

Diagnosis of Asthma	<p>A) <i>What are your patient's symptom(s)?</i> : Episodic wheezing, shortness of breath, tightness in chest or cough</p> <p>B) Using spirometry determine: <i>Is airway obstruction present?</i> FEV1 < 80% of predicted, FEV1/FVC < 65% below limits of normal <i>Is the airway obstruction reversible?</i> FEV1 > 12% and at least 200 ml increase after a short acting Beta₂ agonist</p> <p>C) Alternative Diagnoses are excluded</p>
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Classification of Asthma Severity		Symptoms/Day	Symptoms/Night	PEF or FEV1	PEF Variability
	Step 4 – Severe Persistent	Continual	Frequent	≤ 60 %	> 30%
	Step 3 – Moderate Persistent	Daily	> 1 night/ week	> 60% - < 80%	> 30%
	Step 2 – Mild Persistent	> 2 days/week, < 1x/day	> 2 nights/month	> 80%	20-30%
	Step 1 – Mild Intermittent	≤ 2 days/week	< 2 nights/month	≥ 80%	< 20%
Note:					EPS 2002
	<ul style="list-style-type: none"> Clinical features for individual patients may overlap across steps. Patients should be assigned to the most severe step in which any feature occurs. An individual's classification may change over time. Patients at any level of severity of chronic asthma can have mild, moderate, or severe exacerbations of asthma. Some patients with intermittent asthma experience severe and life-threatening exacerbations separated by long periods of normal lung function and no symptoms. Patients with two or more asthma exacerbations per week (i.e. progressively worsening symptoms that may last hours or days) tend to have moderate-to-severe persistent asthma. 				

Action Plan Development	Symptoms		≤ 5 Years Old	> 5 Years Old	
<p>For Asthma with Exercise:</p> <p>Short Acting β₂ Agonist or Cromolyn 10 min. prior to exercise or Long Acting β₂ Agonist 30 min. prior to exercise</p>	<ul style="list-style-type: none"> Breathing is good No Cough or wheeze Sleep through the night Can walk and play 	Step 4	<p>Preferred: High Dose Inhaled Corticosteroid and Long Acting β₂-Agonist</p> <p>If needed: Oral Corticosteroid 2mg/kg/day, Max. 60mg/day</p>	<p>Preferred: High Dose Inhaled Corticosteroid and Long Acting β₂-Agonist</p> <p>If needed: Oral Corticosteroid 2mg/kg/day, Max. 60mg/day</p>	
		Step 3	<p>Preferred: Low to Medium Dose Inhaled Corticosteroid and Long Acting β₂-Agonist</p> <p>Alternative: Low to Medium Dose Inhaled Corticosteroid and Leukotriene Modifier or Theophylline</p>	<p>Preferred: Low to Medium Dose Inhaled Corticosteroid and Long Acting β₂-Agonist</p> <p>Alternative: Medium Dose Inhaled Corticosteroid and Leukotriene Modifier or Theophylline</p>	
	Step 2	<p>Preferred: Low Dose Inhaled Corticosteroid Nebulizer, MDI w/holding chamber (w/ or w/out face mask) or DPI</p> <p>Alternative: Cromolyn, Leukotriene Modifiers</p>	<p>Preferred: Low Dose Inhaled Corticosteroid</p> <p>Alternative: Cromolyn, Leukotriene Modifiers, Nedocromil, Theophylline</p>		
	Step1	No Daily Medication needed			
	<ul style="list-style-type: none"> First signs of a cold Exposure to a known trigger Cough day or night Mild wheeze Tight chest 	<p>Medicine----How Much----How often:</p> <p><i>Short Acting β₂ Agonist (Albuterol, Proventil®, Ventolin®, Maxair®)</i> MDI : 1-4 p q 20min. x 3 doses Neb. : <1yr: 0.05-0.15mg/kg/dose x 1 (max. 1.25mg) 1yr - 5yrs: 1.25-2.5mg/dose x 1</p> <p>Did Symptom(s) or Peak Flows Improve: YES → Inhaled Steroid: Double dose x 7-10 days and PRN Short Acting β₂ Agonist → If incomplete response to above consider Oral Steroids: 1-2 mg/kg/day x 3-10 days (max 60 mg/day)</p>		<p>Medicine----How Much----How often:</p> <p><i>Short Acting β₂ Agonist (Albuterol, Proventil®, Ventolin®, Maxair®)</i> MDI : 1-4 p q 20min. x 3 doses Neb. : 5-12yrs: 2.5mg/dose x1; > 12yrs: 2.5-5mg /dose x 1</p> <p>Did Symptom(s) or Peak Flows Improve: YES → Inhaled Steroid: Double dose x 7-10 days and PRN Short Acting β₂ Agonist → If incomplete response to above consider Oral Steroids: ≤ 12 yrs. 1-2mg/kg/day x 3-10 day (max. 60 mg/day) > 12 yrs. 40-60 mg per day as QD or BID doses for 3-10 days</p>	
October 2003	<ul style="list-style-type: none"> Medicine is not helping Breathing is hard and fast Nose opens wide/ribs show Can't talk well 	<p>Short Acting β₂ Agonist MDI: 2-4 p x1 or Neb. : As yellow zone Consider Oral Steroid: 1 x QD yellow zone dose</p>		<p>Short Acting β₂ Agonist MDI MDI: 2-4 p x 1 or Neb. : As yellow zone Consider Oral Steroid: 1 x QD yellow zone dose</p>	

