

ASTHMA TREATMENT GUIDELINES

MANAGEMENT OF ASTHMA can be complex, as clinicians wrestle with an increasing array of drugs and other management tools. In 1997 the National Institutes of Health published its *Guidelines for the Diagnosis and Management of Asthma*. Data from multiple sources suggest that adherence to these *Guidelines* can substantially improve patient outcome. This issue of the *CD Summary* reviews these *Guidelines*, as part of a new program at the Health Division to improve the care of people with asthma in Oregon.

ASTHMA IS INCREASING

National data suggest that asthma prevalence and mortality have increased steadily for the last 15 years.¹ Today, 17 million Americans are estimated to have asthma. Among adults in Oregon, the prevalence of asthma has risen to nearly 9%.² Why asthma is increasing is not clear, although theories abound. More frequent diagnosis of asthma and the increased life expectancy of asthmatics from better management of asthma probably play some role. Changes in the environment, such as increased air pollution, and increased exposure to cigarette smoke *in utero* have also been advanced as possible contributing factors. And one theory suggests that the decline in childhood exposure to infectious diseases and other immune system stimuli has resulted in increased allergen sensitivity.³

Asthma is not an equal opportunity disease. The risk is higher for females than males—in Oregon, 1.8 times so. African-Americans and American Indians are more at risk than whites, with a prevalence among adults of 10% and 11%, respectively. Nationally, the annual asthma hospitalization rate for blacks is over three times that for whites (35.5 v. 10.9/10,000), and the death rate more than twice that of whites (38.5 v. 15.1 per million population per year).⁴

The gap between the prevalence of asthma and the hospitalization and death rates for asthma among African-Americans emphasizes the need for improved outpatient treatment of asthma. Data suggest that

appropriate outpatient management can greatly reduce the need for asthma-related visits to hospitals and funeral parlors. Which brings us back to....

WHAT'S IMPORTANT

The *Guidelines* outline an easy to use classification system for asthma severity that is based on objective measures (symptom frequency, activity limitations, frequency of medication use, and peak flow measurements). Each severity category is managed with the use of specific classes of medication. This is almost a “point and click” guide to asthma care: figure out which severity category your patient belongs in, and bingo, you know which types of medication they should be on. The *Guidelines* divide asthma medications into two classes: those used for long-term control (e.g., anti-inflammatory drugs and long-acting bronchodilators), and those used for quick relief, such as short-acting bronchodilators.

Another important aspect of treatment is the aggressive use of corticosteroids, particularly inhaled preparations. This recommendation is based on data showing that for some asthmatics continued inflammation causes remodeling of the basement membrane in the alveoli which leads to thickening of that membrane. This reduces the capacity of gases to cross that membrane, and also decreases the elasticity of lung tissue, causing an irreversible decrement in lung function. Given the low level of side effects from inhaled steroids, the *Guidelines* recommend their use as a first line agent for all but those with the most mild class of asthma.

Finally, the *Guidelines* emphasize the importance of patient education and self-management in asthma care. Teaching patients how to avoid their environmental triggers, convincing patients to take their long-term control medications even in the absence of symptoms, and teaching patients when they need to step up their medication or seek evaluation by their health care provider are important compo-

nents of asthma care. The *Guidelines* advocate the use of a clearly written self-management plan for all asthmatics.

Do the *Guidelines* work? Numerous studies suggest that adherence to the *Guidelines* improves patient outcome. One study even suggests that the improved outcome achieved by asthma specialists is due in large part due to adherence to the *Guidelines*.⁵

SO WHERE DO I GET A COPY?

You can download your own copy of the *Guidelines* (all 146 pages) from the National Heart Lung and Blood Institute's website, <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm>. For your easy reference we've distilled some of the most critical information in the *Guidelines* into the table on the reverse side of this sheet. Of course, both the full text of the *Guidelines* and our table are general guidelines to assist in clinical decision-making, and are not intended to be a specific prescription for individual patients.

THE OREGON ASTHMA PROGRAM

The Health Division recently received a grant from CDC to address the burden of asthma in Oregon from a public health perspective. We will be working with providers, health care organizations, patients and their advocates, and community partners to reduce the burden of asthma in Oregon. For more information about the Oregon Asthma Program, call 503/731-4025. Operators are standing by.

REFERENCES

1. President's Task Force on Environmental Health Risks and Safety Risks to Children, U.S. EPA and U.S. DHSS. Asthma and the environment: a strategy to protect children. Washington D.C.;1999.
2. Behavior Risk Factor Surveillance System (BRFSS). An annual telephone survey addressing a wide variety of health-related behaviors and demographic characteristics.
3. Platt-Mills TA, Vervloet D, Thomas WR, Aalberse RC, et al. Indoor allergens and asthma: report of the Third International Workshop. *J Allergy Clin Immunol* 1997;100:S1-S24.
4. CDC. Surveillance for asthma – United States, 1960-1995. *MMWR* 1998;47(SS-1):1-28.
5. Legorreta AP, Christian-Herman J, O'Connor RD, Hasan MM, et al. Compliance with national asthma management guidelines and specialty care. *Arch Intern Med* 1998;158:457-464.



