

**2007**

# **NHLBI/NAEPP\***

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## **Asthma Guidelines at a Glance<sup>1</sup>**

\* National Heart, Lung, and Blood Institute/National Asthma Education and Prevention Program.

**It's  
all about  
asthma control**

**New Guidelines, New Treatment Approach**

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## New Guidelines, New Treatment Approach—It's All About Asthma Control

*“Even patients who have asthma that is well controlled at the time of a clinical assessment must be monitored over time, **for the processes underlying asthma can vary in intensity over time**, and treatment should be adjusted accordingly.”<sup>1</sup>*

—NHLBI/NAEPP

# 2007 Asthma Guidelines: A New Treatment Approach That Focuses on Achieving and Maintaining Control

## Variability of asthma

Because of the variability of the disease, asthma severity should be considered when initiating treatment, but from that point on the focus should be on monitoring for asthma control

## Asthma control

Once treatment is initiated, the ongoing focus should be on achieving and maintaining control through a stepwise approach

- ICSs\* are part of a preferred treatment across all age groups
- When stepping up treatment, combination therapy is recommended and LABAs† are the preferred agents to combine with an ICS in patients ≥12 years of age

## Asthma assessments

For both assessing control and determining severity, three age groups have been established and the domains of current **impairment** and future **risk** should be considered

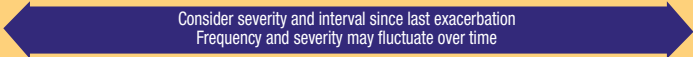
\* Inhaled corticosteroids.

† Long-acting inhaled beta<sub>2</sub>-agonists.

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## Determine Severity When Initiating Therapy

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
	Nighttime awakenings	0	1-2x/month	3-4x/month	>1x/week
	SABA* use for symptom control (not prevention of EIB <sup>†</sup> )	≤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
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/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  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	
See bar chart on the following page for treatment steps		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.			

## Once Control Is Achieved, Continue to Assess Control on an Ongoing Basis (every 1 to 6 months)

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
	Nighttime awakenings	1x/month	>1x/month	>1x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	SABA 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/year	2-3/year	>3/year
	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.		

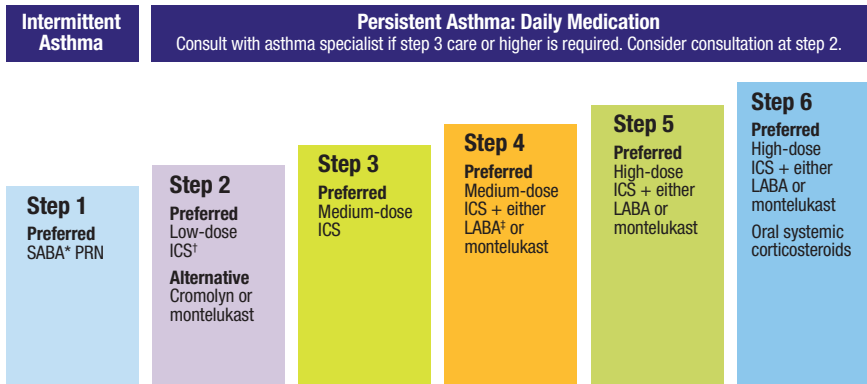
\* Short-acting inhaled beta<sub>2</sub>-agonist.

† Exercise-induced bronchospasm.

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## Take a Stepwise Treatment Approach



### Patient Education and Environmental Control at Each Step

#### Quick-Relief Medication for All Patients

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms
- With viral respiratory infection: SABA q 4 to 6 hours up to 24 hours (longer with physician consult). Consider short course of oral systemic corticosteroids if exacerbation is severe or patient has history of previous severe exacerbations
- Caution: Frequent use of SABA may indicate the need to step up treatment

\* Short-acting inhaled beta<sub>2</sub>-agonist.

† Inhaled corticosteroid.

‡ Long-acting inhaled beta<sub>2</sub>-agonist.

- Reevaluate treatment within 2 to 6 weeks and adjust therapy as appropriate
- Once patient's asthma is under control, continue to assess control on an ongoing basis (every 1 to 6 months)
- Patient's asthma should be well controlled for at least 3 months before stepping down therapy



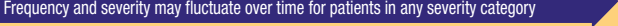
**At steps 2 to 6, ICS therapy is recommended—the NIH<sup>s</sup>-preferred treatment for your patients  $\leq 4$  years of age.**

<sup>s</sup>National Institutes of Health.

