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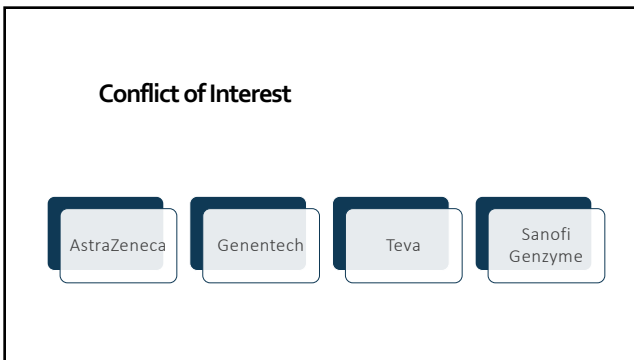
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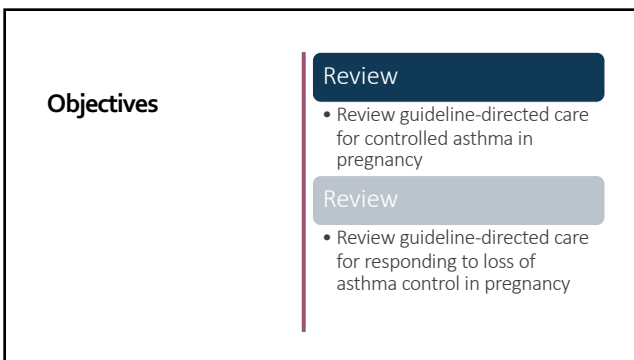
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### Asthma in pregnancy

- One of the most common medical conditions during pregnancy affecting 3-8% of pregnant women
- Pregnancy may be associated with changes in asthma; asthma may affect the outcome of pregnancy
- Concerns about potential risks of asthma medication are generally outweighed by the potential adverse effects of untreated asthma

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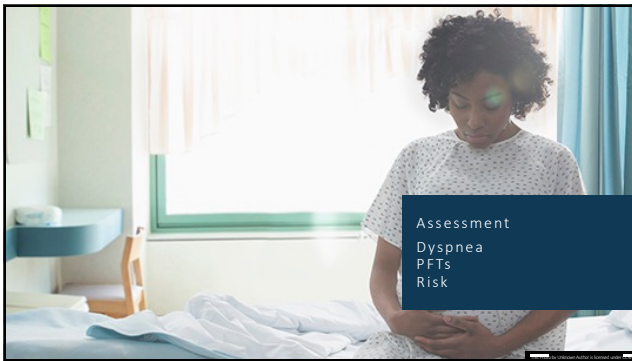
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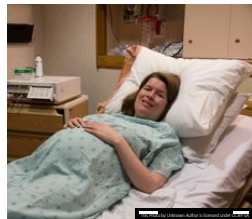
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### Dyspnea

- 2/3rds of women experience
- Usually a physiologic result of pregnancy
- Can be caused by new or underlying cardiac or pulmonary disease
- Dyspnea of pregnancy is an isolated finding



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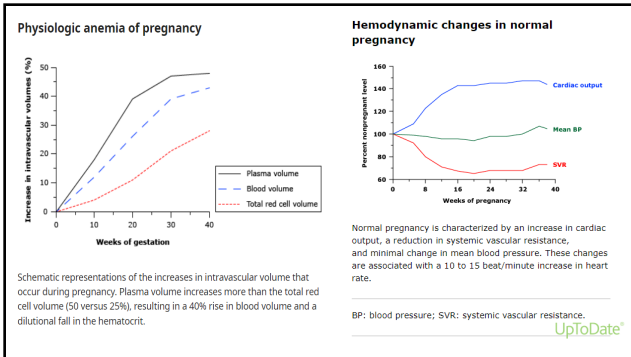
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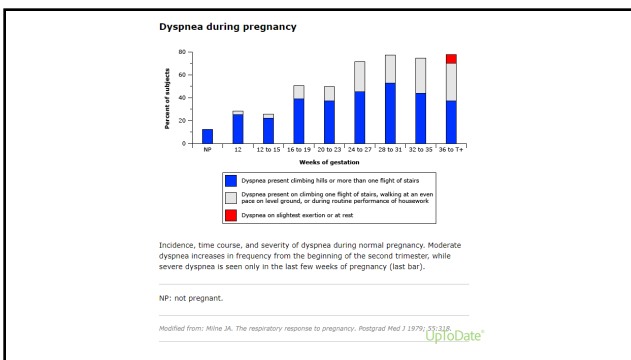
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### PFTs

- Outward flaring of the ribs & enlarging uterus raise the diaphragm up to 4 cm above its usual resting position
- Diaphragmatic excursion during respiration is not impaired and actually increases by up to 2 cm
- Minor changes in VC and TLC occur, but not clinically significant
- Airway function and flow rates are preserved
  - unchanged FEV1
  - unchanged FEV1/FVC ratio

