ASTHMA
INSIGHTS & OUTCOMES

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Helping Adolescents Manage Asthma

In the most recent national Youth Risk Behavior Survey (*Morbidity and Mortality Weekly Report,* 2005, vol. 54, no. 31), approximately one in six high school students reported having asthma, and almost 38 percent of them had experienced an asthma attack in the prior year. Asthma management in adolescents is challenging. They have a growing sense of independence, tend to believe they are invulnerable, and want to fit in with their peers. This potent psychosocial mix frequently leads to problems with asthma control.

- Teens may resist monitoring their symptoms.
- They may view treatment as interfering with their independence.
- They may use asthma controller medication intermittently or stop taking it altogether.
- They may not recognize the serious risks of poorly controlled asthma.

In addition, many adolescents have poor perception of their asthma control. A study reported in the *Journal of Asthma* (2008, vol. 45, pp. 600–06) found that 25 percent of adolescents perceived their asthma to be well-controlled, yet their frequency of nighttime symptoms, use of rescue medication, and degree of activity limitation indicated the opposite. Compared to their peers with more accurate perception, these adolescents had lower quality of life in terms of symptoms, activity, and emotional factors. Nonwhite teens with lower socioeconomic backgrounds were most at risk for poor perception.

STRATEGIES FOR WORKING WITH TEENS

To help adolescent patients control their asthma, consider these strategies:

- Meet with teens without the parents present. Parents can join in at the end, when you can review what was discussed and highlight ways they can support their teen's asthma management efforts.
- Carefully assess symptoms; don't rely on the adolescent patient's perception of overall control.
- Involve teens directly in setting therapy goals and developing a written asthma Action Plan. This supports their need for independence and encourages the self-responsibility and problem-solving skills needed to manage asthma.

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Long-Term Problems with Salmeterol Use

To address concerns about the link between long-acting beta agonists and mortality in asthma patients and whether they are safe for daily use, Cochrane Collaboration researchers analyzed data from 26 clinical trials with a total of 62,630 patients. Mortality was higher over 28 weeks with salmeterol compared to placebo, but the difference wasn't statistically significant. However, there was an increased risk for serious nonfatal adverse events with salmeterol compared to placebo. In the largest study, these events occurred in 3.6 percent of the placebo group and 4.0 percent of the salmeterol group, or one extra event every 28 weeks for every 188 people taking salmeterol. In two large surveillance studies, using salmeterol without inhaled corticosteroids (ICS) was associated with an increased risk for asthma-related death, but because the confidence intervals were large, it can't be concluded that concomitant use of ICS mitigates this risk.

The researchers conclude that salmeterol shouldn't be used as a substitute for ICS and should be discontinued if it isn't providing benefit. Health care providers should also advise patients not to increase the dose of salmeterol during exacerbations.

Cultural and Ethnic Considerations in Patient Communication

Nonwhites in the U.S. have a higher prevalence of asthma and risk for asthma-related disability and death. Yet these patients may be less compliant with treatment recommendations because of cultural and ethnic factors that influence knowledge and beliefs about illness. Language and health literacy limitations are additional obstacles to health care provider–patient communication.

BARRIERS TO COMMUNICATION

Here are some eye-opening facts that affect patient-provider communication:

- Thirty-three percent of Hispanics, 26 percent of Asian-Americans, and 22 percent of African-Americans have trouble communicating with their health care provider, compared to 16 percent of white patients.
- People with low incomes, immigrants, older adults, and nonwhites are more likely to have difficulty reading and understanding health information.
- A study of 483 asthma patients found that 40 percent could not read above the sixth-grade level. Compared to high school–level readers, those reading below the third-grade level were twice as likely to have poor metered-dose inhaler technique.
- Vocabulary matters. In one study (*Chest,* April 2000, vol. 117, no. 5), at the same level of induced bronchoconstriction, African-Americans used upper-airway descriptors ("tight," "tough breath") to describe breathlessness, while whites used lower-airway or chest-wall terms ("deep breath," "out of air"). The authors suggest that health care providers be aware of vocabulary differences and "ask correct symptom questions to determine the appropriate intervention."
- Cultural and ethnic beliefs impact adherence to treatment plans. For example, African-Americans with asthma may be more likely to rely on prayer and Hispanics on herbal therapy as complementary medicine.

