



Assessing and reviewing asthma in children 1–5 years

Read first



Diagnosing asthma in children 1-5 years



Definition of exacerbations



Recommendation

Assess recent symptom control at every opportunity

How often does child wheeze or become breathless?

Does child wake during the night due to wheezing or breathing problems? (How many times per month?)

How often does child need to take reliever inhaler? (How many days per week? How many times per day? How many puffs?)

How many weeks does child's reliever inhaler last?

Has child missed time from childcare, preschool or activities due to asthma?

Sources & rationale

Recommendation type: Consensus recommendation

Notes

Asthma symptoms are well controlled if the child has daytime symptoms (e.g. wheeze, difficult breathing, cough) on no more than 2 days per week and uses salbutamol on no more than 2 days per week (not counting prophylactic doses before exercise), symptoms are rapidly relieved by salbutamol, the child is active and asthma does not limit play, and the child never has symptoms during the night or on waking (including no coughing during sleep).

Table

Classification of recent asthma symptom control in children 1–5 years

Good control	Poor control
Daytime symptoms (e.g. wheeze, difficult breathing, cough) ≤2 days per week	Daytime symptoms (e.g. wheeze, difficult breathing, cough) >2 days per week
Need for salbutamol ≤2 days per week*	Need for salbutamol >2 days per week*
Symptoms last only a few minutes and are rapidly relieved by salbutamol	Any limitation of activities due to asthma
No limitation of activities: child is active, plays without symptoms	Any symptoms at night (including coughing during sleep)
No symptoms during night or when wakes up (including no coughing during sleep)	Waking with wheezing or breathing problems

Additional information

*Do not include doses given before exercise

Also ask about exacerbations, which can occur in children who typically do not have symptoms between exacerbations.

Table

Checklist for monitoring asthma in children 1–5 years

Assess or recheck:	Sample questions for parent/carer (modify/select as relevant)
1. Exacerbation history	Has child had a flare-up [explain meaning] since last visit? If yes, what triggered it? (e.g. cold symptoms, allergies, stopping preventer) How was the flare-up treated? Has child since last visit/ever needed to take oral corticosteroids? (How often and how much?) Has child ever been hospitalised for asthma or a wheezing episode? When was the child's last flare-up (and last flare-up before that one)? How were these flare-ups treated? How many times has child visited GP/hospital emergency room for asthma symptoms in the last [specify time period, e.g. year/month/2 weeks]?
2. Allergies	Does child have allergic rhinitis (hay fever)? Is child using other medicines for respiratory symptoms (e.g. oral or intranasal antihistamines, intranasal corticosteroids)? Is exposure to the known allergen avoidable? Does the child have allergies (e.g. to foods or insect bites) or need an adrenaline injector (e.g. <i>Epipen</i>) for emergencies? Does the child get skin rashes caused by allergies?
3. Inhaler technique	Can you show me how you use the inhaler? When did you last wash the spacer? (How do you wash it?)



Recommendation

Ask about triggers and exposure to triggers.

Ask whether anything in particular seems to cause the symptoms (e.g. respiratory viruses, physical activity, allergies, smoke from fires, fumes).

Ask if child is sometimes near people who are smoking, or sometimes spends time in a room or car where someone has been smoking.

Ask about exposure to indoor damp or moulds and other indoor/outdoor air pollution.

Table

Checklist for monitoring asthma in children 1–5 years

Assess or recheck:	Sample questions for parent/carer (modify/select as relevant)
1. Exacerbation history	<p>Has child had a flare-up [explain meaning] since last visit?</p> <p>If yes, what triggered it? (e.g. cold symptoms, allergies, stopping preventer)</p> <p>How was the flare-up treated?</p> <p>Has child since last visit/ever needed to take oral corticosteroids? (How often and how much?)</p> <p>Has child ever been hospitalised for asthma or a wheezing episode?</p> <p>When was the child's last flare-up (and last flare-up before that one)? How were these flare-ups treated?</p> <p>How many times has child visited GP/hospital emergency room for asthma symptoms in the last [specify time period, e.g. year/month/2 weeks]?</p>
2. Allergies	<p>Does child have allergic rhinitis (hay fever)?</p> <p>Is child using other medicines for respiratory symptoms (e.g. oral or intranasal antihistamines, intranasal corticosteroids)?</p> <p>Is exposure to the known allergen avoidable?</p> <p>Does the child have allergies (e.g. to foods or insect bites) or need an adrenaline injector (e.g. <i>Epipen</i>) for emergencies?</p> <p>Does the child get skin rashes caused by allergies?</p>
3. Inhaler technique	<p>Can you show me how you use the inhaler?</p> <p>When did you last wash the spacer? (How do you wash it?)</p>

Sources & rationale

Recommendation type: Consensus recommendation

Notes

Information on [triggers for asthma symptoms and exacerbations](#)



Recommendation

Assess risk factors for severe exacerbations.

