

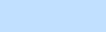
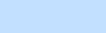


# CLASSIFICATION OF ASTHMA SYMPTOM SEVERITY AND THERAPY

MEDICATIONS	SEVERITY	* DAYTIME SYMPTOMS * NIGHTTIME SYMPTOMS LUNG FUNCTION: Peak Expiratory Flow Rate (PEF) is % personal best; Forced Expiratory Volume (FEV <sub>1</sub> ) is % predicted	LONG TERM CONTROL	
			Older Than 5 Years of Age (see reverse side for drugs and dosages)	Children 5 Years of Age and Younger
<b>Inhaled Corticosteroids</b> Beclomethasone Budesonide Flunisolide Fluticasone Triamcinolone acetonide  <b>Systemic Corticosteroids</b> Methylprednisolone Prednisolone Prednisone  <b>Long-Acting Inhaled Beta<sub>2</sub>-Agonists</b> Salmeterol Formoterol  <b>Combined Medication</b> Fluticasone/ Salmeterol  <b>Cromolyn and Nedocromil</b> Cromolyn Nedocromil  <b>Leukotriene Modifiers</b> Montelukast Zafirlukast Zileuton  <b>Methylxanthines</b> Theophylline	Classify Severity: Assign Patient to Most Severe Step	<b>Severe Persistent</b> 	<b>Preferred treatment:</b> <ul style="list-style-type: none"> <li>High-dose inhaled corticosteroids</li> </ul> <b>AND</b> <ul style="list-style-type: none"> <li>Long-acting inhaled beta<sub>2</sub>-agonists</li> </ul> <b>AND, if needed,</b> Corticosteroid tablets or syrup 2 mg/kg/day generally not to exceed 60 mg/day (attempt to wean oral med)	<b>Preferred treatment:</b> <ul style="list-style-type: none"> <li>High-dose inhaled corticosteroids</li> </ul> <b>AND</b> <ul style="list-style-type: none"> <li>Long-acting inhaled beta<sub>2</sub>-agonists</li> </ul> <b>AND, if needed,</b> Corticosteroid tablets or syrup 2 mg/kg/day not to exceed 60 mg/day (attempt to wean oral med)
		<b>Moderate Persistent</b> 	<b>Preferred treatments:</b> <ul style="list-style-type: none"> <li>Low-to-medium dose inhaled corticosteroids</li> </ul> <b>AND</b> <ul style="list-style-type: none"> <li>Long-acting inhaled beta<sub>2</sub>-agonists</li> </ul> <b>Alternative treatment:</b> <ul style="list-style-type: none"> <li>Increase inhaled corticosteroids within medium-dose range, <b>OR</b> Low-to-medium dose inhaled corticosteroids and either leukotriene modifier or theophylline</li> </ul>	<b>Preferred treatments:</b> <ul style="list-style-type: none"> <li>Low-dose inhaled corticosteroids and long-acting inhaled beta<sub>2</sub>-agonists, <b>OR</b> Medium-dose inhaled corticosteroids</li> </ul> <b>Alternative treatment:</b> <ul style="list-style-type: none"> <li>Low-dose inhaled corticosteroids and either leukotriene receptor antagonist or theophylline</li> </ul>
		<b>Mild Persistent</b> 	<b>Preferred treatment:</b> <ul style="list-style-type: none"> <li>Low-dose inhaled corticosteroids</li> </ul> <b>Alternative treatment:</b> <ul style="list-style-type: none"> <li>Cromolyn, leukotriene modifier, nedocromil <b>OR</b> sustained release theophylline to serum concentraion of 5-15 mcg/mL</li> </ul>	<b>Preferred treatment:</b> <ul style="list-style-type: none"> <li>Low-dose inhaled corticosteroids</li> </ul> <b>Alternative treatment:</b> <ul style="list-style-type: none"> <li>Cromolyn <b>OR</b> leukotriene receptor antagonist</li> </ul>
		<b>Mild Intermittent</b> 	<b>No daily controller medication indicated. Monitor frequency of use of relief medications.</b>	<b>No daily controller medication indicated. Monitor frequency of use of relief medications.</b>

