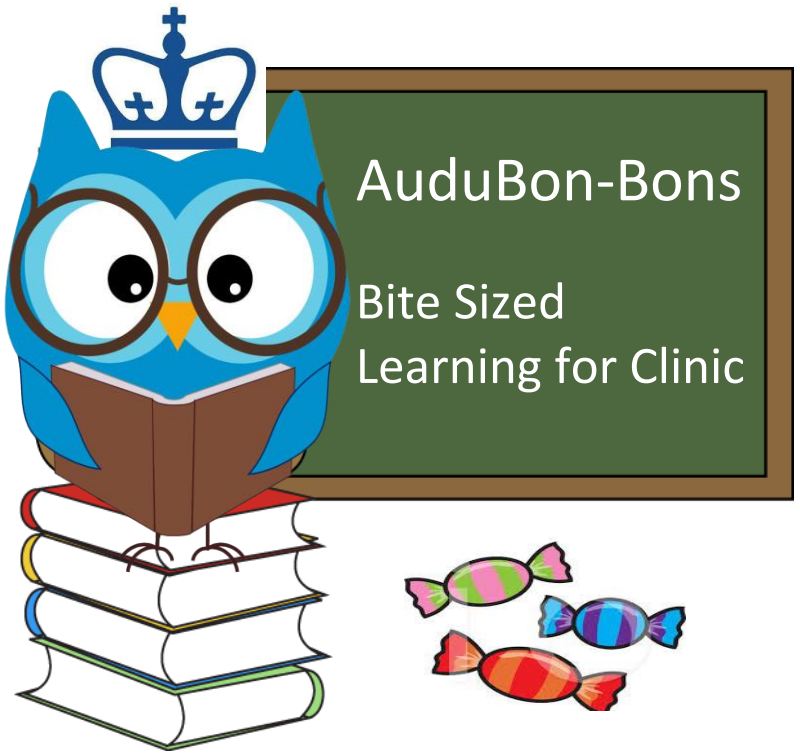
Prenatal Care: Asthma



Week 37

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Reading Assignment:
ACOG Practice Bulletin #90
Asthma in Pregnancy

LEARNING OBJECTIVES

- To understand the asthma severity classification
- To be able to counsel patients on the effects of pregnancy on asthma and the effects of asthma on pregnancy
- To identify appropriate stepwise pharmacotherapy for asthma during pregnancy

CASE VIGNETTE

- Ms. Respira Profunda, a 27 yo G1 P0 at 14wga, presents to clinic for an antepartum visit and would like to discuss management of her asthma during pregnancy.

FOCUSED HISTORY

What elements of the patient's history are most relevant?

- PMH:
  - **Asthma diagnosed 2 years ago by her PCP and classified as "mild intermittent"**
    - **Denies previous intubations, ICU admissions, or hospitalizations**
    - **One ED visit when symptoms resolved with nebulizer treatment**
    - **Denies oral corticosteroid use**
    - **Exacerbated by allergies and URTIs**
    - **Best peak flow ~350 L/min (within normal range)**
  - **Seasonal allergic rhinitis**
- PSH: Tonsillectomy at age 4
- OBH:
  - **Current pregnancy uncomplicated other than PMH noted above and up to date on prenatal care**
  - **Has not yet felt fetal movement**
  - **Denies ctx, lof, vb**
  - **Denies current symptoms of her asthma. Uses albuterol inhaler once every 2 weeks**
  - **No current symptoms of allergic rhinitis.**
- PGYNH: Regular menses prior to pregnancy. Denies history of STIs or abnormal paps. Denies history of fibroids or cysts.
- MEDS: PNV, Albuterol PRN
- All: NKDA
- FH: HTN
- SH: **Denies tob**, drug, etoh use. **No tob use in her home**. Denies IPV. Accepts blood products.

PERTINENT PHYSICAL EXAM FINDINGS

What elements of the patient's physical exam are most relevant?

- General: Well appearing woman, VSS
- CV: RRR
- **Resp: CTAB, good air movement throughout**
- Abd: Soft, ND, NT, appropriately gravid
- **FHR 150s bpm**
- Ext: WWP

ASTHMA

What percentage of pregnancies are affected by asthma?

- **4-8%**

What is the basic pathophysiology of asthma?

