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Pregnancy and Asthma - Information for Health Care Providers

Asthma is one of the most common illnesses that complicate pregnancy.

- Asthma may occur for the first time during pregnancy, or it may change during pregnancy; in about one-third of pregnant women [asthma symptoms](#) will worsen during pregnancy, one-third will remain the same, and one-third will improve. In any case, pregnant women with asthma need treatment to control their asthma and thus protect their health and the health of their fetus.

Uncontrolled asthma during pregnancy can produce serious maternal and fetal complications. When asthma is properly controlled, however, pregnant women with asthma can maintain a normal pregnancy with little or no increased risk to themselves or their fetuses.

- Maternal complications include preeclampsia, gestational hypertension, hyperemesis gravidarum, vaginal hemorrhage, toxemia, and induced and complicated labors.
- Fetal complications include increased risk of perinatal mortality, intrauterine growth retardation, preterm birth, low birth weight, and neonatal hypoxia.

The goals of therapy for pregnant women with asthma are to control symptoms, including nocturnal symptoms; maintain normal or near-normal pulmonary function; maintain normal activity levels, including exercise; prevent acute exacerbations of asthma; avoid any adverse effects from asthma medications; and deliver a healthy infant.

- Underestimation of asthma severity and undertreatment of exacerbations are two common errors that may lead to adverse maternal and fetal outcomes.

Asthma care should be integrated with obstetric care.

- Effective management of asthma includes ongoing management to prevent asthma exacerbations and control [chronic](#) symptoms, and early intervention to relieve acute exacerbations.
- Learn when to [refer patients to an asthma specialist](#).

There are four integral components of effective asthma management:

1. Use objective measures for assessment and monitoring.

Maternal lung function:

Pulmonary Function Testing

- Using an office spirometer in the initial assessment of all pregnant patients being evaluated for asthma, and periodically thereafter as appropriate, is recommended. The single best measure of pulmonary function for assessing the severity of asthma is Forced Expiratory Volume in 1 second (FEV₁). This test measures the amount of air that can forcefully be blown out in the first second of the FVC. If this number is lower than what is considered normal, it may mean asthma.
- [Peak expiratory flow rate \(PEFR\)](#) may be measured with portable [peak flow meters](#), and is recommended for people with [moderate](#) to [severe](#) asthma. Peak flow measurement may also help differentiate asthma from other causes of dyspnea during pregnancy.

Fetal monitoring.

Fetal evaluation is based on objective measurements made by different techniques used according to gestational age and risk factors. When women with uncontrolled or severe asthma and a non-reassuring admission test of fetal assessment or other risk factors are admitted in labor, careful fetal monitoring is essential.

- Early (12 to 20 weeks) sonography provides a benchmark for progressive fetal growth. Sequential sonographic evaluations of fetal growth are indicated in second and third trimesters if asthma is moderate or severe or if growth retardation is suspected.
- Electronic fetal heart rate monitoring and ultrasonic determinations of fetal behavior in the third trimester should be used as needed to ensure fetal well-being. For many third-trimester patients weekly fetal assessment is sufficient, but frequency should increase if fetal problems are suspected.
- Daily maternal recording of fetal activity, or "kick counts," should be encouraged.
- Immediate antepartum fetal assessment is indicated in asthma exacerbations with an incomplete or poor response to therapy or with significant maternal hypoxemia. One reasonable approach to antepartum fetal assessment is continuous electronic fetal heart rate monitoring.

2. Avoid or control asthma [triggers](#).

The identification and control of triggers--factors that induce airway inflammation or precipitate asthma

exacerbations--are important in controlling asthma during pregnancy. Common [triggers](#) include dust, pet [dander](#), and cigarette smoke. Although immunotherapy should not be started during pregnancy, ongoing immunotherapy may be continued to reduce the response to a specifically identified allergen.

If the patient is a smoker, it is important to encourage quitting, for the health of the baby and the mother. If the patient is exposed to second hand smoke regularly, strategies to avoid the smoke, and helpful information about [quitting smoking](#) should be given.

3. Establish medication [plans](#) for chronic management of asthma and for managing exacerbations using preferred medications.

Chronic management of asthma.

