

## What's New in Asthma Medications

Produced by the Alabama Department of Public Health  
Video Communications and Distance Learning Division

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## Objectives

- Become familiar with delivery methods for asthma products
- Review medications used to treat asthma in children
- Discuss issues of adherence with medication and provide some helpful suggestions to improve adherence
- Become familiar with how to complete and use an Asthma Action Plan

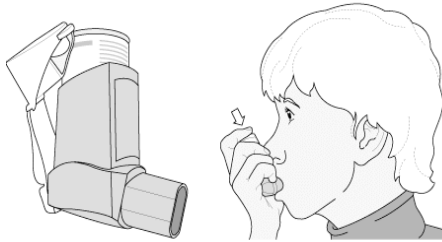
## Delivery Methods



## Only Correctly Used Inhalers Are Effective



## Metered-Dose Inhalers



## Problems With Inhaler Use

- Breathing in before squirting the inhaler
- Holding the medicine in mouth
- Not emptying the lungs before puffing the inhaler

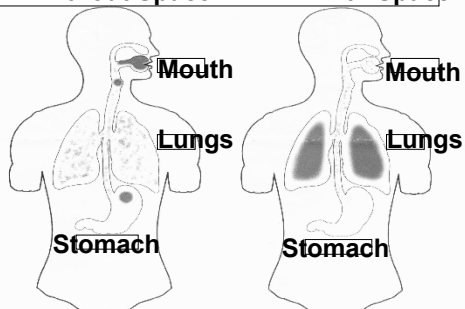
## Spacers



## Why Use a Spacer?

- Easier to use than MDI alone because you don't have to breathe in and press the inhaler simultaneously
- Slows the medicine down – less bad taste
- Reduces particle size

## MDI Without Spacer    MDI With Spacer



## Benefits of Using A Spacer/Chamber Device

## New HFA MDI'S

- Inhalers clog more readily and plastic actuator must be rinsed weekly with warm water for 30 seconds; then allow to air dry
- 4 priming sprays are needed for most
- Requires priming if unused for 2 weeks
- Many expire 2 months after removal from foil package
- Xopenex HFA-Prime inhaler if not used in 3 days

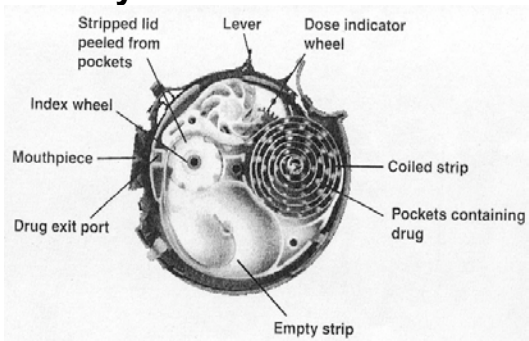
## Breath-Activated Inhalers



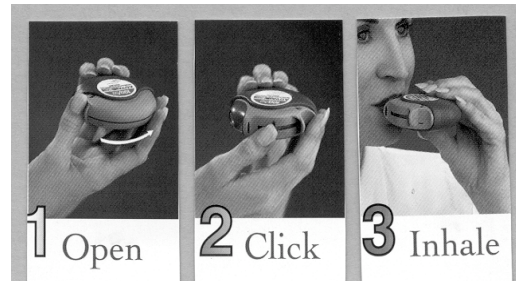
## Dry-Powdered Inhalers



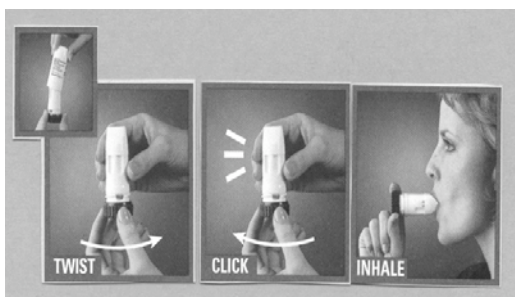
## Dry-Powdered Inhalers



## Diskus (GlaxoSmithKline)



## Turbuhaler (AstraZeneca)



## Nebulized Medications



## Oral Medications



**Asthma is an inflammatory disorder of the airway**

**Asthma is a chronic condition, classified as intermittent or persistent**

### **A Child With Persistent Asthma Has On Average:**

- Daytime symptoms more than twice a week
- Nighttime symptoms more than twice a month

### **Two Main Types of Asthma Medications**

- Quick relief medication
  - Provides immediate, temporary relief of asthma symptoms
  - Relaxes bronchospasms, but does NOT treat the inflammation
- Preventive/controller medications
  - Needed by every child with persistent asthma to reduce the inflammation

### **Examples of Common Preventive/Controller Medicines**

- Intal
- Flovent
- Prednisone – chronic use
- Pulmicort
- Serevent
- Singulair
- Theophylline

### **Inhaled Corticosteroids**

- Flovent, Pulmicort, AeroBid, Azmacort, Vanceril, Beclovent, Q-Var
- Most potent inhaled anti-inflammatory agents
- Early use may prevent airway remodeling

### **Inhaled Corticosteroids**

- Taken chronically every day, not used alone to treat an exacerbation
- Studies show long-term use does not adversely affect child's adult height

### **Inhaled Corticosteroids**

- Variety of delivery choices - DPI, neb, MDI with spacer
- Cost - \$70-140/month, moderate dose
- Should "rinse and spit" after use
- Often under-prescribed . . . very underused

