2007 NIH Asthma Guidelines Summary

Summary of the *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma*

National Institutes of Health (NIH)
National Heart, Lung, and Blood Institute
National Asthma Education and Prevention Program (NAEPP)

This information is abstracted from the 2007 NAEPP *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma.* To access the complete report, go to www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf.

Goals of Asthma Control[1]

Reduce impairment

- Prevent chronic and troublesome symptoms
- Require infrequent use of inhaled short-acting beta$_2$-agonists (SABA) for quick relief of symptoms (≤2 days per week)
- Maintain (near) "normal" pulmonary function
- Maintain normal activity levels (including exercise and other physical activity and attendance at work or school)
- Meet patients' and families' expectations of and satisfaction with asthma care

Reduce risk

- Prevent recurrent exacerbations and minimize the need for emergency department (ED) visits/hospitalizations
- Prevent progressive loss of lung function; for children, prevent reduced lung growth
- Provide optimal pharmacotherapy with minimal or no adverse effects

Guidelines include separate but related concepts of severity, control, and responsiveness to treatment

Severity

- The intrinsic intensity of the disease process
- Measured most easily and directly in a patient not receiving long-term control therapy
- Assessed to guide clinical decisions on appropriate medications and interventions

Control

- The degree to which the manifestations of asthma (symptoms, functional impairments, and risks of untoward events) are minimized and the goals of therapy are met
- Guide decisions to maintain or adjust therapy

Responsiveness

- The ease with which asthma control is achieved by therapy

Assess asthma severity to initiate therapy

- During a patient's initial presentation, if the patient is not currently taking long-term control medication, assess asthma severity to guide clinical decisions for initiating the appropriate medication and other therapeutic interventions

Assess asthma control to monitor and adjust therapy

- Once therapy is initiated, the emphasis for clinical management is changed to the assessment of asthma control. Use the level of asthma control to guide decisions either to maintain or to adjust therapy

Patients ≥12 Years of Age

Assessing Severity: Patients ≥12 Years of Age

Classifying Asthma Severity and Initiating Treatment in Patients ≥12 Years of Age[1]
Assessing severity and initiating treatment for patients who are not currently taking long-term control medications

Components of Severity		Classification of Asthma Severity (≥12 Years of Age)			
			Persistent		
		Intermittent	Mild	Moderate	Severe
IMPAIRMENT*	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3-4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting beta$_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily, and not more than 1x on any day	Daily	Several times per day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	•Normal FEV_1 between exacerbations •FEV_1 >80% predicted •FEV_1/FVC normal	•FEV_1 >80% predicted •FEV_1/FVC normal	•FEV_1 >60% but <80% predicted •FEV_1/FVC reduced 5%	•FEV_1 <60% predicted •FEV_1/FVC reduced >5%
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	≥2 per year →		
		Consider severity and interval since last exacerbation. ← Frequency and severity may fluctuate over time for patients in any severity category. → Relative annual risk of exacerbations may be related to FEV_1.			
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3 and consider short course of oral systemic corticosteroids	Step 4 or 5
		In 2-6 weeks, evaluate level of asthma control that is achieved, and adjust therapy accordingly.			

*Normal FEV_1/FVC: 8-19 yr: 85% | 20-39 yr: 80% | 40-59 yr: 75% | 60-80 yr: 70%

Assessing Control: Patients ≥12 Years of Age

Assessing Asthma Control and Adjusting Therapy in Patients ≥12 Years of Age[1]

Components of Control		Classification of Asthma Control (≥12 Years of Age)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤2 days/week	>2 days/week	Throughout the day
	Nighttime awakenings	≤2x/month	1-3x/week	≥4x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	Short-acting beta$_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	FEV_1 or peak flow	>80% predicted/personal best	60%-80% predicted/personal best	<60% predicted/personal best
	Validated questionnaires ATAQ ACQ ACT‡	 0 ≤0.75† ≥20	 1-2 ≥1.5 16-19	 3-4 N/A ≤15
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	≥2 per year	
		Consider severity and interval since last exacerbation.		
	Progressive loss of lung function	Evaluation requires long-term follow-up care.		
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		
Recommended Action for Treatment		•Maintain current step. •Regular follow-ups every 1-6 months to maintain control. •Consider step down if well controlled for at least 3 months.	•Step up 1 step and •Reevaluate in 2-6 weeks. •For side effects, consider alternative treatment options.	•Consider short course of oral systemic corticosteroids, •Step up 1-2 steps, and •Reevaluate in 2 weeks. •For side effects, consider alternative treatment options.

†ACQ values are indeterminate regarding well-controlled asthma.
‡ACT = Asthma Control Test. Asthma Control Test is a trademark of QualityMetric Incorporated.

Assessing Treatment Options: Patients ≥12 Years of Age

Stepwise Approach for Managing Asthma in Patients ≥12 Years of Age[1]

Intermittent Asthma

Persistent Asthma: Daily Medication
Consult with asthma specialist if Step 4 care or higher is required. Consider consultation at Step 3.

