

WY- DUR

Wyoming Drug Utilization Review Board

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Dear Doctor:

The NAEPP Expert Panel Guidelines for the Diagnosis and Management of Asthma recommends the following for quick relief treatment in all asthma patients 5 years and older:

- *Short-acting bronchodilator: 2–4 puffs short-acting inhaled beta₂-agonists as needed for symptoms.*
- *Intensity of treatment will depend on severity of exacerbation; up to 3 treatments at 20-minute intervals or a single nebulizer treatment as needed. Course of systemic corticosteroids may be needed.¹*

There are currently two short-acting beta₂-agonists available in the United States, albuterol and levalbuterol. Albuterol is a racemic mixture of equal amounts of both R-albuterol and S-albuterol. Levalbuterol is solely the R-albuterol isomer. The R-isomer is the active ingredient that binds to the beta₂ receptor, resulting in a relaxation of the airway smooth muscle and bronchodilation. It may also decrease the asthmatic inflammatory response by inhibiting the activation of mast cells and eosinophils. Conversely, the S-isomer is thought to increase bronchoconstriction and be proinflammatory. Because of this, the dose of levalbuterol is half the mg strength of the racemic albuterol mixture. However, contrary to expectations, use of only the levalbuterol isomer does not lower the frequency of adverse effects. The safety profile of the two drugs is effectively identical and there is no significant clinical difference in the incidence of tachycardia, nervousness, tremor or anxiety.² It is also not clear that levalbuterol offers any advantage in efficacy over racemic albuterol. Studies to defend both sides of the discussion are prolific in the literature but a consensus is not yet clear.³ The cost of the two products differs significantly, as shown in the following table.

Drug (brand name) and select MDI Dosing	Average Wholesale Price (AWP)	Approximate Retail Price
Albuterol (Proventil® & various generics) 90mcg inhaler 6-11 y.o.:1-2 inhalations every four to six hours as needed >12 y.o. 2 inhalations every four to six hours as needed	\$27	\$11
Levalbuterol (Xopenex HFA®) 45mcg inhaler 4 years and older: 2 inhalations (90mcg) every 4 to 6 hours as needed	\$50	\$52

Table Note: While AWP is often used in cost-comparison data, retail price reflects a more realistic comparison of the true price difference. Pricing data provided by Sav-On Pharmacy, Rock Springs, WY, 1-11-06.

Importantly, the Expert Panel Guidelines also state:

- *Use of short-acting beta₂-agonists >2 times a week in intermittent asthma (daily, or increasing use in persistent asthma) may indicate the need to initiate (increase) long-term-control therapy.¹*

Patients who are using their quick-acting inhalers more frequently should be evaluated as candidates for beginning or increasing long-term control medications. While the debate over which short-acting bronchodilator is best continues, true control for asthmatic patients is not achieved with these medications but rather appropriate use of long-term control therapy.

Thank you for your continued dedication to treating pediatric asthmatic patients in Wyoming.

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References

All references are available upon request from Wyoming DUR

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3. Drugs for asthma. *Treatment Guidelines from the Medical Letter.* 2005 May;3(33):33-38.

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