

ASTHMA INSIGHTS & OUTCOMES

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WORKING TO MAINTAIN CONTROL Maternal Asthma

“It is safer for pregnant women to be treated with asthma medications than to have asthma symptoms and exacerbations.”
—National Asthma Education and Prevention Program, 2007

About one-third of women with asthma experience a worsening of symptoms during pregnancy. Asthma attacks are most likely to occur during weeks 24 to 36. Although it's not clear why asthma worsens, gastroesophageal reflux is known to worsen asthma and often occurs in pregnancy due to increased pressure on the stomach.

Unfortunately, asthma is often undertreated during pregnancy. Uncontrolled asthma lowers oxygen levels in the fetal blood supply, increasing the risk for adverse outcomes of both mother and baby, including preeclampsia, preterm birth, low birth weight, and perinatal death.

MANAGING ASTHMA DURING PREGNANCY

The National Asthma Education and Prevention Program (NAEPP) outlines four components of asthma management during pregnancy:

- **Assessment and monitoring, including objective measures of pulmonary function.** Spirometry tests are recommended at initial assessment and most subsequent visits. Measuring peak expiratory flow with a peak-flow meter is acceptable if spirometry is not feasible. For women with moderate to severe asthma or suboptimal control, ultrasound examination may be considered beginning at 32 weeks and after exacerbations.
- **Controlling factors that contribute to asthma severity.** These include allergens and irritants, especially tobacco smoke.
- **Patient education.** Important topics include using inhalers correctly, self-monitoring, following an asthma management plan, and dealing promptly with worsening symptoms.
- **Pharmacologic therapy using a stepwise approach.** The dose and number of medications should be increased based on severity of asthma and decreased when possible.

ASTHMA DRUG SAFETY

Undertreatment of asthma during pregnancy may be due to concern about medication adverse effects on the fetus. Several small epidemiological studies have assessed the risk for congenital malformations from asthma medications and have not

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Breast-Feeding Mitigates Asthma Risk

The prevalence of childhood asthma has increased significantly in recent decades. The Isle of Wight birth cohort study is the first study to assess the combined effects of three risk factors on the development of asthma: recurrent lower respiratory tract infection (RLRTI), maternal smoking, and lack of breast-feeding (*Journal of Asthma*, October 2008).

For the study, a total of 1,456 children were recruited from 1989 to 1990 and evaluated at ages 1, 2, 4, and 10 years. A history of RLRTI was strongly associated with asthma in the first decade of life (4.16-fold increased risk). Children with RLRTI who were exposed to prenatal smoking and not breast-fed for at least three months had the highest asthma risk (53.1 percent had asthma at age 1 and 29 percent at age 10). However, breast-feeding for three months or longer lowered risk in children with RLRTI whether or not they were exposed to smoke. In addition, breast-feeding for three months or longer lowered asthma risk in children without RLRTI who were exposed to smoke. The researchers conclude that promoting both breast-feeding and smoking prevention are important for preventing asthma.

IMPROVING ASTHMA CONTROL IN CHILDREN

Helping Parents Understand and Cope

An estimated 40 percent of children with asthma have less than optimal control of symptoms. Research shows that parental attitudes and beliefs play a large role.

A MATTER OF EXPECTATION

In a study of 754 children with asthma in Massachusetts (*Pediatrics*, October 2008), 12 percent of parents rated their child's asthma control as very good or excellent, even though their child had persistent symptoms. Twenty-two percent believed that having symptoms more than two days a week was consistent with good control. In the same study, 27 percent of parents had low expectations for symptom-free days, participation in normal physical activities, school absences, hospitalizations, and emergency department visits. Perhaps a case of self-fulfilling prophecy, these low parental expectations were associated with suboptimal asthma control.

Medications raise other issues. A survey in 40 primary care pediatric clinics (*Pediatrics*, September 2007) found that 30 percent of parents had strong concerns about asthma medications; this was most evident in minority families. This concern is likely to manifest as poor medication adherence.

One factor contributing to these attitudes and beliefs is a lack of systematic asthma education. Asthma diagnosis in children often evolves over a period of time, so parents pick up information in a piecemeal fashion. Lack of knowledge about asthma has consequences. For example, the Massachusetts study found that underuse of controller medication was more likely when parents viewed asthma as an intermittent rather than chronic condition.



ADDRESSING THE ISSUE

Fortunately, attitudes and beliefs can be modified. It may be helpful for primary care providers to offer asthma wellness visits, during which they can:

- Help parents understand that good asthma control is an achievable goal. Among other parameters, good control means symptoms don't occur more than twice a week, rescue medication isn't needed more than twice a week, and the child is able to fully participate in normal physical activities.
- Explain the function and rationale for each medication, even if you've done so before. Many parents are confused about how medications work and why they're needed.
- Educate parents that asthma is a chronic condition even though their child's symptoms are intermittent, and daily controller medication is important.

By identifying and addressing parents' attitudes and beliefs, your young patients can benefit from improved asthma care.