### **Non-Steroidal Anti-Inflammatory Medicine**

- Intal and Tilade (Neb, MDI)
- Less effective than ICS
- Helpful with exercise-induced asthma
- Costly and dosing frequency more difficult - \$100/month

### **Leukotriene Modifiers**

- Leukotrienes are inflammatory mediators-similar to histamine but 1000 greater
- Singulair drug of choice in children (oral)
- May be useful in very mild persistent asthma as monotherapy

### **Leukotriene Modifiers**

- Add-on therapy to ICS to gain better control
- Cost - \$95/month

### **Long-Acting Beta<sub>2</sub> Agonist**

- Serevent, Foradil, Proventil Repetabs (DPI, MDI, oral)
- Add-on therapy to ICS to gain better control
- Especially helpful with nighttime cough
- Should not be used without ICS
- Cost - \$60/month

### **Combined Products**

- Advair (DPI) and (MDI)
  - Combines varying doses of Flovent and Serevent
  - Reduces need for multiple inhalers
  - Cost - \$144/month
- Symbicort (MDI)
  - Combines varying doses of Pulmicort and Foradil

### **Theophylline**

- Not as effective as ICS
- Add on therapy to ICS
- Requires blood monitoring

### **Chronic Use of Oral Steroids**

- Reserved for severe, persistent disease
- Serious side effects with long-term use including:
  - Growth
  - Bone demineralization
  - Cataract formation
  - Glucose intolerance

### **IgE Blocker**

- Omalizumab (Xolair)
- Moderate to serve persistent patients with perennial aeroallergen and whose symptoms are inadequately controlled by ICS
- Subq injection every 2-4 weeks
  - Given by specialist

### **Quick Relief Medications**

- For every child with asthma
- Use on an “as needed” basis
- Add a controller if using quick relief medication more than twice a week

### **Short-Acting Beta<sub>2</sub>-Agonist**

- Albuterol, Ventolin, Proventil, Maxair, Xopenex, (MDI, BAI, neb)
- May prevent exercise-induced asthma if pretreat before exercise
- Xopenex - \$165 for box of 24 nebulizations – no therapeutic benefit over albuterol
- Cost for MDI, BAI - \$30-70

### **Short Course of Oral Steroids**

- Orapred, Pediapred, Prednisone, Medrol (oral)
- Useful in moderate to severe exacerbation
- Regains control quickly
- Cost of 5 day course - \$7.50

### **Anti-Cholinergic Agents**

- Atrovent (MDI or neb)
  - Reserved for ED or hospital setting
- May add benefit to albuterol in a severe exacerbation
- Alternative if unable to tolerate albuterol

### **Complimentary and Alternative Therapies**

- 40% general population use
- Relaxation, vitamin & diet supplements, herbs, acupuncture, and Chiropractic care most common forms
- Should not replace ICS
- Too few studies show a clear benefit
- Be cautious of potential harmful effects

### **Goals for Good Asthma Control**

- No coughing or other asthma symptoms
- Uninterrupted sleep for child and parent
- No missed school or work
- Full participation in play/sports
- No ED visits or hospitalizations for asthma

*“Many patients with poorly controlled asthma are actually poorly compliant.”*

**Jim Sherman, MD**  
Pediatric Pulmonologist  
University of Florida

## Asthma Flares Teaching Points

- Use albuterol at the **FIRST** sign of symptoms
- Use every four hours as needed, but if symptoms are not improving after two days contact your doctor

## Asthma Flares Teaching Points

- Use of a **quick-relief** inhaler more than two times a week on a regular basis (except to pre-treat before exercise) is a sign that asthma is in poor control
- Delaying recognition or treatment of an asthma flare typically increases the length of symptoms

## Peak Flow Monitoring

- Guides the use of a zone system for asthma self-management
- Daily morning measurement recorded in a diary, before any meds
- Predicts early status change, response to therapy, severity in poor perceivers



## Every Person with Persistent Asthma Should Have a Written Management Plan

## Assessing and Improving Adherence

- Families report **80%** adherence with ICS
- Studies range in actual ICS use from **50-15%** adherence
- Patient and family beliefs have the greatest impact on adherence

## Contributing Factors To Non-Adherence In Asthma

- Viewed as episodic, not chronic
- Fear dependence on meds – thought they will outgrow asthma
- Concerns over medication safety
- Cost of medications
- Multiple delivery methods
- View meds as not helping or not needed



## **Keys to Improving Adherence**

- Follow-up is important
- Relationship is important
- Family is important

## **Key Asthma Messages**

- Asthma is serious
- Know your management plan – your medications and symptoms recognition, where and when to get help
- Know your asthma triggers and how to avoid or reduce exposure
- Keep track of your asthma
- See your doctor every 1-6 months for asthma monitoring and annual flu vaccine

## **Steps To Increase Clarity When Providing Asthma Education**

- Make sure verbal instructions are accompanied by written instructions
- Make sure written instructions are reviewed verbally

## **Steps To Increase Clarity When Providing Asthma Education**

- Use short sentences and words with two syllables or less when a lower literacy level is required
- Pay attention to the presentation style (avoid distracting behaviors or behaviors that may decrease credibility)

## **Helpful Suggestions**

- Simplify medication regimen – involve family in decisions and choices
- Use one style of inhalers if possible
- Provide memory aids
- Appreciate monthly costs
- Link success and failures to medication use
- Provide up-to-date, accurate information

## **Resources**

Association of Asthma Educators  
[www.asthmaeducators.org](http://www.asthmaeducators.org)  
1-888-988-7747