

Stepwise Approach for Managing Asthma

		Clinical Features Before Treatment		Long Term Control		Quick Relief		Patient Education	
		Symptoms	Nighttime Symptoms	Lung Function	Adults and Children > 5 years	Peds (5 years and younger)	Adults and Children > 5 years	Peds (5 years and younger)	
STEP 4 Severe Persistent		Continual symptoms Limited physical activity Frequent exacerbations	Frequent	FEV ₁ or PEF ≤60% predicted PEF variability >30%	Daily: Inhaled high dose corticosteroid <i>AND</i> long-acting bronchodilator <i>AND</i> oral corticosteroid	Daily: Inhaled high dose corticosteroid with spacer/holding chamber and face mask If needed, add oral steroids 2 mg/kg/day and taper	Short acting bronchodilator; inhaled β ₂ -agonist as needed Daily or increasing use indicates need for additional long term control	Bronchodilator as needed up to 3 times a day (see step 1)	Step 2 and 3 actions PLUS <ul style="list-style-type: none"> Refer for individual education/counseling
STEP 3 Moderate Persistent		Daily symptoms Daily use inhaled β ₂ -agonist Exacerbations affect activity Exacerbations ≥2/wk; may last days	> 1/week	FEV ₁ or PEF >60% - <80% predicted PEF variability >30%	Daily: <i>EITHER</i> inhaled medium dose corticosteroid <i>OR</i> inhaled low-medium dose corticosteroid plus long-acting bronchodilator	Daily: Medium dose inhaled corticosteroids with spacer/holding chamber and face mask <i>OR</i> once control established: Medium dose inhaled corticosteroid and nedocromil <i>OR</i> medium dose inhaled corticosteroid and long acting bronchodilator (theophylline)	Short acting bronchodilator; inhaled β ₂ -agonist as needed Daily or increasing use indicates need for additional long term control	Bronchodilator as needed up to 3 times a day (see step 1) Daily or increasing use indicates need for additional long term control	Step 1 actions PLUS <ul style="list-style-type: none"> Teach self-monitoring Refer to group education if available Review and update self-management plan
STEP 2 Mild Persistent		Symptoms > 2/ wk but < 1/da Exacerbations may affect activity	> 2/month	FEV ₁ or PEF ≥80% predicted PEF variability 20-30%	Daily: <i>EITHER</i> inhaled low dose corticosteroid <i>OR</i> cromolyn	Daily: <i>EITHER</i> cromolyn or nedocromil tid-qid <i>OR</i> low dose inhaled corticosteroid with spacer/holding chamber and face mask	Short acting bronchodilator; inhaled β ₂ -agonist as needed Daily or increasing use indicates need for additional long term control	Bronchodilator as needed (see step 1)	
STEP 1 Mild Intermittent		Symptoms ≤ 2/wk Asymptomatic with normal PEF between exacerbations Exacerbations brief, intensity may vary	≤ 2/month	FEV or PEF ≥80% predicted PEF variability <20%	No daily medication needed	No daily medication needed	Short acting bronchodilator; inhaled β ₂ -agonist as needed Use more than 2 times/week may indicate need to initiate long term control therapy	Bronchodilator as needed less than 2 times a week <i>EITHER</i> inhaled short acting β ₂ -agonist by nebulizer or spacer/holding chamber with face mask <i>OR</i> oral β ₂ -agonist for symptoms	<ul style="list-style-type: none"> Teach basic facts about asthma Teach inhaler/spacer/holding chamber technique Develop self-management plan Develop action plan for when and how to take rescue actions, especially for patients with a history of severe exacerbations Discuss appropriate environmental control measures to avoid exposure to known allergens and irritants

Inhaled Steroids ⇒ the most effective long-term-control medication for asthma

Medication	Low Dose		Medium Dose		High Dose	
	Adult	Peds	Adult	Peds	Adult	Peds
Beclomethasone dipropionate (Beclovent, Vanceryl) 42 mcg/puff / 84 mcg/puff	168-504 mcg 4-12 puffs – 42 mcg / 2-6 puffs – 84 mcg	84-336 mcg 2-8 puffs – 42 mcg / 1-4 puffs – 84 mcg	504-840 mcg 12-20 puffs – 42 mcg/6 -10 puffs – 84 mcg	336-672 mcg 8-16 puffs – 42 mcg / 4-8 puffs – 84 mcg	840 mcg > 20 puffs – 42 mcg / > 10 puffs – 84 mcg	672 mcg > 16 puffs – 42 mcg / > 8 puffs – 84 mcg
Budesonide Turbuhaler (Pulmacort Turbuhaler) 200 mcg/dose	200-400 mcg 1-2 inhalations	100-200 mcg	400-600 mcg 2-3 inhalations	200-400 mcg 1-2 inhalations	> 600 mcg > 3 inhalations	> 400 mcg > 2 inhalations
Flunisolide (Aerobid) 250 mcg/puff	500-1,000 mcg 2-4 puffs	500-750 mcg 2-3 puffs	1,000-2,000 mcg 4-8 puffs	1,000-1,250 mcg 4-5 puffs	> 2,000 mcg > 8 puffs	> 1,250 mcg > 5 puffs
Fluticasone (Flonase, Flovent) MDI: 44, 110, 220 mcg/puff DPI: 50, 100, 250 mcg/puff	88-264 mcg 2-6 puffs – 44 mcg OR 2 puffs – 110 mcg 2-6 inhalations – 50 mcg	88-176 mcg 2-4 puffs – 44 mcg 2-4 inhalations – 50 mcg	264-660 mcg 2-6 puffs – 110 mcg 3-6 inhalations – 100 mcg	176-440 mcg 4-10 puffs – 44 mcg OR 2-4 puffs – 110 mcg 2-4 inhalations – 100 mcg	> 660 mcg > 6 puffs – 110 mcg OR > 3 puffs – 220 mcg > 6 inhalations – 100 mcg OR > 2 inhalations – 250 mcg	> 440 mcg > 4 puffs – 110 mcg OR > 2 puffs – 220 mcg > 4 inhalations – 100 mcg OR > 2 inhalations – 250 mcg
Triamcinolone acetonide (Azmacort) 100 mcg/puff	400-1,000 mcg 4-10 puffs	400-800 mcg 4-8 puffs	1,000-2,000 mcg 10-20 puffs	800-1,200 mcg 8-12 puffs	> 2,000 mcg > 20 puffs	> 1,200 mcg > 12 puffs