- Chronic airway inflammation
- Increased airway responsiveness to a variety of stimuli
- Airway obstruction that is completely or partially reversible

ASTHMA SEVERITY CLASSIFICATION

Table 1. Classification of Asthma Severity and Control in Pregnant Patients

Asthma Severity* (Control†)	Symptom Frequency	Nighttime Awakening	Interference With Normal Activity	FEV_1 or Peak Flow (Predicted Percentage of Personal Best)
Intermittent (well controlled)	2 days per week or less	Twice per month or less	None	More than 80%
Mild persistent (not well controlled)	More than 2 days per week, but not daily	More than twice per month	Minor limitation	More than 80%
Moderate persistent (not well controlled)	Daily symptoms	More than once per week	Some limitation	60–80%
Severe persistent (very poorly controlled)	Throughout the day	Four times per week or more	Extremely limited	Less than 60%

Abbreviation: FEV_1, forced expiratory volume in the first second of expiration

*Assess severity for patients who are not taking long-term-control medications.

†Assess control in patients taking long-term-control medications to determine whether step-up therapy, step-down therapy, or no change in therapy is indicated.

EFFECTS OF PREGNANCY ON ASTHMA

Are there any predictors of the effect of a patient's pregnancy on her asthma control?

- **Her asthma control in prior pregnancies**

What is the likelihood of asthma exacerbation or hospitalization during pregnancy with:

- **Mild asthma**
  - Exacerbation **12.6%**
  - Hospitalization **2.3%**
- **Moderate asthma**
  - Exacerbation **25.7%**
  - Hospitalization **6.8%**
- **Severe asthma**
  - Exacerbation **51.9%**
  - Hospitalization **26.9%**

EFFECTS OF ASTHMA ON PREGNANCY

Can women with mild and well-controlled asthma have excellent maternal and perinatal pregnancy outcomes?

- **Yes**

What are some of the risks of severe and poorly-controlled asthma in pregnancy?

- **Increased prematurity, need for cesarean delivery, preeclampsia, growth restriction**

ASSESSMENT OF WOMEN WITH ASTHMA DURING PRENATAL CARE

What clinical evaluation should be performed at each prenatal visit?

- Subjective assessment of symptoms
- Pulmonary function tests
  - **Spirometry** is preferred method
    - Peak expiratory flow measurement with peak flow meter is sufficient
  - Lung auscultation

MANAGEMENT OF ASTHMA IN PREGNANCY

What is the goal of asthma therapy in pregnancy?

- Maintain adequate oxygenation of the fetus by preventing hypoxemic episodes in the mother

Are asthma medications safe in pregnancy?

- Yes
- Per The National Asthma Education and Prevention Program, **"it is safer for pregnant women with asthma to be treated with asthma medications than it is for them to have asthma symptoms and exacerbations."**

What nonpharmacologic approaches should be used for asthma during pregnancy?

- Avoiding allergens and irritants
  - Tobacco smoke, mold, dust mite, animal dander, cockroaches
- Control GERD
- Correct use of inhalers
- Education by medical provider

STEPWISE PHARMACOTHERAPY FOR ASTHMA DURING PREGNANCY

What is the preferred **inhaled corticosteroid** in pregnancy?

- **Budesonide**

What is the preferred **rescue therapy** in pregnancy?

- **Albuterol**

Step Therapy Medical Management of Asthma During Pregnancy

Mild Intermittent Asthma

- No daily medications, albuterol as needed

Mild Persistent Asthma

- Preferred–Low-dose inhaled corticosteroid
- Alternative–Cromolyn, leukotriene receptor antagonist, or theophylline (serum level 5–12 mcg/mL)

Moderate Persistent Asthma

- Preferred–Low-dose inhaled corticosteroid and salmeterol or medium-dose inhaled corticosteroid or (if needed) medium-dose inhaled corticosteroid and salmeterol
- Alternative–Low-dose or (if needed) medium-dose inhaled corticosteroid and either leukotriene receptor antagonist or theophylline (serum level 5–12 mcg/mL)

Severe Persistent Asthma

- Preferred–High-dose inhaled corticosteroid and salmeterol and (if needed) oral corticosteroid
- Alternative–High-dose inhaled corticosteroid and theophylline (serum level 5–12 mcg/mL) and oral corticosteroid if needed

