



# The Pregnant Patient With Asthma: Assessment and Management

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## ABSTRACT

Asthma is the most common chronic condition seen in pregnant women. Women who have asthma and become pregnant are at increased risk of preterm birth and other complications, and the offspring of these women are at risk for congenital malformations at birth and respiratory diseases after the neonatal period. In this article we provide an overview of how asthma affects this population and discuss the assessment and management of the pregnant patient with asthma.

**Keywords:** asthma, birth defects, pregnant, preterm birth

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## INTRODUCTION

Asthma is the most common chronic condition seen in pregnancy and affects up to 8.8% of pregnant women.<sup>1</sup> When women with asthma become pregnant, most do not have a decline in lung function, and many will actually show improvement.<sup>2,3</sup> Asthma control worsens in 30%-40% of pregnancies, however, and, although some clues exist to help identify women at greater

risk, it is not possible to predict with certainty who will deteriorate. Because there is some small increased risk for complications in patients with well-controlled asthma, and, because poorly controlled asthma is associated with even greater risks, it is vital that the pregnant patient with asthma be followed closely and managed proactively.

Women who have asthma and become pregnant are at increased risk of preterm birth, intrauterine

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- Identify factors/behaviors that increase risk of asthma worsening in pregnant women.
- Discuss the methods of assessment for the pregnant patient with asthma.
- Compare/contrast the different medications used in the management of the pregnant patient with asthma.

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growth restriction, and such complicating conditions as pregnancy-induced hypertension and preeclampsia.<sup>3,5</sup> Women with a history of asthma exacerbation in the year preceding pregnancy are at even greater risk for preterm delivery.<sup>3</sup> The pregnant woman's offspring is also at greater risk of developing adverse conditions as well, including congenital malformations—particularly of the nervous system, respiratory system, and digestive system—at birth and respiratory diseases after the neonatal period.<sup>6-8</sup>

### WHO WILL WORSEN?

Certainly, patients with more severe asthma or poorly controlled symptoms are at the greatest risk for deterioration during pregnancy. For example, severe baseline asthma is associated with an increased risk of exacerbation, and a first pregnancy marked by worsening asthma may predict worsening asthma in later pregnancies.<sup>9</sup> There also seems to be a small association between a female fetus and an increased risk of worsening asthma.<sup>10</sup> Atopic women with allergen exposures during pregnancy may have more asthma symptoms, and pregnant women may be more sensitive to other exposures such as smoke, fumes, or cold air.<sup>7</sup> Obesity is a risk factor for asthma exacerbations during pregnancy, as are lower socioeconomic status, younger age, unmarried status, and, of course, smoking.<sup>11</sup>

Although pregnancy induces some suppression of cell-mediated immunity, most pregnant women respond normally to infections. Pregnant women may be more vulnerable to some infections, however, which can be significant in a patient with asthma that will likely worsen with a respiratory infection such as influenza.<sup>3,12</sup> In short, because pregnant women with asthma may undergo deterioration of respiratory function for a variety of reasons, clinicians and patients must work closely together to provide the optimal environment for good asthma control.

### ASSESSMENT

Because pregnancy can, by itself, induce dyspnea, it is possible that this state may make previously occult pulmonary, cardiac, or hematologic disorders noticeable. The differential diagnosis list for dyspnea in pregnancy is lengthy (see [Box](#)), and, because

60%-70% of pregnant women have dyspnea during pregnancy, determining whether asthma is the cause can be difficult.<sup>7</sup> Therefore, clinicians should monitor the patient with asthma regularly with subjective and objective measures of lung function. Spirometry, peak expiratory flow rate (PEFR), and standardized questionnaires are valuable measures of how well a patient's asthma is controlled and, when coupled with a thorough history and physical examination, can help prevent under- or overestimating a patient's lung function.<sup>7,13</sup> Spirometry is particularly useful in this patient population, because a demonstrated obstruction that is at least partially reversible argues for a diagnosis of inadequately controlled asthma, and normal spirometry in a pregnant woman with dyspnea argues for some other etiology. PEFR is a less accurate method for measuring lung function than spirometry, but it can help some patients, particularly those with poor insight into their symptomology.<sup>14,15</sup> Patient-administered questionnaires, such as the Asthma Therapy Assessment Questionnaire, the Asthma Control Test, and the Asthma Control Questionnaire, can also help patients quantify their symptoms.<sup>16</sup>

Pregnant women with asthma should have lung function evaluated at least every 4 weeks, and women who have worsening of symptoms should be seen immediately.<sup>4</sup> Any change in asthma medication regimen for any patient with asthma, pregnant or not, should be followed by an evaluation—including spirometry—at 2-6 weeks.<sup>17</sup>

### Box. Dyspnea in Pregnancy: Differential Diagnosis<sup>a</sup>

- Asthma
- Benign dyspnea of pregnancy
- Chronic obstructive pulmonary disease
- Congestive heart failure
- Gastroesophageal reflux disease
- Interstitial lung disease
- Anemia
- Pulmonary infection
- Pulmonary edema
- Vocal chord dysfunction
- Pulmonary embolus or amniotic embolus
- Pneumothorax
- Panic or anxiety
- Thyrotoxicosis

<sup>a</sup> From Virchow<sup>7</sup> and Neuberger and Piercy.<sup>30</sup>

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