GOALS OF THERAPY: ASTHMA CONTROL	QUICK RELIEF Older Than 5 Years of Age	QUICK RELIEF Children 5 Years of Age and Younger
<ul style="list-style-type: none"> <li>Minimal or no chronic symptoms day or night</li> <li>Minimal or no exacerbations</li> <li>No limitations on activities; no school/work missed</li> <li>Minimal or no adverse effects from medications</li> <li>Minimal use of short-acting beta<sub>2</sub>agonist (&lt;2X/week)</li> <li><b>Older Than 5 Years of Age:</b> Maintain PEF 80%</li> </ul>	<ul style="list-style-type: none"> <li>Short-acting bronchodilator: 2–4 puffs <b>short-acting inhaled beta<sub>2</sub>-agonists</b> as needed for symptoms.</li> <li>Intensity of treatment will depend on severity of exacerbation; up to 3 treatments at 20-minute intervals or a single nebulizer treatment as needed. Course of systemic corticosteroids may be needed.</li> <li>Use of short-acting beta<sub>2</sub>-agonists &gt;2 times a week in intermittent asthma (daily, or increasing use in persistent asthma) may indicate the need to initiate (increase) long-term control therapy.</li> </ul>	Bronchodilator as needed for symptoms. Intensity of treatment will depend upon severity of exacerbation. <ul style="list-style-type: none"> <li>Preferred treatment: <b>Short-acting inhaled beta<sub>2</sub>-agonists</b> by nebulizer or face mask and spacer/holding chamber</li> <li>Alternative treatment: Oral beta<sub>2</sub>-agonist</li> </ul> With viral respiratory infection <ul style="list-style-type: none"> <li>Bronchodilator q 4–6 hours up to 24 hours (longer with physician consult); in general, repeat no more than once every 6 wks</li> <li>Consider systemic corticosteroid if exacerbation is severe or patient has history of previous severe exacerbations</li> </ul> Use of short-acting beta <sub>2</sub> -agonists >2 times a week in intermittent asthma (daily, or increasing use in persistent asthma) may indicate the need to initiate (increase) long-term control therapy.
REFERRAL TO ASTHMA SPECIALIST		
<b>Older Than 5 Years of Age:</b> Refer to an asthma specialist if there are difficulties controlling asthma or if step 4 care is required. Referral may be considered if step 3 care is required <b>Children 5 Years of Age and Younger:</b> Consultation with an asthma specialist is recommended for patients with moderate or severe persistent asthma. Consider consultation for patients with mild persistent asthma		

Adapted from NAEPP Expert Panel Report Guidelines for the Diagnosis and Management of Asthma-Update on Selected Topics 2002, National Institutes of Health, National Heart, Lung, and Blood Institute

**If a patient has seasonal asthma** on a predictable basis, daily, long-term anti-inflammatory therapy (inhaled corticosteroids, cromolyn, nedocromil or leukotriene modifier) should be initiated prior to the anticipated onset of symptoms and continued through the season

