Selecting inhalers for children 6–11 years

Before selecting inhalers

- Choose initial treatment
- Understand options for adjusting treatment

Recommendation

Choose an inhaler type suitable for the child's age and ability to use correctly.

For children aged 6 years or children less developmentally advanced, use a pMDI with a small spacer and mouthpiece. After the dose is actuated into the spacer, the child takes 2 deep breaths in and out, ideally following by breath-holding for 5–7 seconds.

For children aged 7 years and over, use a pMDI and spacer with mouthpiece. After the dose is actuated into the spacer, the child takes 1 deep breath, ideally followed breath-holding for 7 seconds.

For children aged 10–11 years, a DPI can be considered as an alternative to a pMDI.

Prescribe the same type of inhaler for maintenance treatment and for reliever, when possible, to avoid confusion.

Sources & rationale

Recommendation type: Consensus recommendation

Delivery of the medicine to the small airways is important for both SABAs and ICS.[van Aalderen 2015]

Pressurised metered-dose inhalers with spacers

pMDIs with spacers (with or without mask) are suitable for children of all ages.[van Aalderen 2015]

pMDIs without spacers require coordination between actuation and inhalation. Most children and many adults cannot do this correctly. Poor coordination results in reduced lung deposition. The use of a spacer overcomes the need for this coordination.[van Aalderen 2015]

The use of spacers reduces oropharyngeal deposition and associated local side effects such as candidiasis and hoarseness, and increases deposition to the target site (lower airways).[van Aalderen 2015]

Most children aged 6–11 years can use a spacer correctly with a mouthpiece.[van Aalderen 2015]

Multiple breaths in and out of the spacer may increase drug delivery into the airways.[van Aalderen 2015]

Breath-holding is recommended after inhaling, to improve deposition to the lungs.[van Aalderen 2015]

Breath-actuated metered-dose inhalers (suitable for age ≥7 years)

Breath-actuated MDIs release a dose of aerosol triggered by a relatively low inspiratory flow rate.

These do not require coordination of actuation with inhalation. They require normal deep inhalation, ideally followed by breath-holding for 5–7 seconds (e.g. 5 seconds for children younger than 10 years).[van Aalderen 2015]

The older the child, the greater the lung deposition with breath-actuated MDIs.[van Aalderen 2015]

Some 6-year-olds may not be able to use these inhalers correctly.[van Aalderen 2015]

Dry-powder inhalers (suitable for some older children)

DPIs require a quick and forceful deep breath to release particles of the active ingredient from carrier particles, ideally followed by breath-holding for 5–7 seconds.[van Aalderen 2015]

DPIs do not require coordination between actuation and inhalation.[van Aalderen 2015]

Most school-aged children can use a DPI correctly with training, support and practice.[Kuek 2024]

References

van Aalderen WM, Garcia-Marcos L, Gappa M, et al. How to match the optimal currently available inhaler device to an individual child with asthma or recurrent wheeze. NPJ Prim Care Respir Med 2015; 25: 14088.

Kuek SL, Wong NX, Dalziel S, et al. Dry-powder inhaler use in primary school-aged children with asthma: a systematic review. ERJ Open Res 2024; 10: 00455-2024.

Resources

National Asthma Council Australia's **videos demonstrating correct use of inhalers**

National Asthma Council **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

When using a pMDI, choose a spacer suitable for the child's age and size.

Sources & rationale

Recommendation type: Consensus recommendation

Small-volume spacers, which achieve a higher concentration of the aerosol, are recommended for children up to age 7 years because they have low tidal volumes.[van Aalderen 2015]

The electrostatic charge in a plastic spacer reduces delivery into the lung. These require correct priming and care. Metal spacers (rarely used) have no electrostatic charge.[van Aalderen 2015]

References

van Aalderen WM, Garcia-Marcos L, Gappa M, et al. How to match the optimal currently available inhaler device to an individual child with asthma or recurrent wheeze. NPJ Prim Care Respir Med 2015; 25: 14088.

Resources

National Asthma Council Spacer use and care

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

Notes

Parents should follow instructions for use and care of spacers.

More information on pMDIs and spacers

Recommendation

Do not prescribe or recommend nebulised medicines.

Sources & rationale

Recommendation type: Consensus recommendation

The use of nebulisers is not recommended. Delivery of inhaled medicines by nebuliser is unnecessary,[Cates 2013] except in some patients with severe acute asthma unable to breathe through a spacer.

Nebulisers may transmit respiratory viruses.[Hui 2009]

In children and adults, the use of nebulisers for SABA is associated with a higher risk of exacerbations than the use of inhalers.[Paris 2008]

Nebulised salbutamol is associated with more systemic adverse effects than pMDIs. In studies of children with acute asthma, higher rates of tremor have been reported among children treated with nebulised salbutamol than salbutamol via pMDI with spacer.[Cates 2013] Nebulised ICS can damage the child's eyes if the face mask is not well fitted, and can cause rash and atrophy of skin around the nose and mouth.[GINA 2025]

The use of home nebulisers could also lead to delays in treatment, compared with the prompt use of readily transportable pMDIs anywhere outside the home, whenever the child has asthma symptoms.

References

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

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

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.

Resources

National Asthma Council Australia Nebuliser use and care

Practice point

Most school-aged children can use a DPI correctly with training, support and practice.

Practice point

If asthma is not well controlled in a child younger than 10 years treated with ICS via a DPI, consider replacing with ICS via pMDI and spacer.