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www.aaaai.org

American Academy of Allergy,
Asthma, and Immunology

www.nhlbi.nih.gov/about/naepp/index.htm

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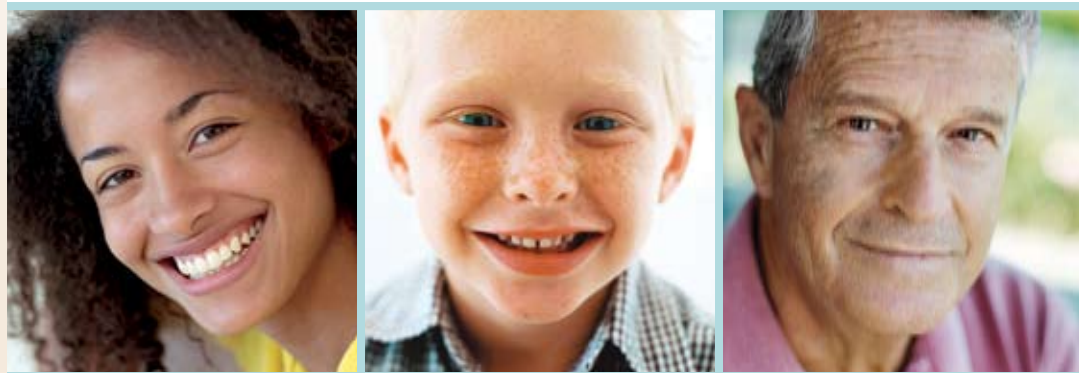
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Are Your Patients Utilizing the Most Appropriate Medications?

Finding the right mix of medications for asthma patients can be challenging. Patients with moderate-to-severe asthma need both rescue and controller medications, but the latter are often underprescribed.



Recently, researchers tracked doctor adherence to clinical guidelines from 1998 to 2004. Although there was a substantial increase in prescribing controller medications during the study years, there was not an increase in prescribing inhaled corticosteroids (ICS), the preferred agent. However, there was an increase in prescribing long-acting beta agonists (LABA), another long-term-control medication. This may reflect provider preference for LABA due to concern about ICS side effects, but long-term use of LABA alone is associated with an increased risk for serious adverse events. In December 2008, a U.S. Food and Drug Administration advisory panel recommended that LABA not be used in children and adults with asthma except when paired with ICS.

POINTS TO CONSIDER

To help ensure that patients are receiving the most appropriate medication, it may be worthwhile to review these points:

- Asthma treatment decisions should be driven by the patient’s level of control. Asthma is highly variable over time, so control needs to be assessed at every visit. It’s best to measure control with a validated questionnaire, such as the Asthma Control Questionnaire or Asthma Control Test. These quick

questionnaires allow comparison of scores from visit to visit so that small but clinically important changes can be detected.

- Of the long-term-control medications (ICS, LABA, long-acting methylxanthines, mast cell stabilizers or cromones, and leukotriene modifiers), ICS are the preferred agent due to their superior anti-inflammatory effects. To help ensure success, regularly assess the patient’s adherence and inhaler technique and environmental control measures.
- According to national practice guidelines, LABA should not be used as monotherapy for long-term control, although it is the preferred add-on therapy to ICS for adults and children ages 12 and older.
- Short-acting beta agonists (SABA) are preferred for relieving acute symptoms and preventing exercise-induced bronchospasm (EIB). Overuse of SABA remains a problem, however. Use of rescue medication more than twice a week, other than for prevention of EIB, indicates the need to begin or intensify controller therapy.

TO LEARN MORE

See the National Asthma Education and Prevention Program guidelines at www.nhlbi.nih.gov/guidelines/asthma/index.htm.

Working to Maintain Control: Maternal Asthma

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found an increased risk. However, a more recent study in the *Journal of Asthma* (2006) reported that infants with congenital malformations were 20 percent more likely to have a mother with asthma. A study in the *European Journal of Pharmacology* (2007) found a 9 percent increase in congenital malformations among

infants of women who self-reported use of asthma drugs during pregnancy, although the lack of a consistent pattern of malformations made it difficult to draw firm conclusions. Larger studies are clearly needed.

To address this, a large case-control study in the United Kingdom (5,124 cases of congenital malformation and 30,053 matched controls) was conducted (*Thorax*, 2008). It reported a small increased risk for congenital malformations in children of mothers with asthma. Importantly, the risk was not related to asthma drug exposure (short- and long-acting beta agonists, inhaled corticosteroids, oral corticosteroids, and other bronchodilators or cromones), with the exception of cromone anti-inflammatory agents, which were associated with an increased risk for musculoskeletal malformations.

The NAEPP (2007) has made the following recommendations concerning pharmacotherapy:

- Monitor the level of asthma control and lung function during prenatal visits. Therapy should be stepped up or down as indicated.
- Albuterol is the preferred short-acting beta agonist (SABA) because more safety data is available for it than for other SABAs.
- Inhaled corticosteroids (ICS) are the preferred long-term control medication. Among ICS agents, budesonide is preferred, again because more safety data is available for it. It should be noted, however, that the NAEPP has found no evidence that other ICS preparations are unsafe during pregnancy.

Because asthma exacerbations can have serious consequences for the fetus, they need to be aggressively managed. The 2004 NAEPP report on managing asthma during pregnancy provides detailed algorithms for treating asthma exacerbations during pregnancy.

During pregnancy, asthma treatment goals include achieving minimal or no chronic symptoms or exacerbations and near normal pulmonary function. With good control, a normal pregnancy with little risk to the baby can be achieved.