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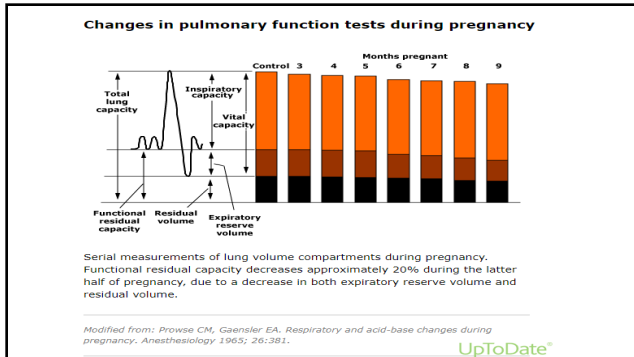
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### Variable course – rules of threes?

<p>Pre-pregnancy severity predicts severity during pregnancy</p>		<p>The course of asthma in successive pregnancies tends to be similar</p>	<p>Robijn AL, Jensen ME, McLaughlin K, et al. Inhaled corticosteroid use during pregnancy among women with asthma: A systematic review and meta-analysis. Clin Exp Allergy 2019; 49:140</p>
	<p>Substantial asthma symptoms uncommon during labor and delivery</p>		<p>ICS use decreased during the first trimester, increased during the second trimester, and decreased again in the third trimester</p>

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### Exacerbation risk

20 – 45% of pregnant women with asthma experience an exacerbations

- 10% experience a severe exacerbations

#### Risk for exacerbation

- Overweight or obese
- Excessive first trimester weight gain [32]
- More common and more severe in women with a previous exacerbation in the 12 months prior to pregnancy
- Difficult to control asthma at baseline
- Smoking during pregnancy

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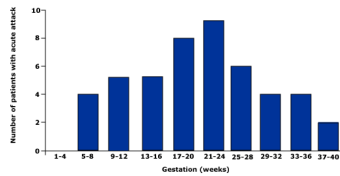
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### Frequency distribution of acute attacks during pregnancy



Asthma attacks during pregnancy were seen most frequently between weeks 17 and 24 of gestation.

Data from Stenius-Aarniala, BSM, Hedman, J, Teramo, KS, Thorax 1996; 51:411



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### ASSESSING DRUG SAFETY IN PREGNANCY

FDA has discontinued use of letter categories

- (1) known or potential maternal or fetal risks
- (2) dose adjustments needed during pregnancy and the postpartum period
- (3) benefit/risk considerations

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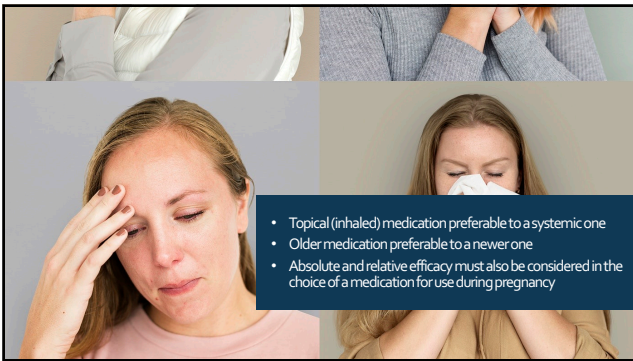
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### Maintaining asthma control

#### ICS

- Budesonide has been the preferred ICS for initiating tx
- Continue ICS if the patient was well-controlled prior to pregnancy

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### Maintaining asthma control

#### Rescue

- Choices include
  - short-acting beta-agonist
  - combination inhaler with formoterol and a low-dose inhaled glucocorticoid

Management of asthma during pregnancy  
Schatz & Weinberger UTD 2022

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### Safety of specific therapies

Salmeterol recommended as the inhaled long-acting beta agonist of choice due to the longer duration of clinical experience

More pregnancy data are available for montelukast than zafirlukast

As the risks of severe uncontrolled asthma include maternal or fetal mortality, these risks are considered to be greater than the potential risk of systemic glucocorticoids

Inhaled ipratropium is felt to be safe for intermittent use during pregnancy; the safety of inhaled tiotropium is uncertain

Management of asthma during pregnancy  
Schatz & Weinberger UTD 2022

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### Safety of specific therapies



- The initiation of subcutaneous or sublingual allergen immunotherapy is not recommended during pregnancy
- The initiation of omalizumab during pregnancy is not recommended
- If a woman becomes pregnant while receiving omalizumab, it is suggested that therapy be continued

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### Prevention of asthma



- For pregnant women whose child is at increased risk of asthma
- Supplementation with high-dose vitamin D
  - 2000 to 4000 IU/day; preferably vitamin D3 in addition to the RDA of 600 IU/day
- Serum 25-hydroxyvitamin D levels may be helpful to guide supplementation

Management of asthma during pregnancy  
Schatz & Weinberger UTD 2022

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