Step 1
Preferred:
SABA PRN

Step 2
Preferred:
Low-dose ICS
Alternative:
Cromolyn, LTRA, nedocromil, or theophylline

Step 3
Preferred:
Low-dose ICS + LABA
OR
Medium-dose ICS
Alternative:
Low-dose ICS + either LTRA, theophylline, or zileuton

Step 4
Preferred:
Medium-dose ICS + LABA
Alternative:
Medium-dose ICS + either LTRA, theophylline, or zileuton

Step 5
Preferred:
High-dose ICS + LABA
AND
Consider omalizumab for patients who have allergies

Step 6
Preferred:
High-dose ICS + LABA + oral corticosteroid
AND
Consider omalizumab for patients who have allergies

Step up if needed
(first, check adherence, environmental control, and comorbid conditions)
Assess control
Step down if possible
(and asthma is well controlled at least 3 months)

Each step: Patient education, environmental control, and management of comorbidities
Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma.

Quick-Relief Medication for All Patients
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Use of SABA >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

Assessing Severity: Children 5-11 Years of Age

Classifying Asthma Severity and Initiating Treatment in Children 5-11 Years of Age[1]
Assessing severity and initiating treatment in children who are not currently taking long-term control medication

Components of Severity		Classification of Asthma Severity (5-11 Years of Age)			
		Intermittent	Persistent		
			Mild	Moderate	Severe
IMPAIRMENT	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3-4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting $beta_2$-agonist use for symptom control (not prevention of EIB)	≤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	• Normal FEV_1 between exacerbations • FEV_1 >80% predicted • FEV_1/FVC >85%	• FEV_1 = >80% predicted • FEV_1/FVC >80%	• FEV_1 = 60%-80% predicted • FEV_1/FVC = 75%-80%	• FEV_1 <60% predicted • FEV_1/FVC <75%
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	≥2 per year →		
		← Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. →			
		Relative annual risk of exacerbations may be related to FEV_1.			
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3, medium-dose ICS option and consider short course of oral systemic corticosteroids	Step 3, medium-dose ICS option, or Step 4 and consider short course of oral systemic corticosteroids
		In 2-6 weeks, evaluate level of asthma control that is achieved, and adjust therapy accordingly.			

Assessing Control: Children 5-11 Years of Age

Assessing Asthma Control and Adjusting Therapy in Children 5-11 Years of Age[1]

Components of Control		Classification of Asthma Control (5-11 Years of Age)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤2 days/week but not more than once on each day	>2 days/week or multiple times on ≤2 days/week	Throughout the day
	Nighttime awakenings	≤1x/month	≥2x/month	≥2x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	Short-acting $beta_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	Lung function • FEV_1 or peak flow • FEV_1 /FVC	>80% predicted/personal best >80%	60%-80% predicted personal best 75%-80%	<60% predicted/personal best <75% predicted
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	≥2 per year	
		Consider severity and interval since last exacerbation.		
	Reduction in lung growth	Evaluation requires long-term follow-up care.		
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		
Recommended Action for Treatment		• Maintain current step. • Regular follow-up every 1-6 months. • Consider step down if well controlled for at least 3 months.	• Step up 1 step and • Reevaluate in 2-6 weeks. • For side effects, consider alternative treatment options.	• Consider short course of oral systemic corticosteroids, • Step up 1-2 steps, and • Reevaluate in 2 weeks. • For side effects, consider alternative treatment options.

Assessing Treatment Options: Children 5-11 Years of Age

Stepwise Approach for Managing Asthma in Children 5-11 Years of Age[1]

Intermittent Asthma

Persistent Asthma: Daily Medication
Consult with asthma specialist if Step 4 care or higher is required. Consider consultation at Step 3.

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Preferred: SABA PRN	***Preferred:*** Low-dose ICS ***Alternative:*** Cromolyn, LTRA, nedocromil, or theophylline	***Preferred:*** **EITHER** Low-dose ICS + either LABA, LTRA, or theophylline **OR** Medium-dose ICS	***Preferred:*** Medium-dose ICS + LABA ***Alternative:*** Medium-dose ICS + either LTRA or theophylline	***Preferred:*** High-dose ICS + LABA ***Alternative:*** High-dose ICS + either LTRA or theophylline	***Preferred:*** High-dose ICS + LABA + oral systemic corticosteroid ***Alternative:*** High-dose ICS + either LTRA or theophylline + oral systemic corticosteroid

Step up if needed (first, check adherence, inhaler technique, environmental control, and comorbid conditions)

Assess control

Step down if possible (and asthma is well controlled at least 3 months)

Each step: Patient education, environmental control, and management of comorbidities
Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma.

Quick-Relief Medication for All Patients
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.

