



Clinician Summary Quick Relief Medicines For Asthma June 2011

Based on the DERP report of October 2008

Produced by:
The Health Resources Commission
Office for Oregon Health Policy & Research
1225 Ferry Street SE Salem, OR 97301 Phone: 503.373.1629
HRC.info@state.or.us
<http://www.oregon.gov/OHPPR/HRC/index.shtml>

Asthma, drugs for quick relief Clinician Summary

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Drugs included

Short-acting beta-agonists: albuterol, levalbuterol, pirbuterol

Anticholinergic: ipratropium bromide

Limits of evidence

There were very few studies that met inclusion criteria for medications other than albuterol or levalbuterol. Many studies utilized non-equivalent dosing schedules.

Conclusions

Good evidence: No clinically significant difference in efficacy between levalbuterol and albuterol for adults and children

Harms

Good evidence: No clinically significant difference between levalbuterol and albuterol for adults and children for adverse events.

Special populations

Insufficient evidence: to determine a difference for subgroups for any included medication

Table 1. Pharmacokinetics, indications and dosing of included drugs

Drug: Trade name(s)	How supplied	Pharmacokinetic features	FDA labeled indications	Dosing (inhaled doses)	Dose adjustments for special populations
<i>Short-acting beta-agonists</i>					
Albuterol <i>Ventolin HFA®</i> , <i>Proventil HFA®</i> <i>ProAir HIFA®</i>	Inhalation HFA aerosol powder: 0.09 mg/actuation	Absorption: Time to peak concentration: 25 minutes Elimination half-life: 3-6.5 hours	Asthma, treatment and prophylaxis Exercise-induced asthma, prophylaxis	Asthma, treatment and prophylaxis: 2 inhalations every 4-6 hours or 1 inhalation every 4 hours Exercise-induced asthma, prophylaxis: 2 inhalations 15 minutes before exercise	Pediatric patients: Asthma, treatment and prophylaxis: 4 years and older, 2 inhalations every 4-6 hours or 1 inhalation every 4 hours ProAir HIFA® is not indicated in children < 4 years Exercise-induced asthma, prophylaxis: > 4 years: 2 inhalations 15 to 30 minutes before exercise
Levalbuterol: <i>Xopenex®</i> <i>Xopenex HFA®</i>	Inhalation solution (nebulizer): 0.31 mg/3 mL, 0.63 mg/3 mL, 1.25 mg/3 mL, 1.25 mg/0.5 mL;	Absorption: Time to peak concentration, 12 minutes (inhalation aerosol) Elimination half-life: 4.0 hours (±)	Treatment or prevention of bronchospasm in adults, adolescents and children > 4 years with reversible	Inhalation solution (nebulizer): 0.31 mg/3 mL TID; Inhalation aerosol: 2 inhalations (45 ug/inhalation)	Pediatric patients > 4 years: 2 inhalations every 4-6 hours, 1 inhalation every 4 hours may be sufficient

	Inhalation aerosol: 45 ug/ inhalation	1.1 hour)	obstructive airway disease	every 4-6 hours	
Pirbuterol: <i>Exire®</i> , <i>Maxair®</i>	Inhalation aerosol powder: 0.2 mg/actuation	Elimination half-life: about 2 hours	Asthma	Asthma: 1-2 puffs every 4-6 hours, up to 12 puffs/day	Not FDA-approved in children under 12 years of age
<i>Anticholinergic drugs</i>					
Ipratropium bromide: <i>Atrovent HFA®</i>	Inhalation aerosol: 17 µg delivered per inhalation	Elimination half-life: 2 hours	Aerosol or solution: long-term treatment of bronchospasm associated with COPD, including chronic bronchitis and emphysema	Bronchospasm associated with COPD: 2 puffs, 4 times a day, up to 12 puffs/day	Aerosol and solution not approved for use in children < 12 years
<i>Combination drugs</i>					
Ipratropium bromide and albuterol sulfate: <i>Combivent®</i>	Inhalation aerosol 200 µg inhalation unit: 21 µg of ipratropium bromide and 120 µg of albuterol sulfate per actuation	Ipratropium bromide elimination half-life: 2 hours Albuterol sulfate elimination half-life: 3-6.5 hours	Patients with COPD on a regular aerosol bronchodilator who continue to have evidence of bronchospasm and who require a second bronchodilator	Bronchospasm : 2 inhalations 4 times a day or more as needed up to 12 inhalations in 24 hours	Safety and effectiveness not established in children

Abbreviations: COPD, chronic obstructive pulmonary disease; FDA, United States Food and Drug Administration; HFA, hydrofluoroalkane 134a; MDI, metered dose inhaler.