Preferred Treatment:									
I N H A L E D S T E R O I D S	Drug	Low (puffs/day)		Medium (puffs/day)		High (puffs/day)		Dosing interval	
	Beclomethazone CFC-(Cat. B)	6-12yr	≥ 12yr	6-12yr	≥ 12yr	6-12yr	≥ 12yr		
	42mcg/puff <i>Vanceril</i> [®]	2-8	4-12	8-16	12-20	> 16	> 20	TID - QID	
	84mcg/puff <i>Vanceril DS</i> [®]	1-4	2-6	4-8	6-10	> 8	> 10	TID - QID	
	Beclomethazone HFA	6-12yr	≥ 12yr	6-12yr	≥ 12yr	6-12yr	≥ 12yr		
	40mcg/puff <i>QVAR</i> [®]	2-4	2-6	4-8	6-16	> 8	> 16	BID	
	80mcg/puff	1-2	1-3	2-4	3-8	> 4	> 8	BID	
	Budesonide DPI-(Cat. B)	6-12yr	≥ 12yr	6-12yr	≥ 12yr	6-12yr	≥ 12yr		
	200mcg/puff <i>Pulmicort</i> [®]	1-2	1-3	2-4	3-6	> 4	> 6	QD - BID	
	Budesonide Nebulization	12mo- 8yr		12mo- 8yr		12mo- 8yr			
	0.25mg/2ml or 0.5mg/2ml	0.5mg		1.0mg		2.0mg		QD - BID	
	Flunisolide	6-15yr	> 15yr	6-15yr	> 15yr	6-15yr	> 15yr		
	250mcg/puff <i>AeroBid</i> [®]	2-3	2-4	4-5	4-8	> 5	> 8	BID	
	Fluticasone MDI		> 12yr		> 12yr		> 12yr		
	44mcg/puff <i>Flovent</i> [®]	2-4	2-6	4-10	6-15	> 10	> 15	BID	
	110mcg/puff		2	2-4	3-6	> 4	> 6	BID	
	220mcg/puff			2	2-3	> 2	> 3	BID	
	Fluticasone DPI	4-11yr		4-11yr		4-11yr			
	50mcg/puff <i>Flovent Rotadisk</i> [®]	1-3	1-5	3-8	5-13	> 8	> 13	BID	
100mcg/puff	1	1-2	1-4	2-6	> 4	> 6	BID		
250mcg/puff				2		> 2	BID		
Triamcinolone	6-12yr	≥ 12yr	6-12yr	≥ 12yr	6-12yr	≥ 12yr			
100mcg/puff <i>Azmacort</i> [®]	4-8	4-10	8-12	10-20	> 12	> 20	TID - QID		

L A β ₂	Salmeterol DPI			≥ 4-12yr	> 12yr	≥ 4 - ≥ 12yr	
	50mcg/blister <i>Serevent</i> [®]			2 blisters/day	2 blisters/day	2 blisters/day	BID
β ₂	Formoterol DPI			≥ 5-12	> 12yr	≥ 5 - > 12	
	12mcg/capsule <i>Foradil</i> [®]			2 capsules/day	2 capsules/day	2 capsules/day	BID

C O M B	Fluticasone/Salmeterol DPI	≥ 12yr		≥ 12yr		≥ 12yr	
	<i>Advair</i> [®]	2 blisters/day 100mcg/50mcg		2 blisters/day 250mg/50mcg		2 blisters/day 500mcg/mcg	BID

Alternative Treatment:			
M A S T C E L L	Drug	Pediatric Dose	Adult Dose
	Cromolyn MDI		
	800mcg/puff <i>Intal</i> [®]	1-2 puffs TID-QID (≥ 5yrs)	2-4 puffs TID-QID (>12 yrs)
	Cromolyn Nebulization		
	20mg/2ml ampule 100mg/5ml concentrate solution	20mg TID-QID (≥ 2yrs)	20mg TID-QID (> 12yrs)
Nedocromil MDI			
1.75mg/puff <i>Tilade</i> [®]	1-2 puffs BID-QID (≥ 6 yrs)	2-4 puffs BID-QID (>12yrs)	

L E U K O T R I E N E	Montelukast Tablet		
	<i>Singulair</i> [®]	One 4mg oral granules packet HS (12-23 months) One 4mg chewable tablet HS (2-5yrs) One 5mg chewable tablet HS (6-14 yrs) One 10mg tablet HS (> 14yrs)	10mg tablet HS (≥ 15 yrs)
	Zafirlukast Tablet		
	<i>Accolate</i> [®]	One 10mg tablet BID (5-11 yrs)	One 20mg tablet BID (≥ 12 yrs)
Z I L E U T O N	Zileuton		
	<i>Zyflo</i> [®]		One 600mg tablet QID (≥12yrs)

M E T H Y L X	Theophylline		
	Multiple brand and dosage forms	Initial dose 10mg/kg/day in divide doses titrated to serum concentrations of 5-15mcg/ml and side effects Initial maximum dose based on age: < 1 yr: 0.2 (age in weeks) + 5= mg/kg/day > 1 yr: 16mg/kg/day	Initial dose 10mg/kg/day up to maximum of 300mg/day then titrated to serum concentration of 5-15mcg/ml and side effects Maximum titrated dose: 800mg/day