Patients 0-4 Years of Age

Assessing Severity: Children 0-4 Years of Age

Classifying Asthma Severity and Initiating Treatment in Children 0-4 Years of Age[1]
Assessing severity and initiating treatment in children who are not currently taking long-term control medications

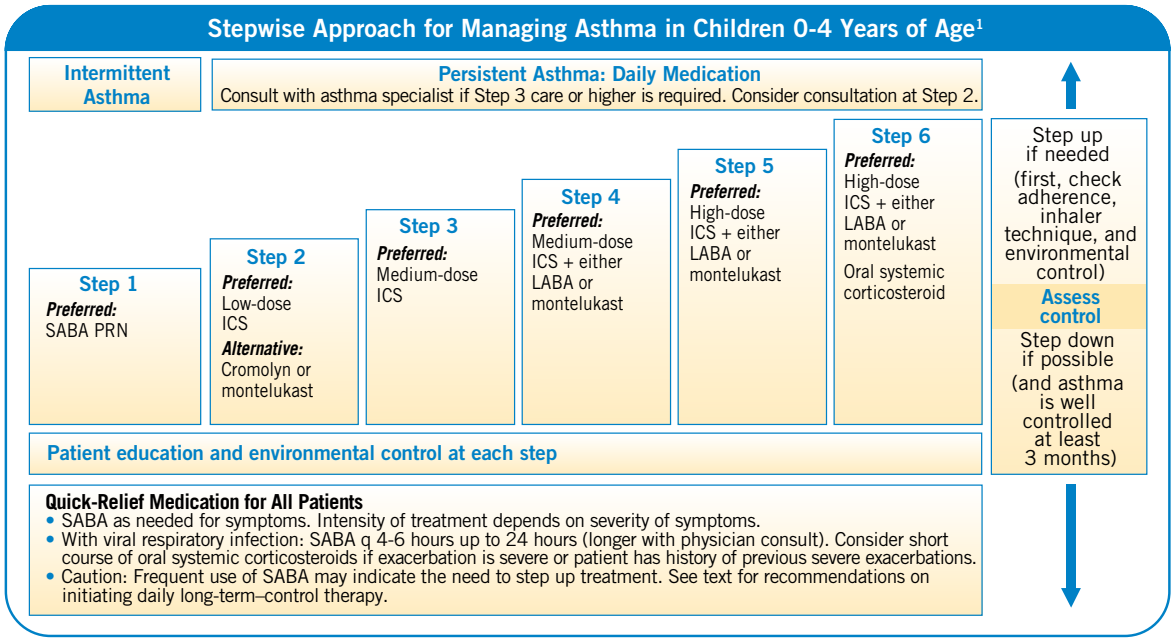
Components of Severity		Classification of Asthma Severity (0-4 Years of Age)			
		Intermittent	Persistent		
			Mild	Moderate	Severe
IMPAIRMENT	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
IMPAIRMENT	Nighttime awakenings	0	1-2x/month	3-4x/month	>1x/week
IMPAIRMENT	Short-acting beta$_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily	Daily	Several times per day
IMPAIRMENT	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	≥2 exacerbations in 6 months requiring oral systemic corticosteroids, or ≥4 wheezing episodes/1 year lasting >1 day AND risk factors for persistent asthma.		
RISK	Exacerbations requiring oral systemic corticosteroids	← Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time. Exacerbations of any severity may occur in patients in any severity category. →			
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3 and consider short course of oral systemic corticosteroids	
Recommended Step for Initiating Therapy		In 2-6 weeks, depending on severity, evaluate level of asthma control that is achieved. If no clear benefit is observed in 4-6 weeks, consider adjusting therapy or alternative diagnoses.			

Assessing Control: Children 0-4 Years of Age

Assessing Asthma Control and Adjusting Therapy in Children 0-4 Years of Age[1]

Components of Control		Classification of Asthma Control (0-4 Years of Age)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
IMPAIRMENT	Symptoms	≤2 days/week	>2 days/week	Throughout the day
IMPAIRMENT	Nighttime awakenings	≤1x/month	>1x/month	>1x/week
IMPAIRMENT	Interference with normal activity	None	Some limitation	Extremely limited
IMPAIRMENT	Short-acting beta$_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
RISK	Exacerbations requiring oral systemic corticosteroids	0-1 per year	2-3 per year	>3 per year
RISK	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		
Recommended Action for Treatment		• Maintain current treatment. • Regular follow-up every 1-6 months. • Consider step down if well controlled for at least 3 months.	• Step up 1 step and • Reevaluate in 2-6 weeks. • If no clear benefit in 4-6 weeks, consider alternative diagnoses or adjusting therapy. • For side effects, consider alternative treatment options.	• Consider short course of oral systemic corticosteroids, • Step up 1-2 steps, and • Reevaluate in 2 weeks. • If no clear benefit in 4-6 weeks, consider alternative diagnoses or adjusting therapy. • For side effects, consider alternative treatment options.

Assessing Treatment Options: Children 0-4 Years of Age



Reference: 1. National Heart, Lung, and Blood Institute. Expert panel report 3: guidelines for the diagnosis and management of asthma: full report 2007. NIH publication 08-4051. http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm. Accessed February 28, 2008.

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