## Usual Dosages for Long-Term-Control Medications

Medication	Dosage Form	Adult Dose	Child ≤ 12 years of age Dose*
<b>Inhaled Corticosteroids</b> (See Estimated Comparative Daily Dosages for Inhaled Corticosteroids.) <b>Systemic Corticosteroids</b> (Applies to all three corticosteroids.)			
<b>Methylprednisolone</b> <b>Prednisolone</b>  <b>Prednisone</b>	2, 4, 8, 16, 32 mg tablets 5 mg tablets, 5 mg/5 cc, 15 mg/5 cc 1, 2.5, 5, 10, 20, 50 mg tablets; 5 mg/1 cc, 5 mg/5 cc	<ul style="list-style-type: none"> <li>7.5–60 mg daily in a single dose in a.m. or qod as needed for control</li> <li>Short-course “burst” to achieve control: 40–60 mg per day as single or 2 divided doses for 3–10 days</li> </ul>	<ul style="list-style-type: none"> <li>0.25–2 mg/kg daily in single dose in a.m. or qod as needed for control</li> <li>Short-course “burst”: 1–2 mg/kg/day, maximum 60 mg/day for 3–10 days</li> </ul>
<b>Long-Acting Inhaled Beta<sub>2</sub>-Agonists</b> (Should not be used for symptom relief or for exacerbations. Use with inhaled corticosteroids.)			
<b>Salmeterol</b>	MDI 21 mcg/puff DPI 50 mcg/blister	2 puffs q 12 hours 1 blister q 12 hours	1–2 puffs q 12 hours 1 blister q 12 hours
<b>Formoterol</b>	DPI 12 mcg/single-use capsule	1 capsule q 12 hours	1 capsule q 12 hours
<b>Combined Medication</b> <b>Fluticasone/Salmeterol</b>	DPI 100, 250, or 500 mcg/50 mcg	1 inhalation bid; dose depends on severity of asthma	1 inhalation bid; dose depends on severity of asthma
<b>Cromolyn and Nedocromil</b> <b>Cromolyn</b> <b>Nedocromil</b>	MDI 1 mg/puff Nebulizer 20 mg/ampule MDI 1.75 mg/puff	2–4 puffs tid-qid 1 ampule tid-qid 2–4 puffs bid-qid	1–2 puffs tid-qid 1 ampule tid-qid 1–2 puffs bid-qid
<b>Leukotriene Modifiers</b> <b>Montelukast</b>  <b>Zafirlukast</b>  <b>Zileuton</b>	4 or 5 mg chewable tablet 10 mg tablet  10 or 20 mg tablet  300 or 600 mg tablet	10 mg qhs  40 mg daily (20 mg tablet bid)  2,400 mg daily (give tablets qid)	4 mg qhs (2–5 yrs) 5 mg qhs (6–14 yrs) 10 mg qhs (> 14 yrs)  20 mg daily (7–11 yrs) (10 mg tablet bid) <b>Zileuton not indicated &lt; 12 years</b>
<b>Methylxanthines</b> (Serum monitoring is important [serum concentration of 5–15 mcg/mL at steady state]).			
<b>Theophylline</b>	Liquids, sustained-release tablets, and capsules	Starting dose 10 mg/kg/day up to 300 mg max; usual max 800 mg/day	Starting dose 10 mg/kg/day; usual max: ≥1 year of age: 16 mg/kg/day

## Estimated Comparative Daily Dosages for Inhaled Corticosteroids

DRUG	LOW DAILY DOSE		MEDIUM DAILY DOSE		HIGH DAILY DOSE	
	Adult	Child*	Adult	Child*	Adult	Child*
<b>Beclomethasone CFC</b> 42 mcg/puff		84–336 mcg				
<b>Beclomethasone HFA</b> 40 or 80 mcg/puff	80–240 mcg	80–160 mcg	240–480 mcg	160–320 mcg	> 480 mcg	> 320 mcg
<b>Budesonide DPI</b> 200 mcg/inhalation	200–600 mcg	200–400 mcg	600–1,200 mcg	400–800 mcg	> 1,200 mcg	> 800 mcg
<b>Budesonide</b> Inhalation suspension for nebulization		0.5 mg		1.0 mg		2.0 mg
<b>Flunisolide</b> 250 mcg/puff	500–1,000 mcg	500–750 mcg	1,000–2,000 mcg	1,000–1,250 mcg	> 2,000 mcg	> 1,250 mcg
<b>Fluticasone</b> MDI: 44, 110, or 220 mcg/puff DPI: 50, 100, or 250 mcg/inhalation	88–264 mcg	88–176 mcg	264–660 mcg	176–440 mcg	> 660 mcg	> 440 mcg
	100–300 mcg	100–200 mcg	300–600 mcg	200–400 mcg	> 600 mcg	> 400 mcg
<b>Triamcinolone acetonide</b> 100 mcg/puff	400–1,000 mcg	400–800 mcg	1,000–2,000 mcg	800–1,000 mcg	> 2,000 mcg	> 1,200 mcg

\*Children ≤12 years of age

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