STEPS TO TAKE

To overcome these barriers in the time-constrained environment of primary care, take specific steps:

- Discuss complementary medicine with patients to identify harmful practices and make sure the approaches you propose are culturally acceptable.
- Use the "teach back" technique: Ask patients to repeat or restate instructions. For example, say, "Can you tell me in your own words what we've just talked about?"
- If you notice a patient is having trouble reading, offer help. For example, say, "It's hard for a lot of people to understand this material. How can I help you?"
- Limit the amount of information given at each visit. Patients remember less than half of what they're told during a visit.

To learn more, go to the American Medical Association's Web site, **www.ama-assn.org,** and type in the search term "health literacy." You'll find toolkits for health care providers and can download the manual *Health Literacy and Patient Safety: Help Patients Understand,* a guide to literacy issues.

www.ama-assn.org
American Medical Association

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ASTHMA AND RESPIRATORY INFECTIONS

Exploring the Connection

Respiratory infections trigger about 80 percent of asthma attacks in children and 60 percent of attacks in adults. A lot of research is being focused on this topic, often facilitated by newer molecular methods to detect respiratory viruses. Here's an overview:

- Having asthma may not increase susceptibility to upper respiratory infections, but it increases the risk for a lower respiratory tract infection and its serious consequence. Asthma patients tend to have more receptors for rhinovirus on airway epithelial cells and develop more severe symptoms at a given viral load.
- Rhinovirus is the most common infection found in patients hospitalized for life-threatening asthma and acute non-life-threatening asthma, but other viruses may be important, including respiratory syncytial virus (RSV), influenza A and B, parainfluenza viruses, enteroviruses, adenovirus, and coronavirus. In older adults, RSV is found in 7 percent of acute asthma attacks that require emergency care.
- Those with asthma who also have viral infections have compromised immune responses and increased inflammation and bronchial hyperresponsiveness. Virus-induced epithelial damage inhibits neutral endopeptidase, an enzyme that regulates tachykinins, which are important smooth muscle constrictors and vasodilators. Nitric oxide production and changes in airway neural controls are also affected.
- Although viral infections alone exacerbate asthma, they may also activate a prior atypical bacterial infection. Viruses can increase the mycoplasma load and associated respiratory effects, including bronchitis, mucus production, and inflammation. A bronchoscopy study found that stable asthma patients were significantly more likely to have mycoplasma or chlamydia in the airways compared to controls.
- There is a synergistic, bidirectional interaction between viral respiratory infections and allergens. Allergen sensitivity affects the lower-airway response to viruses and is associated with wheezing in asthma attacks triggered by viral infection. In turn, viral infections may enhance the development of an allergen response.
- A synergistic interaction between asthma, viral infection, and air pollution has been suggested. A clinical study found that virally induced asthma exacerbations were more severe when individuals were exposed to nitrogen dioxide, a common air pollutant. Some but not all studies have seen an association between upper respiratory tract infections and air pollution or tobacco smoke in children.

The best approach to date for preventing exacerbations in older children and adults remains the regular use of inhaled corticosteroids.

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- Keep Action Plans simple so that there's less chance they'll be ignored. Some teens do best with "contracts" that lay out expectations, rewards, and consequences.
- If patients are concerned about taking medication when with friends, stress that controller medication can be taken at home before school and that taking it daily will mean fewer flare-ups and less of a need to use a rescue inhaler in front of friends.
- Don't overlook the normal developmental need to build self-confidence and a positive self-image. Teens relate to idols, so mention celebrities and athletes who have asthma.
- Stress that by keeping asthma controlled, they can be more independent and fully participate in sports and other activities.
- Adolescents listen most to their peers, so suggest they join a teen asthma support group.

ASTHMA MANAGEMENT GOALS

Teens should be able to manage medications and monitor their symptoms and/or peak flow mostly on their own. National Asthma Education and Prevention Program (NAEPP) treatment goals for this group include:

- Prevention of symptoms (coughing and breathlessness), exacerbations, and emergency department visits
- The need for quick relief with a short-acting beta agonist no more than twice a week
- Near normal pulmonary function and prevention of reduced lung growth
- Normal activity levels, including participation in physical activity and sports

The NAEPP recommends a step-wise approach to pharmacotherapy, in which:

- The medication regimen is determined by asthma severity
- The regimen is adjusted based on level of asthma control
- Therapy is stepped down to the minimum required to maintain control

Follow up at one- to six-month intervals and make a referral to a specialist if asthma control isn't satisfactory.