for-adults>



National Asthma Council Australia's fact sheet on spacers for pressurised metered-dose inhalers

https://files.nationalasthma.org.au/resources/NAC047-Spacers-for-Pressurised-Metered-Dose-Inhalers-Information-Sheet-2025_Web.pdf