

# Drug Class Review on Quick-relief Medications for Asthma



## Update #2: Preliminary Scan Report #1

October 2009

**The purpose of this report is to make available information regarding the comparative effectiveness and safety profiles of different drugs within pharmaceutical classes. Reports are not usage guidelines, nor should they be read as an endorsement of, or recommendation for, any particular drug, use or approach. Oregon Health & Science University does not recommend or endorse any guideline or recommendation developed by users of these reports.**

Oregon Evidence-based Practice Center  
Oregon Health & Science University  
Mark Helfand, MD, MPH, Director

Update scan prepared by Susan Carson, MPH



Copyright © 2009 by Oregon Health & Science University  
Portland, Oregon 97239. All rights reserved.

## OBJECTIVE

The purpose of this preliminary updated literature scan process is to provide the Participating Organizations with a preview of the volume and nature of new research that has emerged subsequent to the previous full review process. Provision of the new research presented in this report is meant only to assist with Participating Organizations' consideration of allocating resources toward a full update of this topic. Comprehensive review, quality assessment and synthesis of evidence from the full publications of the new research presented in this report would follow only under the condition that the Participating Organizations ruled in favor of a full update. The literature search for this report focuses only on new randomized controlled trials, and actions taken by the FDA or Health Canada since the last report. Other important studies could exist.

## Date of Last Report

October 2008 (searches through May 2008).

## Scope and Key Questions

The Oregon Evidence-based Practice Center wrote preliminary key questions, identifying the populations, interventions, and outcomes of interest, and based on these, the eligibility criteria for studies. These key questions were reviewed and revised by representatives of organizations participating in the Drug Effectiveness Review Project (DERP). The participating organizations of DERP are responsible for ensuring that the scope of the review reflects the populations, drugs, and outcome measures of interest to both clinicians and patients. The participating organizations approved the following key questions to guide this review:

1. What is the comparative efficacy and effectiveness of quick-relief medications used to treat outpatients with bronchospasm due to asthma, or to prevent or treat exercise-induced bronchospasm?
2. What is the comparative incidence and severity of adverse events reported from using quick-relief medications to treat outpatients with bronchospasm due to asthma, or to prevent or treat exercise-induced bronchospasm?
3. Are there subgroups of patients for which quick-relief medications used to treat outpatients with bronchospasm due to asthma or to prevent or treat exercise-induced bronchospasm, differ in efficacy, effectiveness, or frequency and severity of adverse events?

## Inclusion criteria

### Populations

1. Adults or children with asthma including those with exercise-induced bronchospasm

### Excluded populations:

1. COPD

2. Acute bronchitis
3. Bronchiectasis
4. Children < 2 years with recurrent or persistent wheezing
5. Cystic fibrosis
6. High-altitude pulmonary edema

### Interventions

1. Inhaled short-acting beta<sub>2</sub>-agonists (SABA)
  - a. Albuterol (salbutamol in Canada) MDI and nebulizer solution
  - b. Levalbuterol (R-albuterol) MDI and nebulizer solution (levalbuterol is not available in Canada)
  - c. Pirbuterol (not available in Canada)
  - d. Terbutaline: available only in Canada
  - e. Fenoterol: available only in Canada
2. Short-acting anticholinergics
  - a. Ipratropium bromide MDI and nebulizer solution
3. Combination products
  - a. Ipratropium bromide with albuterol MDI or ipratropium bromide with albuterol nebulizer solution

### Excluded interventions

1. Systemic corticosteroids
  - a. Prednisone
  - b. Methylprednisolone
  - c. Prednisolone
2. Salmeterol
3. Long-acting anticholinergics: tiotropium
4. Studies where bronchospasm was induced by methacholine, histamine, cold
5. Combination products which include a quick-relief agent and another agent not included in this review
6. Formoterol

### Comparators

1. Head-to-head studies examining the above bronchodilators

### Excluded comparators

1. Comparisons to other drugs or to placebo (to achieve indirect comparisons)

### Outcomes

#### Effectiveness outcomes

1. Symptoms: e.g., cough, wheezing, shortness of breath
2. Change in treatment regimen for the exacerbation
3. Healthcare utilization: length of stay in the ER or other clinical facility, need for re-treatment within 24 hours, hospital admissions, length of hospital stay
4. For exercise induced bronchospasm: exercise tolerance, symptoms
5. Mortality

### Safety outcomes

1. Overall adverse events reported
2. Withdrawals due to adverse events
3. Serious adverse events

### Setting

1. Outpatient settings including urgent care facilities and the emergency room

### Study designs

1. For effectiveness: Head-to-head RCTs or controlled clinical trials with total sample size  $\geq 20$ . No minimum duration of follow-up.
2. For adverse events: Head-to-head RCTs, controlled clinical trials, or observational studies with sample size  $\geq 10$ . No minimum duration of follow-up.

## **METHODS**

### **Literature Search**

To identify relevant citations, we searched Ovid MEDLINE, Ovid MEDLINE Daily Update, and Ovid MEDLINE In-Process & Other Non-Indexed Citations from January 2008 through September Week 3 2009, using terms for included drugs and indications, and limits for humans, English language, and randomized controlled trials or controlled clinical trials. We also searched FDA (<http://www.fda.gov/medwatch/safety.htm>) and Health Canada (<http://www.hc-sc.gc.ca/dhp-mps/medeff/advisories-avis/prof/index-eng.php>) web sites for identification of new drugs, indications, and safety alerts. All citations were imported into an electronic database (EndNote X1) and duplicate citations were removed.

### **Study Selection**

One reviewer assessed abstracts of citations identified from literature searches for inclusion, using the criteria described above.

## **RESULTS**

### **Overview**

Searches resulted in 73 citations. No new trials meeting inclusion criteria were identified.

### **New Drugs/Indications**

No new drugs or indications were identified.

## **New Safety Alerts**

No new safety alerts were identified.