Specific therapeutic regimens must be tailored to individual needs and circumstances. A stepwise approach to pharmacological therapy, in which the number and frequency of medications are increased with increasing asthma severity, permits this flexibility. Once control of asthma is sustained for several weeks or months, a reduction in therapy--a step down--can be carefully considered because the aim of pharmacotherapy is to use the least medication to maintain control. (Link to stepwise worksheet) The known risks of uncontrolled asthma are far greater than the known risks to the mother or fetus from asthma medications.

For asthma therapy, Albuterol is the preferred quick relief medication and inhaled corticosteroids are the preferred treatment for long-term control medication. Budesonide is the preferred ICS because more data are available on using budesonide in pregnant women.

Drugs or drug classes with potential risk to the fetus: brompheniramine, [epinephrine](#), and alpha-adrenergic compounds (other than pseudoephedrine), decongestants (other than pseudoephedrine), antibiotics (tetracycline, sulfonamides, and ciprofloxacin), live virus [vaccines](#), immunotherapy (initiation or increase in doses, and iodides).

For the treatment of comorbid conditions, intranasal corticosteroids are recommended for the treatment of rhinitis.

Managing exacerbations.

Anticipatory or early intervention is important in treating acute exacerbations.

- Every patient needs to have a written [action plan](#) for recognizing and responding early to signs of worsening asthma. The action plan indicates how to increase medications in response to decreased PEFR or increased symptoms and how to obtain medical advice at any time.

Patients should not delay seeking medical help in the emergency department or hospital if any of the following occur:

- therapy does not provide rapid improvement
- improvement is not sustained
- there is further deterioration
- the asthma exacerbation is severe
- the fetal kick count decreases

Managing asthma during labor and delivery.

Asthma medications

- The patient's regularly scheduled asthma medications should be continued during labor and delivery. Patients who have required chronic systemic [corticosteroids](#) during pregnancy should be given hydrocortisone to treat for possible adrenal suppression.

Peak Flow

- The patient's PEFR may be taken upon admission to labor and delivery and, subsequently every 12 hours, if indicated. Asthma is often inactive during labor and delivery.

Preterm Labor

- A patient already receiving asthma medication has a risk of dangerous drug interactions. During an asthma exacerbation, uterine contractions are common and usually do not progress to preterm labor. Successful treatment of the exacerbation will usually abate the contractions. If tocolytic therapy is necessary, care should be taken to avoid the use of more than one type of β_2 -agonist. Magnesium sulfate is recommended to treat uterine contractions if the patient is already taking a systemic β_2 -agonist for her asthma.

Pain Control

- Narcotic analgesics that cause histamine release should be avoided; fentanyl is a preferred agent. Lumbar epidural analgesia reduces oxygen consumption and minute ventilation during first and second stages of labor, which offers patients with asthma considerable benefit. If a general anesthetic is necessary, preanesthetic use of atropine and glycopyrrolate may provide bronchodilatory effect. For induction of

anesthesia, ketamine is the agent of choice. Low concentrations of halogenated anesthetics can provide bronchodilation to the patient with asthma.

Labor Induction

- Oxytocin is the drug of choice. Prior to term, the use of 15 methyl prostaglandin F2-alpha should be avoided because it may cause [bronchospasm](#); use of prostaglandin E2 suppositories or gel has not been reported to cause bronchospasm.

Postpartum Hemorrhage

- Oxytocin is the recommended agent. If additional agents are required, methylergonovine as well as ergonovine should be avoided if possible because they may cause bronchospasm. If their use is unavoidable, pretreatment with methylprednisolone is recommended. If prostaglandin treatment is necessary, the safest analog is E2, which is less likely to cause bronchospasm.

4. Educate pregnant patients to develop a partnership in asthma management.

Open communication, joint development of a treatment plan by the clinician and patient, and encouragement of the family's efforts to improve prevention and treatment of the patient's symptoms will assist in promoting maternal and fetal safety and well-being.

- It is of the greatest importance for pregnant women with asthma to understand that they are "breathing for two."
- These women need information on how to properly control and manage their asthma during pregnancy to reduce the risk to the fetus.
- Concerns of pregnant women need to be elicited and addressed.

Adapted from the U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service, NIH Publication No. 93-3279, September 1997, and the Practical Guide for the Diagnosis and Management of Asthma, National Asthma Education and Prevention Program, National Institutes of Health, 1997

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