National Asthma Guidelines

[logo]

Is it Asthma?

History: recurrent coughing or wheezing episodes or cough as only symptom

- ◆ Asthma symptoms vary throughout the day
- ◆ Episodic wheeze, chest tightness, shortness of breath, or cough
- ◆ Worsen in presence of aeroallergens, irritants, exercise or at night
- ◆ Allergic rhinitis or atopic dermatitis
- ◆ Relatives with asthma, allergy, sinusitis, or rhinitis

Physical Exam:

- ◆ Hyperexpansion of thorax
- ◆ Wheezing, prolonged or forced exhalation
- ◆ Nasal secretions, sinusitis, rhinitis, or nasal polyps
- ◆ Atopic dermatitis/eczema or allergic skin problems

Absence of symptoms at time of exam does not exclude asthma diagnosis

To Establish an Asthma Diagnosis You Need:

1. History and physical exam compatible with asthma
2. To document by spirometry that airflow obstruction exists and is partially reversible
 - ◆ FEV₁ < 80% of predicted; FEV₁/FVC <65% or below the lower limit of normal
 - ◆ FEV₁ increases >12% and at least 200 ml after using a short-acting inhaled beta₂-agonist (e.g., albuterol, terbutaline)
 - Note: older adults may need to take oral steroids for 2-3 weeks and then take the spirometry test to measure the degree of reversibility achieved. Chronic bronchitis and emphysema may coexist with asthma in adults. Children less than 7 years may not perform appropriate spirometry.
3. To exclude alternative diagnoses (e.g., vocal cord dysfunction, vascular rings, foreign bodies, or other pulmonary diseases). See Additional Tests.

For more information, contact the Arizona Asthma Coalition at

www.azasthma.org

Additional Tests May Be Needed For:

Suspected Problem	Test
◆ Symptoms present but spirometry is normal	◆ Diurnal variations of peak flow 1-2 weeks ◆ Methacholine, histamine, or exercise challenge
◆ Infection (i.e., sinusitis), large airway lesion, heart disease, or foreign body	◆ Chest x-ray ◆ Sinus studies
◆ COPD, restrictive defect, or central airway obstruction	◆ Additional PFTs ◆ Diffusing capacity test
◆ Other factors contributing to asthma	◆ Nasal exam ◆ GE reflux testing ◆ Allergy testing

Consider referral to a specialist if:

- Differential diagnosis is problematic, other conditions aggravate asthma, or confirmation is needed on the contribution of occupational or environmental exposures
- Specialized treatment & education is needed - considering patient for immunotherapy or providing additional education for allergen avoidance
- Patient not meeting therapeutic goals after 3-6 months, patient unresponsive to therapy
- A life-threatening exacerbation has occurred
- Patient requires step 4 care or has used more than 2 bursts of oral steroids in 1 year
- Patient is younger than 3 years and requires step 3 or 4 care

Remember the "Rules of Two":™

- Do you take your "quick-relief inhaler" more than two times a week?
- Do you awaken at night with asthma more than two times a month?
- Did you refill your "quick-relief inhaler" more than two times a year?

If you can answer "yes" to any of these questions, ask your doctor or pharmacist about a "long-term controller" anti-inflammatory medication.

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Patient Education After Diagnosis

Ask:

- ❖ What worries you most about having asthma?
- ❖ What concerns do you have about your asthma?

Tell:

- ❖ Asthma can be managed and the patient can live a normal life.
- ❖ Asthma can be controlled when the patient works together with the medical staff. The patient plays a big role in monitoring asthma, taking medications, and avoiding things that can cause asthma episodes.
- ❖ Asthma is a chronic lung disease characterized by inflammation of the airways. There may be periods when there are no symptoms, but the airways are swollen and sensitive to some degree all the time. Long-term anti-inflammatory medications are important to control airway inflammation.
- ❖ Many things in the home, school, work or elsewhere can cause asthma attacks, such as allergens, irritants, dust and pets. An asthma attack (also called episodes, flare-ups, or exacerbations) occurs when airways narrow, making it harder to breathe.
- ❖ Secondhand tobacco smoke can cause an attack
- ❖ Asthma required long-term care and monitoring. Asthma cannot be cured, but it can be controlled. Asthma can get better or worse over time and requires treatment changes.

General Goals of Asthma Therapy

- ❑ Prevent chronic asthma symptoms and asthma exacerbations during the day and night.
 - No sleep disruption by asthma
 - No missed school or work due to asthma
 - No or minimal visits to the Emergency Department
 - No or minimal hospitalizations
- ❑ Maintain normal or near-normal activity levels, including exercise and other physical activities
- ❑ Have normal or near-normal lung function
- ❑ Be satisfied with the asthma care received
- ❑ Have no or minimal side effects while receiving optimal medications
- ❑ Significantly reduce or eliminate attacks and enhance long-term prognosis by taking anti-inflammatory medicines regularly