Information for Health Care Professionals on the Management of Preschool Wheeze

(single and recurrent episodes)

Preschool wheeze describes children aged between 1 and 5 years of age inclusive who have had at least 1 health care professional-confirmed wheezing episode.

This information does not relate to bronchiolitis, which usually causes wheeze in the under 1 year old, or to children with recurrent viral infections in the absence of wheeze.

If a child has any features suggestive of an alternative diagnosis (see Table 1), they should be referred for specialist advice[1].

Features suggestive of an alternative diagnosis
Failure to thrive
Unexplained clinical findings
Symptoms present from birth
History of preterm birth ≤ 34 weeks
Excessive vomiting or posseting
Severe upper respiratory tract infection
Persistent wet or productive cough
Family history of unusual chest disease
Nasal polyps

Table 1: Features suggestive of an alternative diagnosis:

Introduction

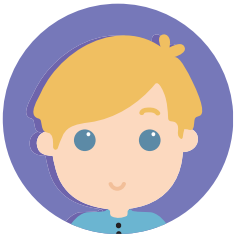
Preschool wheeze is common, occurring in up to one third of all preschool children. Compared to older children who wheeze, this group consumes a disproportionately high amount of healthcare resources.[2] 75% of all emergency department (ED) visits for wheeze in children and young people (CYP) involve children aged 5 years and under[3]. The number of preschool children presenting to the ED with acute wheeze is increasing, in contrast to emergency visits for other respiratory conditions, such as lower respiratory tract infections and bronchiolitis, which have not shown the same trend[4].

Around 50% of children will experience only a single episode of wheeze[5] and care for this group should be proportionate and avoid unnecessary medicalisation and treatment.
Conversely, children with severe or recurrent preschool wheeze are at risk of progressive loss of lung function and consequent respiratory morbidity into adulthood. [6] Undertreatment for this group is common across both primary and secondary care, there is wide variation, and significant health inequalities exist.[7,8,9]

Parents and carers of children who have had recurrent episodes of preschool wheeze feel there is a lack of information and inadequate systems to help them care for their children.[10]

There is a need for consistent terminologies, unified guidelines and pathways to guide investigations and treatment[11]. The following proposed approach and SNOMED CT codes (Systematized Nomenclature of Medicine Clinical Terms) together with the supporting resources have been produced to address these concerns and support children with preschool wheeze to have access to standardised, high-quality care across the system and the country.

This document for health care professionals provides a summary of the broad treatment approaches as agreed by current evidence and expert opinion.



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Classification and coding:

Children with preschool wheeze can be classified as either Episodic Viral wheeze (a child with their first ever episode of wheezing) or Suspected asthma (a child with either more than one episode of wheeze ever, or who meets additional criteria (see below)).

Episodic Viral Wheeze (single episode only):

SNOMED code description 276191000000107|Viral wheeze.

This describes a child experiencing their first ever episode of wheeze, usually in the context of an upper respiratory infection. The child has no symptoms outside of this wheezing episode ('interval symptoms'). If the episode is mild, this group usually has an excellent prognosis.

Suspected Asthma. (2 or more episodes OR who meets additional criteria):

SNOMED code description 394967008 |Suspected asthma (situation).

A child with a diagnosis of preschool suspected asthma should either:
meet the following 3 criteria[13] :

1. >1 episode of healthcare professional confirmed wheeze AND
2. No alternative diagnosis (see Table 1) AND
3. Timely response to treatment for asthma including short-acting beta agonists (see section below on additional treatments for suspected asthma)

OR have 1 or more red flags features (see Table 2).

Red Flags
Frequent daytime symptoms (2 or more times a week)
Frequent nighttime symptoms (2 or more times a month)
A first severe wheezing episode requiring oxygen therapy
TRACK score (Test for Respiratory and Asthma Control in Kids) <80[12]

Table 2: Red Flags

Treatment options for all preschool wheeze:

No treatment has been shown to prevent progression of preschool wheeze to school age asthma, so treatment is determined by frequency or severity of acute episodes.

All children with preschool wheeze (both episodic viral wheeze and suspected asthma) should be offered the following treatment during an acute attack:

1. Intermittent bronchodilator treatment via a spacer to treat acute symptoms.

2. Oral steroids (prednisolone or dexamethasone) are not indicated and should not be offered to those who are well enough to remain at home or to many who are admitted to hospital. Oral steroids may be of benefit to those with episodes severe enough to require oxygen therapy.

3. Families should be offered education including:
    a. An explanation of the condition
    a. Training in inhaler technique
    b. Wheeze self-management plan.