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## Determine Severity When Initiating Therapy

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
	SABA* use for symptom control (not prevention of EIB <sup>†</sup> )	≤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	<ul style="list-style-type: none"> <li>• Normal FEV<sub>1</sub><sup>‡</sup> between exacerbations</li> <li>• FEV<sub>1</sub> &gt;80% predicted</li> <li>• FEV<sub>1</sub>/FVC<sup>§</sup> &gt;85%</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> = &gt;80% predicted</li> <li>• FEV<sub>1</sub>/FVC &gt;80%</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> = 60-80% predicted</li> <li>• FEV<sub>1</sub>/FVC = 75-80%</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> &lt;60% predicted</li> <li>• FEV<sub>1</sub>/FVC &lt;75%</li> </ul>
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year			
					
					
		Relative annual risk of exacerbations may be related to FEV <sub>1</sub>			
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3, medium-dose ICS <sup>  </sup> option	Step 3, medium-dose ICS option, or step 4
See bar chart on the following page for treatment steps		and consider short course of oral systemic corticosteroids			
In 2-6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.					

## Once Control Is Achieved, Continue to Assess Control on an Ongoing Basis (every 1 to 6 months)

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
	SABA use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	Lung function: FEV <sub>1</sub> or peak flow FEV <sub>1</sub> /FVC	>80% predicted/personal best >80%	60-80% predicted/personal best 75-80%	<60% predicted/personal best <75%
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	≥2/year	
		Consider severity and interval since last exacerbation		
	Reduction in lung growth	Evaluation requires long-term follow-up		
	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.		

\* Short-acting inhaled beta<sub>2</sub>-agonist.

† Exercise-induced bronchospasm.

‡ Forced expiratory volume in 1 second.

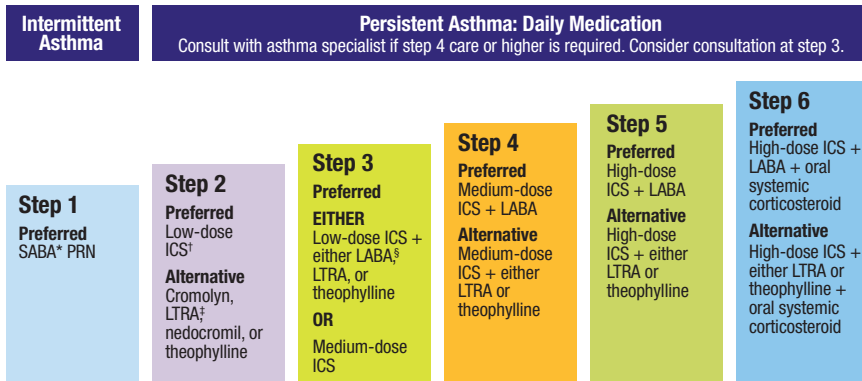
§ Forced vital capacity.

|| Inhaled corticosteroid.

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## Take a Stepwise Treatment Approach



**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)

### Patient Education, Environmental Control, and Management of Comorbidities at Each Step

Consider subcutaneous allergen immunotherapy for patients who have allergic asthma at steps 2 through 4

#### 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<sup>||</sup>) indicates inadequate control and the need to step up treatment

\* Short-acting inhaled beta<sub>2</sub>-agonist.

† Leukotriene receptor antagonist.

|| Exercise-induced bronchospasm.

‡ Inhaled corticosteroid.

§ Long-acting inhaled beta<sub>2</sub>-agonist.

- Reevaluate treatment within 2 to 6 weeks and adjust therapy as appropriate
- Once patient's asthma is under control, continue to assess control on an ongoing basis (every 1 to 6 months)
- Patient's asthma should be well controlled for at least 3 months before stepping down therapy

**At steps 2 to 6, ICS therapy is recommended—the NIH<sup>†</sup>-preferred treatment for your patients 5-11 years of age.**

<sup>†</sup> National Institutes of Health.

