I. RESPIRATORY SYSTEM
   A. Respiratory diseases
      1. Non-infectious

   2. Infectious

   3. Ventilation Drive

B. Respiratory Drugs
   Metered-Dose Inhalers (MDI)
   advantages

   disadvantages

Non-infectious Respiratory Disease Agents
   1. Sympathomimetic Agents (see Chapter 4)
      Mechanism of action:

      Uses:

      ADR’s:

      Drugs:
      short-acting: albuterol, ProAir HFA, Proventil HFA, Ventolin HFA,
      Combivent: (albuterol + ipratropium
      long-acting: Serevent, Advair HFA: (salmeterol + fluticasone)

   2. Corticosteroids (see Chapter 18)
      Mechanism of action

      Uses:

      ADR’s:

      Drugs: fluticasone     (Advair discus, Flonase, Flovent)
               mometasone     (Nasonex)
               budesonide     (Rhinocort, Pulmicort)
               triamcinolone   (Nasacort)
               prednisone
3. Leukotriene Modifiers
   Mechanism of action
   
   Uses:
   ADR’s

   Drugs: montelukast (Singulair), zileutin (Zyflo), zarfirlukast (Accolate)

4. Mast Cell Degranulation Inhibitors
   Mechanism of action
   
   Uses:
   ADR’s

   Drugs: Cromolyn (Nasalcrom) [OTC]

5. Methylxanthines
   Mechanism of action
   
   Uses:
   ADR’s

   Drugs: theophylline, aminophylline

6. Anticholinergics (see Chapter 4)
   Mechanism of action
   
   Uses:
   ADR’s

   Drugs: ipratropium (Atrovent), Combivent (with albuterol), tiotropium (Spiriva)

7. Immune Response Modifiers
   MA:
   
   Uses:
   ADR’s:

   Drugs: omalizumab (Xolair)

Infectious Respiratory Disease Agents

1. Antibacterials
2. Antivirals
3. Antifungals
Lower Respiratory Infectious Agents

1. Nasal decongestants
   MA:

   ADR’s:

   Drugs: (see chapter 4)
   - phenylpropanolamine, pseudoephedrine (Sudafed), phenylephrine (Neo-Synephrine)

2. Expectorants
   MA

   ADR’s

   Drugs: Guaifenesin [OTC]

4. Mucolytics
   MA

   ADR’s

   Drugs: acetylcysteine

5. Antitussives
   MA

   ADR’s

   Drugs: dextromoran, codeine

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**DENTAL IMPLICATIONS of respiratory drugs**

- About 10% of steroid-dependent asthmatics are allergic to sulfites
  (allergy to sulfites is an absolute contraindication to vasoconstrictor)
- pt should bring inhaler to appointment and have ready access to inhaler
  (acute asthmatic attack should be treated with fast-acting β2 agonist)
- look for oral candidiasis with inhaled steroid use
- inhalers (all drugs) can cause xerostomia
- ASA classification of respiratory diseases
Steroid-Dependent Asthma

Definitions:
1. **The Asthma Center** specialists consider you "Steroid Dependent" if you receive corticosteroids in the following manner:

   - frequent, short term **oral** corticosteroid treatment bursts in the past 12 months
   - regular use of high dose **inhaled** corticosteroids in the past 12 months
   - regular use of **injected** long acting corticosteroids
   - daily use of **oral** corticosteroids
   - alternate-day **oral** corticosteroids
   - prolonged use of **oral** corticosteroids in the past year

2. “A practical definition, useful for the clinician, is any patient who requires daily oral steroids (or very high doses of high-potency inhaled steroids) to minimize the frequency of asthma exacerbations. These patients are considered either steroid-dependent (normal pulmonary function maintained only if taking oral steroids) or steroid-resistant (poor pulmonary function despite treatment with oral steroids).”

   from **Severe Steroid-Dependent Asthma: Therapeutic Role of High-Dose Intravenous Immunoglobulin** Nathan Rabinovitch, MD, Erwin W. Gelfand, MD Medscape General Medicine. 2000;2(1) © 2000 Medscape

Examples:
A. **Inhaled Corticosteroids**
   1. beclomethasone (QVAR) 40 mcg/puff 80 mcg / puff
   2. budesonide (Pulmicort) 200 mcg, 250 mcg, 500 mcg
   3. ciclesonide (Alvesco) 80 mcg, 160 mcg
   4. flunisolide (Aerobid) 250 mcg
   5. fluticasone
      MDI: Flovent HFA 44 mcg, 110 mcg, 220 mcg
      DPI: Advair HFA 100 mcg, 250 mcg, 500 mcg
   6. mometasone furoate (Asmanex Twinthaler) 110 mcg, 220 mcg
   7. triamcinolone (Azmacort) 200 mcg

B. **Oral Corticosteroids**
   1. prednisone
   2. prednisolone
   3. dexamethasone
   4. methylprednisolone

C. What is a high dose of inhaled corticosteroid?

<table>
<thead>
<tr>
<th></th>
<th>Beclomethasone</th>
<th>Budesonide</th>
<th>Flunisolide</th>
<th>Fluticasone (MDI)</th>
<th>Fluticasone (DPI)</th>
<th>Triamcinolone</th>
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<tbody>
<tr>
<td>Low dose, for mild,</td>
<td>168 - 504 mcg</td>
<td>200-400 mcg</td>
<td>500 - 1000 mcg</td>
<td>88 - 264 mcg</td>
<td>100 - 300 mcg</td>
<td>400 - 1000 mcg</td>
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<td>persistent asthma</td>
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<tr>
<td>Medium dose, for</td>
<td>504 -840 mcg</td>
<td>400 - 600 mcg</td>
<td>1000 - 2000 mcg</td>
<td>264 - 660 mcg</td>
<td>300 - 600 mcg</td>
<td>1000 - 2000 mcg</td>
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<td>moderate, persistent</td>
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<td><strong>High dose, for</strong></td>
<td><strong>&gt; 840 mcg / day</strong></td>
<td><strong>&gt; 600 mcg/day</strong></td>
<td><strong>&gt; 2000 mcg/day</strong></td>
<td><strong>&gt; 660 mcg/day</strong></td>
<td><strong>&gt; 600 mcg/day</strong></td>
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