MaineHealth

Asthma Clinical Guidelines 0-5 Years

Adapted from the Global Initiative for Asthma (GINA) 2018 Guidelines for the Diagnosis and Management of Asthma and the National Heart, Lung, and Blood Institutes's (NHLBI) National Asthma Education and Prevention Program (NAEPP) 2007 Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma

INITIAL ASSESSMENT

Symptoms

- Recurrent wheezing
- Coughing
- Recurrent Respiratory Tract Infections

Comorbidities

- Rhinitis

Medical History

- Allergic rhinitis
- Premature Birth
- Family history (1st degree relative) of asthma or allergy
- Atopy present in the majority of children with asthma who are over 3 years old
- Allergen specific sensitization is one of the most important risk factors for the development of asthma

Risk factors that may exacerbate symptoms

- Allergen exposure/sensitization
- Environmental Tobacco/Marijuana Smoke
- Irritants (woodsmoke, airborne chemicals, strong smells)
- Reactive airway disease
- Nocturnal symptoms

Red flags

- History of steroid use
- ED visits
- Hospitalization

Differential diagnosis

- Upper respiratory tract infections (e.g. RSV and Rhinovirus) are associated with recurrent wheezing throughout childhood*
- Recurrent viral respiratory tract infections
- GERD
- Foreign body aspiration
- Tracheomalacia
- Tuberculosis
- Bronchopulmonary dysplasia
- Cystic fibrosis
- Primary ciliary dyskinesia
- Vascular ring
- Congenital heart disease
- Immune deficiency

* Global Strategy for Asthma Management and Prevention (GINA) page 100

DIAGNOSTICS

Features suggesting a diagnosis of asthma in children 5 years and younger	
Feature	**Characteristics suggesting asthma**
Cough	Recurrent or persistent non-productive cough that may be worse at night accompanied by some wheezing and breathing difficulties. Cough occurring with exercise, laughing, crying or exposure to tobacco smoke in the absence of an apparent respiratory infection
Wheezing	Recurrent wheezing, including during sleep or with triggers such as activity, laughing, crying or exposure to tobacco smoke or air pollution
Difficult or heavy breathing or shortness of breath	Occurring with exercise, laughing, or crying
Reduced activity	Not running, playing or laughing at the same intensity as other children; tires earlier during walks (wants to be carried)
Past or family history	Other allergic disease (atopic dermatitis or allergic rhinitis) Asthma in first-degree relatives
Threrapeutic trial with low dose inhaled corticosteroid and as-needed short-acting beta$_2$-agonist, SABA*	Clinical improvement during 2-3 months of controller treatment and worsening when treatment stopped

* Due to the variable nature of asthma in young children, a therapeutic trial may need to be repeated in order to be certain of the diagnosis. GINA page 103

Key indications for referral of a child 5 years or younger for further diagnostic investigations

Any of the following features suggest an alternative diagnosis and indicate the need for further investigations:

- Failure to thrive
- Neonatal or very early onset symptoms (especially if associated with failure to thrive)
- Vomiting associated with respiratory symptoms
- Continuous wheezing
- Failure to respond to asthma controller medications
- No asscociation of symptoms with typical triggers, such as viral respiratory tract infections
- Focal lung or cardiovascular signs, or finger clubbing
- Hypoxemia outside context of viral illness

Testing:

- Pulse Oximetry
- CXR to assess for structural abnormalities and chronic infections

Classification and Symptom Control Assessment 0-5 years

SEVERITY CLASSIFICATION

Components of Severity*		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment	Daytime symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	None	1-2x/month	3-4x/month	>1x/week
	SABA[1] use for symptom control[2]	≤2 days/week	>2 days/week but not daily	Daily	Several times per day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	n/a	n/a	n/a	n/a
Risk	Exacerbations requiring oral corticosteroids	0-1/yr	≥2 exacerbations in 6 months requiring oral corticosteroids or ≥4 wheezing episodes/year lasting >1 day AND risk factors for persistent asthma†		

* Level of severity is determined by both impairment and risk. Assess impairment domain by patient's/caregiver's recall of the previous 2-4 weeks and spirometry (if ≥5yrs of age). Severity may be assigned to the most severe category in which any feature occurs.