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## Determine Severity When Initiating Therapy

Components of Severity		Classification of Asthma Severity (≥12 years of age)			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment (Normal FEV <sub>1</sub> /FVC)	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
	SABA <sup>1</sup> use for symptom control (not prevention of EIB <sup>2</sup> )	≤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	<ul style="list-style-type: none"> <li>• Normal FEV<sub>1</sub> between exacerbations</li> <li>• FEV<sub>1</sub> &gt;80% predicted</li> <li>• FEV<sub>1</sub>/FVC normal</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> &gt;80% predicted</li> <li>• FEV<sub>1</sub>/FVC normal</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> &gt;60% but &lt;80% predicted</li> <li>• FEV<sub>1</sub>/FVC reduced 5%</li> </ul>	<ul style="list-style-type: none"> <li>• FEV<sub>1</sub> &lt;60% predicted</li> <li>• FEV<sub>1</sub>/FVC reduced &gt;5%</li> </ul>
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year			
		≥2/year			
Recommended Step for Initiating Therapy		Step 1	Step 2	Step 3	Step 4 or 5
See bar chart on the following page for treatment steps		and consider short course of oral systemic corticosteroids			
In 2-6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.					

## Once Control Is Achieved, Continue to Assess Control on an Ongoing Basis (every 1 to 6 months)

Components of Control		Classification of Asthma Control ( $\geq 12$ years of age)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
Impairment	Symptoms	$\leq 2$ days/week	$> 2$ days/week	Throughout the day
	Nighttime awakenings	$\leq 2$ x/month	1-3x/week	$\geq 4$ x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	SABA use for symptom control (not prevention of EIB)	$\leq 2$ days/week	$> 2$ days/week	Several times per day
	FEV <sub>1</sub> or peak flow	$> 80\%$ predicted/personal best	60-80% predicted/personal best	$< 60\%$ predicted/personal best
	Validated questionnaires: ATAQ <sup>§</sup> ACQ <sup>¶</sup> ACT <sup>¶</sup>	0 $\leq 0.75^{\#}$ $\geq 20$	1-2 $\geq 1.5$ 16-19	3-4 N/A $\leq 15$
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	$\geq 2$ /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.		

\* Forced expiratory volume in 1 second/forced vital capacity ratio. Normal FEV<sub>1</sub>/FVC ratio by age: 8-19 yr=85%; 20-39 yr=80%; 40-59 yr=75%; 60-80 yr=70%.

<sup>†</sup> Short-acting inhaled beta<sub>2</sub>-agonist.

<sup>‡</sup> Exercise-induced bronchospasm.

<sup>§</sup> Asthma Therapy Assessment Questionnaire.

<sup>¶</sup> Asthma Control Questionnaire.

<sup>¶</sup> Asthma Control Test™.

<sup>#</sup> ACQ values of 0.76-1.4 are indeterminate regarding well-controlled asthma.

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## Take a Stepwise Treatment Approach

### 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)

### Patient Education, Environmental Control, and Management of Comorbidities at Each Step

Consider subcutaneous allergen immunotherapy for patients who have allergic asthma at steps 2 through 4

#### 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<sup>¶</sup>) generally indicates inadequate control and the need to step up treatment

\* Short-acting inhaled beta<sub>2</sub>-agonist.

† Inhaled corticosteroid.

‡ Leukotriene receptor antagonist.

§ Long-acting inhaled beta<sub>2</sub>-agonist.

¶ Exercise-induced bronchospasm.

- Reevaluate treatment within 2 to 6 weeks and adjust therapy as appropriate
- Once patient's asthma is under control, continue to assess control on an ongoing basis (every 1 to 6 months)
- Patient's asthma should be well controlled for at least 3 months before stepping down therapy

**Recommend combination maintenance therapy with an ICS plus LABA at steps 3 to 6 or monotherapy with an ICS at step 2—the NIH<sup>1</sup>-preferred treatment for your patients  $\geq 12$  years of age.**

<sup>1</sup> National Institutes of Health.

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# New Guidelines, New Treatment Approach—It's All About Asthma Control

## The NIH asthma guidelines on ED\* discharge:

- The Expert Panel concludes that initiating ICS therapy (eg, providing a 1- to 2-month supply) at discharge from the ED should be considered for appropriate patients with asthma
- The opinion of the Expert Panel is that the initiation (and continuation) of ICS therapy at ED discharge can be an important effort to bridge the gap between emergency and primary care for asthma

For more information on this and other topics and to access the 2007 NHLBI/NAEPP Guidelines for the Diagnosis and Management of Asthma [EPR-3], visit <http://www.nhlbi.nih.gov/guidelines/asthma>.

\* Emergency department.

**Reference: 1.** National Heart, Lung, and Blood Institute. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma 2007*. Bethesda, Md: National Institutes of Health; August 2007. NIH Publication 07-4051.

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