FETAL SURVEILLANCE

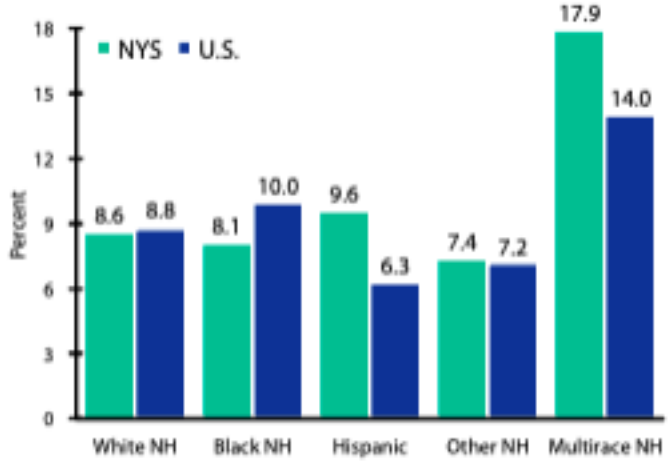
What fetal surveillance should be considered for pregnant women with asthma?

- Serial growth ultrasound and antenatal fetal testing should be considered for women with poorly controlled asthma, moderate-to-severe asthma, or recovering from an asthma exacerbation
  - Starting 32 weeks gestation
- Ensure they are well-dated to facilitate fetal growth assessment throughout pregnancy
- Fetal kick counts

SOCIAL DETERMINANTS OF HEALTH

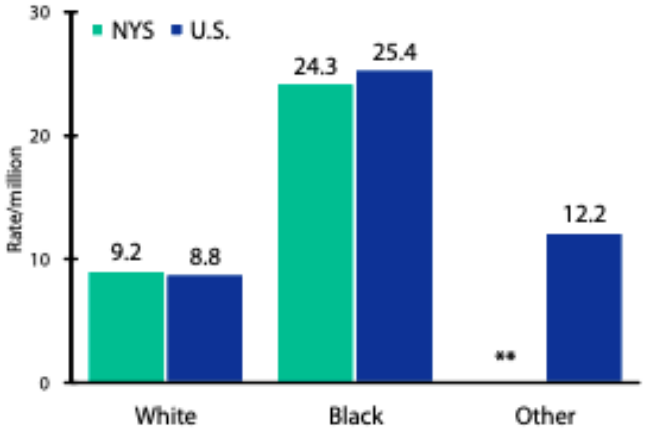
Asthma Deaths

Adult Current Asthma Prevalence by Race/Ethnicity, BRFSS, 2008



Adult current asthma prevalence was similar among all race/ethnic groups when compared with non-Hispanic whites in New York; however, rates were higher among non-Hispanic multirace persons and non-Hispanic blacks throughout the U.S.

Age-Adjusted Asthma Mortality Rate by Race, NVSS, 2007



Asthma was the underlying cause of death for 227 adults and 10 children in New York State[5]. The age-adjusted mortality rate in New York State was 11.4/million and the U.S. rate was 11.0/million[5].
***The estimate is suppressed.*

Black patients are dying from asthma at a rate disproportionate to their prevalence of asthma.

Asthma in New York State. CDC

EPIC .PHRASE

.BBOBASTHMA

Description: Asthma in Pregnancy Counseling

We reviewed the implications of asthma during pregnancy. Their asthma currently is classified as ***. Their current medication regimen is *** and has been managed by ***. Baseline peak expiratory flow is ***.

CODING AND BILLING

Antenatal Testing Counseling

- ICD-10 Codes
  - **099.5**
    - Diseases of the respiratory system complicating pregnancy, childbirth, and puerperium
- CPT Codes
  - **99214**
    - Office or other outpatient visit for the evaluation and management of an established patient, which requires at least two of these three key components:
      - A detailed history; a detailed examination; medical decision making of moderate complexity.
      - Counseling and/or coordination of care with other physicians, other qualified health care professionals, or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs.
      - Usually, the presenting problem(s) are of moderate to high severity.
      - Typically, 25 minutes are spent face-to-face with the patient and/or family.

EVIDENCE

Asthma in New York State. CDC. https://www.cdc.gov/asthma/stateprofiles/asthma_in_nys.pdf. Accessed May 2021.

Asthma in pregnancy. ACOG Practice Bulletin No. 90. American College of Obstetricians and Gynecologists. Obstet Gynecol 2008; 111:457–64.