Table

Risk factors for severe asthma exacerbations in children

High probability of respiratory viral infection (beginning of day care/preschool term, epidemics)
Confirmed food allergy or history of anaphylaxis
Poor asthma symptom control
ED visit or admission to hospital for asthma in preceding 12 months
History of sudden, unpredictable exacerbations not preceded by gradual worsening of symptoms
History of intubation/paediatric ICU admission for acute asthma
Over-use of salbutamol
Poor adherence to prescribed ICS treatment by parents/carers
Poor inhaler technique for ICS
Frequent failure to attend consultations
Parent's/carer's inability to follow asthma action plan
Significant parental psychological or socioeconomic problems
Carer unequipped to manage asthma emergency
Exposure to clinically relevant allergens
Exposure to tobacco smoke
Damp housing
Exposure to outdoor pollution
Obesity
High eosinophil count (if known)

Sources & rationale

Recommendation type: Consensus recommendation

It is not possible to predict the risk of severe exacerbations accurately in individual children, but several population-level risk factors have been identified.[\[Navanandan 2021\]](#)

Approximately 85% of severe asthma exacerbations in children are caused by airway inflammation following infection with respiratory viruses such as human rhinovirus, respiratory syncytial virus, parainfluenza virus, and influenza viruses.[\[Puranik 2017\]](#) An individual child's risk might be predicted from seasonal infection patterns and day care or preschool terms.

A history of asthma exacerbations requiring urgent care, ED visits, hospitalisation is associated with increased risk of future asthma exacerbations in children.[\[Puranik 2017\]](#) A severe exacerbation in the previous year is the strongest individual predictor of a future severe exacerbation in children.[\[Navanandan 2021\]](#)

Exposure to cigarette smoke is associated with worsening lung function, reduced response to asthma treatment, and ED visits for asthma.[\[Puranik 2017\]](#) Other environmental exposures that increase exacerbation risk include outdoor air pollution, damp housing, and allergens for sensitised children.[\[Puranik 2017, Wever-Hess 2000\]](#) Total IgE level has been associated with increased risk of severe exacerbations in children aged 2–4 years.[\[Wever-Hess 2000\]](#)

Increased levels of inflammatory biomarkers such as eosinophil count and FeNO are associated with increased risk of exacerbations,[\[Navanandan 2021\]](#) but these are not recommended for routine monitoring of asthma in preschool children.

Other risk factors for exacerbations include demographic characteristics such as family low income and family ethnocultural minority group status.[\[Navanandan 2021\]](#)

References

Puranik S, Forno E, Bush A, et al. Predicting severe asthma exacerbations in children. *Am J Respir Crit Care Med* 2017; 195: 854-859.

Navanandan N, Hatoun J, Celedón JC, et al. Predicting severe asthma exacerbations in children: blueprint for today and tomorrow. *J Allergy Clin Immunol Pract* 2021; 9: 2619-2626.

Wever-Hess J, Kouwenberg JM, Duiverman EJ, et al. Risk factors for exacerbations and hospital admissions in asthma of early childhood. *Pediatr Pulmonol* 2000; 29: 250-256.

Notes

Testing for allergic triggers (skin-prick test or blood test for specific IgE) may be useful to identify triggers. Results should be interpreted according to clinical findings.

Information on [asthma triggers](#)



Consideration

Validated checklists or questionnaires can be used to assess recent asthma symptom control at each visit.

Tools validated for use in preschool-aged children include:

- Test for Respiratory and Asthma Control in Kids (TRACK) – suitable for children under 5 years
- Childhood Asthma Control Test (C-ACT) – suitable for children aged 4–11 years.

Sources & rationale

Recommendation type: Consensus recommendation

Test for Respiratory and Asthma Control in Kids (TRACK) is validated in children younger than 5 years.[\[Liu 2007\]](#)

The Childhood Asthma Control Test (C-ACT) is validated in children aged 4–11 years.[\[Murphy 2009\]](#)

References

Liu AH, Zeiger R, Sorkness C, et al. Development and cross-sectional validation of the Childhood Asthma Control Test. *J Allergy Clin Immunol.* 2007; 119: 817-825.

Murphy KR, Zeiger RS, Kosinski M, et al. Test for respiratory and asthma control in kids (TRACK): a caregiver-completed questionnaire for preschool-aged children. *J Allergy Clin Immunol.* 2009; 123: 833-9.e9.

Notes

[Asthma assessment tools](#)



Consideration

Arrange more frequent follow-up for children with risk factors for severe exacerbations.

Sources & rationale

Recommendation type: Consensus recommendation



Consideration

For children taking maintenance inhaled corticosteroids long term, monitor linear growth.

At least once each year, measure height and weight, accurately measured and plotted on a percentile chart.

Sources & rationale

Recommendation type: Consensus recommendation

Maintenance ICS treatment in children is associated with a dose-dependent reduction in growth velocity.[\[Axelsson 2019\]](#)

Uncontrolled asthma also reduces children's growth and final adult height.[\[Pedersen 2001\]](#)

References

Axelsson I, Naumburg E, Prietsch SO, Zhang L. Inhaled corticosteroids in children with persistent asthma: effects of different drugs and delivery devices on growth. *Cochrane Database Syst Rev* 2019; 6: CD010126.

Pedersen S. Do inhaled corticosteroids inhibit growth in children? *Am J Respir Crit Care Med* 2001; 164: 521-35.



Practice point

Spontaneous remission of wheezing or asthma may occur in children.



Practice point

When prescribing any maintenance medicine for a pre-school child, consider each adjustment as a treatment trial: monitor response continually and review within 4–6 weeks.



Practice point

If parents report no symptoms over a few months, and no exacerbations despite exposure to the child's usual triggers, consider stopping ICS treatment. Update the asthma action plan and instruct parents to monitor for symptoms and report.