4. A discussion around potential triggers in the home environment e.g. indoor air pollution, (smoke/vape exposure, damp/mould) outdoor air pollution and house dust mite and strategies to support reducing exposure.

5. All health care professionals should acknowledge the anxiety that families experience when their child is wheezy, and the impact that attacks of wheeze can have on the mental health of children and their families. Supportive care including measures such as giving families a contact telephone number and providing follow up calls, can significantly alleviate the frequency and severity of future episodes.

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Additional Treatment Options for Recurrent episodes/ Suspected Asthma

Suspected asthma in preschool children can be associated with worse lung function trajectories into adulthood and increased risk of COPD. Children with suspected asthma may therefore benefit from additional interventions to those described above, with the aims of controlling symptoms and preventing or reducing the severity of exacerbations[14].

1. A trial of continuous Inhaled corticosteroids:

A cohort of children with preschool suspected asthma will respond to regular inhaled corticosteroids (ICS). These children are more likely to have raised blood eosinophils (>300cells/mcL) or aeroallergen sensitisation on skin prick testing. They may also have a personal history of atopy, including doctor-confirmed atopic dermatitis or food allergy. These children should have a trial of treatment with ICS (see below).

If it is not possible or practical to perform a blood test or skin prick testing on a child with recurrent preschool wheeze/suspected asthma, for example, in a primary care setting, it is reasonable to do a trial of treatment with ICS, but with a clear plan to review and refer if there is no benefit seen.

A trial of continuous ICS should be done as follows:

1 A trial of Treament	**Dose considerations** Use twice daily paediatric low to moderate dose ICS (100-200mcg twice daily of beclomethasone or equivalent). There is insufficient evidence to guide dose recommendations in a trial of treatment in this age group. The aim of the trial is to use a dose large enough to illicit an effect whilst minimising the adverse effects of steroid use. The decision of whether to use low or moderate dose ICS should take into consideration both the age of the child, with a younger child more likely to require low dose ICS, and the healthcare setting in which it is being used, ensuring there is capacity for those those children using moderate dose ICS to be monitored frequently, at least every 12 weeks. **Duration** The duration of the trial will depend on the symptoms for which it was started. For example, if the purpose of the trial is for the treatment of interval symptoms, 8-12 weeks may be adequate to demonstrate a benefit. If the main symptoms are acute severe episodes, a longer trial over a winter season may be needed. If a longer trial is needed in younger children (ages 3 years or less) a dose adjustment to low dose ICS may be necessary after 8-12 weeks.
2 Stop Treatment	Symptoms may improve spontaneously as is the natural history of preschool wheeze. If this occurs during a trial of treatment this may be interpreted as a positive response to the treatment. To avoid children remaining on ICS unnecessarily, the ICS should be stopped even if a child has improved, and only restarted if symptoms recur.
3 Review	If symptoms recur and there was an initial benefit seen in step 1, restart ICS treatment but at the lower maintenance dose, aiming to maintain the child on the lowest effective dose to control their symptoms.

The aim of this three-step approach is to prevent children from being falsely labelled and inappropriately treated because a continuous medication was started when the child was about to get better because of the natural history of the condition.

Further treatment and review

2. Leukotriene receptor antagonists (LTRA), e.g. Montelukast

Leukotriene receptor antagonistis can be considered in addition to ICS when symptoms remain inadequately controlled on ICS alone.

LTRAs should be given for an 8–12-week trial period and stopped if ineffective.
All families should be warned of the risk of neuropsychiatric side effects prior to commencing treatment.

3. Consider Referral

Some children will not respond to ICS and/or LTRA. These children should be referred to secondary or tertiary services (as appropriate) for further investigation and consideration of alternative treatments including ICS/long-acting beta agonist combinations.

4. Review

All preschool children with suspected asthma should be seen at least annually to reinforce education, review long term management and supersede any existing SNOMED CT code as necessary.
After a symptom free period on regular medication, a child with suspected asthma should have a trial off treatment to see if the condition has resolved

This guide has been assembled by BeatAsthma on behalf of NHS England's Children and Young People's Transformation team after discussion and consultation with key stakeholders in the Children and Young People's asthma community

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Working Group Members:

Prof Will Carroll	Dr Mark Levy
Ms Sadie Clayton	Dr David Lo
Prof Erol Gaillard	Ms Viv Marsh
Dr Sebastian Gray	Dr Prasad Nagakumar
Dr Stephen Goldring	Dr Katherine Pike
Prof Jonathon Grigg	Prof Sejal Saglani
Dr Katherine Hickman	Prof Ian Sinha
Dr Sonal Kansra	Dr Jen Townshend