† At present, there are inadequate data to correspond frequency of exacerbations with different levels of asthma severity. In general, more frequent and intense exacerbations (e.g., requiring urgent, unscheduled care, hospitalization, or ICU admission) indicate greater underlying disease severity. For treatment purposes, patients ≥5yrs of age who had ≥2 exacerbations requiring oral systemic corticosteroids in the past year may be considered the same as patients who have persistent asthma, even in the absence of impairment levels consistent with persistent asthma.

1 Short-acting inhaled beta$_2$-agonist.

2 Does not include SABA for prevention of exercise-induced bronchospasm.

Asthma Symptom Control Assessment			Level of Asthma Symptom Control		
In the past 4 weeks, has the child had:	**Yes**	**No**	**Well controlled**	**Partly controlled**	**Uncontrolled**
Daytime asthma symptoms for more than a few minutes, more than twice a week?			None of these	1-2 of these	3 or more
Any activity limitation due to asthma? (Runs/plays less than other children, tires easily during walks/playing?)					
Reliever medication needed* more than twice a week?					
Any night waking or night coughing due to asthma?					
Have you been to a quick care or ED since your last visit?					
Have you been prescribed OCS, oral corticosteroid, since your last visit?					

Adapted from the Global Initiative for Asthma (GINA) 2018 Guidelines

* Excludes reliever taken before exercise

Stepwise Approach, Management and Inhaled Corticosteroids 0-5 years

STEPWISE APPROACH TO MANAGEMENT 0-5 YEARS

	Step 1	Step 2	Step 3	Step 4
Preferred Controller		Daily low dose ICS	**Refer to an Asthma Specialist** Double low dose ICS	**Refer to an Asthma Specialist** Continue controller and refer for specialist assessment
Other Controller Options		LTRA	Low dose ICS + LTRA	Add LTRA include ICS frequency
Reliever	As-needed SABA (all children)			
Severity Classification*	**Intermittent**	**Mild Persistent**	**Moderate Persistent**	**Severe Persistent**

KEY:

SABA – short-acting beta$_2$ agonist

LABA – long-acting beta$_2$ agonist

LTRA – leukotriene receptor antagonist

ICS – inhaled corticosteroid

*Asthma severity is assessed retrospectively from the level of treatment required to control symptoms and exacerbations. It can be assessed once the patient has been on controller treatment for several months and, if appropriate, treatment stepdown has been attempted to find the patient's minimum effective level of treatment. Asthma severity is not a static feature and may change over months or years.

MANAGEMENT

Assess symptom control over last 4 weeks- System Control Assessment

Tobacco treatment referral for parents/caregivers if patient exposed to environmental tobacco smoke

Influenza vaccine

Allergen avoidance

Pneumococcal vaccine

Set goals for managing asthma and medications

Assess and treat comorbidities

Self-management education

- Written asthma action plan
- Inhaler education with teach back*
- Assess adherence

Annual visits

* "Inhaler competence in asthma: Common errors, barriers to use and recommended solutions." Respiratory Medicine. October 23, 2012 https://www.sciencedirect.com/science/article/pii/S0954611112003587

LOW DAILY DOSES OF INHALED CORTICOSTEROIDS

Brand name	Corticosteroid	Low daily dose
Flovent	Fluticasone propionate (HFA)	44 mcg 2 puffs twice daily
Pulmicort	Budesonide (nebulized)	0.5 mg once daily
QVAR	Beclomethasone dipropionate (HFA)	40 mcg 2 puffs twice daily

Choosing an inhaler device for children 5 years and younger		
Age	**Preferred device**	**Alternate device**
0-3 years	Pressurized metered-dose inhaler plus dedicated spacer with face mask	Nebulizer with face mask
4-5 years*	Pressurized metered-dose inhaler plus dedicated spacer with mouthpiece	Pressurized metered-dose inhaler plus dedicated spacer with face mask or nebulizer with mouthpieceor face mask

* Please consider development stage when prescribing for pediatric patients.

For more information, contact MaineHealth Pediatric Service Line Program Manager at 207-662-2439