If you need this material in an alternate format, call us at 503/731-4024.

Management of Asthma in Adults and Children*

Classification of Severity and Therapy Recommendations[†]

Step	Symptoms	Nocturnal symptoms	Lung Function	Long-Term Control	Quick Relief	Education
Step 4 Severe Persistent	<ul style="list-style-type: none"> Continual symptoms Limited physical activity Frequent exacerbations 	Frequent	<ul style="list-style-type: none"> FEV₁ or PEF ≤60% predicted PEF variability >30% 	Daily medications: <ul style="list-style-type: none"> Anti-inflammatory: inhaled corticosteroid (high dose) and Long-acting bronchodilator: either long-acting inhaled beta₂-agonist, sustained-release theophylline, or long-acting beta₂-agonist tablets and Corticosteroid tablets or syrup long term (make repeat attempts to reduce systemic steroids and maintain control with high dose inhaled steroids) 	<ul style="list-style-type: none"> Short-acting bronchodilator: inhaled beta₂-agonists as needed for symptoms. Intensity of treatment will depend on severity of exacerbation. Use of short-acting inhaled beta₂-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy. 	Steps 2 and 3 actions plus: <ul style="list-style-type: none"> Refer to individual education/ counseling
Step 3 Moderate Persistent	<ul style="list-style-type: none"> Daily symptoms Daily use of inhaled short-acting beta₂-agonist Exacerbations affect activity Exacerbations ≥2 times a week; may last days 	>1 time a week	<ul style="list-style-type: none"> FEV₁ or PEF >60%-<80% predicted PEF variability >30% 	Daily medication: <ul style="list-style-type: none"> Either Anti-inflammatory: inhaled corticosteroid (medium dose) or Inhaled corticosteroid (low-medium dose) and add a long-acting bronchodilator, especially for nighttime symptoms; either long-acting inhaled beta₂-agonist, sustained-release theophylline, or long-acting beta₂-agonist tablets. • If needed Anti-inflammatory: inhaled corticosteroids (medium-high dose) and Long-acting bronchodilator, especially for nighttime symptoms; either long-acting inhaled beta₂-agonist, sustained-release theophylline, or long-acting beta₂-agonist tablets. 	<ul style="list-style-type: none"> Short-acting bronchodilator: inhaled beta₂-agonists as needed for symptoms. Intensity of treatment will depend on severity of exacerbation. Use of short-acting inhaled beta₂-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy. 	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	<ul style="list-style-type: none"> Symptoms >2 times a week but <1 time a day Exacerbations may affect activity 	>2 times a month	<ul style="list-style-type: none"> FEV₁ or PEF ≥80% predicted PEF variability 20-30% 	One daily medication: <ul style="list-style-type: none"> Anti-inflammatory: either inhaled corticosteroid (low doses) or cromolyn or nedocromil (children usually begin with a trial of cromolyn or nedocromil). Sustained-release theophylline to serum concentration of 5-15 mcg/mL is an alternative, but not preferred, therapy. Zafirlukast or zileuton may also be considered for patients ≥12 years of age, although their position in therapy is not fully established. • No daily medication needed. 	<ul style="list-style-type: none"> Short-acting bronchodilator: inhaled beta₂-agonists as needed for symptoms. Intensity of treatment will depend on severity of exacerbation. Use of short-acting inhaled beta₂-agonists on a daily basis, or increasing use, indicates the need for additional long-term-control therapy. 	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 1 Mild Intermittent	<ul style="list-style-type: none"> Symptoms ≤2 times a week Asymptomatic and normal PEF between exacerbations Exacerbations brief (from a few hours to a few days); intensity may vary 	≤2 times a month	<ul style="list-style-type: none"> FEV₁ or PEF ≥80% predicted PEF variability <20% 	<ul style="list-style-type: none"> • No daily medication needed. 	<ul style="list-style-type: none"> Short-acting bronchodilator: inhaled beta₂-agonists as needed for symptoms. Intensity of treatment will depend on severity of exacerbation. Use of short-acting inhaled beta₂-agonists more than 2 times a week may indicate the need to initiate long-term-control therapy. 	Teach basic facts about asthma <ul style="list-style-type: none"> Teach inhaler/ spacer/ holding chamber technique Discuss roles of medications 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.

* Magnifying glass not included.

† Preferred treatment is shown in **bold print**.