Asthma and the early years:
A guideline-informed approach to managing preschool wheeze and asthma in young children

By Professor Helen Brough

Asthma remains one of the most common chronic conditions in childhood, affecting 1 in 11 children in the UK. Diagnosing and managing asthma in children under 5 is uniquely challenging due to overlapping wheezing phenotypes, variable response to treatment and limited diagnostic tools. The 2024 unified BTS/SIGN/NICE asthma guideline (NG245) now replaces earlier guidelines - such as NICE NG80 (2017) and SIGN 158 (2019) - and offers clearer direction for clinicians managing young children with suspected or confirmed asthma.

This article synthesises the latest evidence with practical insights from paediatric allergy and respiratory practice, offering a roadmap for healthcare professionals navigating early years asthma.

1. Epidemiology and Burden in the Under-5s

Up to 30% of children will have at least one episode of wheezing before the age of 3. However, only 30–50% of these children will go on to have persistent asthma. Preschool wheeze is a major cause of emergency department visits, corticosteroid use and hospitalisation, contributing significantly to the UK healthcare burden.

2. Understanding Wheezing Phenotypes in Young Children

The 2024 guidelines reaffirm that asthma in children under 5 years is a **clinical diagnosis**, encouraging a pragmatic approach to wheezing phenotypes:

- **Episodic (viral) wheeze:** Wheeze only during respiratory infections, with symptom-free intervals
- **Multiple-trigger wheeze (MTW)**: Wheeze during and between infections, triggered by exercise, laughter, allergens, cold air

These patterns are not mutually exclusive. Children may shift between them - and a proportion will develop persistent asthma.

3. Diagnosis in the Absence of Objective Testing

Diagnostic tools such as spirometry and FeNO (fractional exhaled nitric oxide) are often not feasible in pre-schoolers, making clinical history and treatment response essential.

Key diagnostic features include:

- Family history of asthma/atopy
- History of eczema or food allergy
- Wheeze patterns and triggers
- Episode frequency and severity
- Response to **SABA (eg salbutamol) or inhaled corticosteroid (ICS)**

An **8-12-week inhaled corticosteroid (ICS) trial** is recommended for children with suggestive symptoms. Use of tools like the **TRACK** score (Test for Respiratory and Asthma Control in Kids) helps quantify control as it is specifically designed for children under 5 years.

4. Environmental and Allergy Considerations

Early allergen sensitisation is associated with persistent wheeze and asthma. Key environmental triggers include:

- Indoor allergens (dust mite, pets, mould)
- Tobacco smoke
- Urban air pollution

Children with **eczema and food allergies** are at higher asthma risk - known as the **atopic march**. Testing (skin prick or specific IgE) can guide management.

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5. Pharmacological Management

5.1 Reliever Therapy

SABA (eg salbutamol) via spacer is first-line for symptom relief in young children. **Oral beta-agonists** are discouraged due to lower efficacy and higher side-effects.

5.2 Preventer Therapy

Inhaled corticosteroids are the first-line preventer for persistent symptoms. Beclomethasone 100 mcg BD or equivalent is commonly used and titrated to the lowest effective dose.

Consider **montelukast (a leukotriene receptor antagonist or LTRA)** if:

- Poor ICS response
- Episodic viral wheeze
- Poor adherence to ICS

However, guidelines advise against montelukast as **routine first-line** in MTW as multiple studies and meta-analyses have shown that **inhaled corticosteroids (ICS)** are more effective than montelukast in reducing asthma symptoms, exacerbations and hospitalisations in young children with persistent wheeze. There have also been well-documented concerns about **neuropsychiatric effects**, especially in young children, including:

- Sleep disturbances
- Nightmares
- Behavioural changes (eg aggression, irritability)
- Depression and, in rare cases, suicidal thoughts

In 2020, the **FDA issued a boxed warning** for montelukast due to these risks, recommending it only be used when the benefits clearly outweigh the risks.

Avoid routine oral corticosteroids in pre-schoolers, except for severe hospitalised cases.

6. Monitoring, Adherence, and Education

Effective management includes:

- **Symptom monitoring** via diaries/apps
- **Inhaler technique** checks
- **Personalised asthma action plans**
- **Parent education** to counter steroid phobia and improve technique.

A review is recommended 4–6 weeks after ICS initiation to assess response.

7. Acute Wheeze Management

Structured, stepwise treatment:

- **Mild–moderate:** Salbutamol via spacer, monitor closely
- **Moderate–severe:** Add oxygen (<92% saturations), increase salbutamol, 3-day oral prednisolone (1-2 mg/kg), ipratropium bromide if needed
- **Life-threatening:** Signs include cyanosis, poor effort, silent chest - initiate resuscitation and escalate care

Ensure parents can recognise red flags and act promptly.

8. Addressing Health Inequalities and Psychosocial Factors

Disparities in asthma begin early:

- **Tobacco exposure, poor housing, low literacy** increase severity
- **Children from Black and South Asian backgrounds** face higher admission and mortality risk
- **Parental mental health** affects outcomes - regular support helps. Collaboration with health visitors and social care ensures holistic support

9. Role of Multidisciplinary Teams and Specialist Referral

Refer to a paediatric specialist if:

- Diagnostic uncertainty
- ICS trial fails
- Recurrent hospitalisations
- Suspected airway abnormality or immunodeficiency
- Complex allergy, eczema, or food triggers

Team roles:

- **Allergy specialists**: Sensitisation testing; consider **SLIT** from age 2 for aeroallergens
- **Asthma educators:** Inhaler training, action plans, adherence
- **Community paediatrics:** Support for vulnerable families and nursery settings

10. Future Directions and Research

Emerging areas include:

- **Biomarkers** (e.g. Feno) for pre-schoolers
- **Microbiome** links to early-life asthma
- **Digital tools: Smart inhalers, remote monitoring**
- **Prevention strategies:** Allergen exposure, reducing antibiotic use, environmental reform

Conclusion

Asthma in the early years requires a flexible, evidence-informed and family-centred approach. The 2024 BTS/SIGN/NICE guideline (NG245) improves clarity and consistency. Recognising phenotypes, structuring treatment trials, educating families, and coordinating multidisciplinary care can optimise outcomes in our youngest patients.

Key Takeaways

- Asthma diagnosis in under-5s is **clinical**, based on history and treatment response
- **Inhaled corticosteroids** are the mainstay for **persistent and multiple trigger wheeze**
- Provide families with **written personalised asthma action plans and education**
- Refer when **diagnosis is uncertain or symptoms are complex**
- Address health **inequalities and psychosocial** contributors

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