

Long-acting beta agonists in Asthma and COPD

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Long-acting beta agonists (LABA) have been demonstrated to be very effective in the treatment of asthma and chronic obstructive pulmonary disease (COPD). They work through sustained smooth muscle relaxation and are potent bronchodilators. However, monotherapy with a LABA such as salmeterol, formoterol, arformeterol, and indacaterol (the four current FDA-approved products in this class) is not recommended.¹ This is due to the agency's (FDA) meta-analysis which found that use of LABAs was associated with an increased risk of asthma-related hospitalization, intubation and death. Subsequent studies did not find significant increase in risk in a subset of patients who used inhalation corticosteroids (ICS) with a LABA.¹ There is however no evidence that

or COPD patients. In addition to requiring a Black Box Warning on these products (LABA) and their combinations (Advair®, Dulera® and Symbicort®), in April 2011, the agency ordered drug makers to conduct clinical trials involving a total of 53,000 patients to test the safety of these products. The FDA expects to receive results of these trials in 2017. The Global Initiative for Asthma (GINA) 2009 guidelines and the National Heart, Lung, and Blood Institute (NHLBI) 2007 asthma guidelines recommend adding LABAs to patients ≥ 12 years old inadequately controlled on inhaled corticosteroids.^{2,3} Overall, systemic reviews and guidelines consistently demonstrate that adding LABA to ICS in adults and children with persistent asthma will

Points to Remember

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- NEVER use LABAs as first line of therapy
- NEVER use LABAs as monotherapy for long-term asthma control
- Preferred therapy is to combine LABAs with ICS in ages 12 and older for moderate to severe-persistent asthma
- NOT recommended for relief of acute symptoms or exacerbations
- Avoid using combination products prior to trial of inhalation corticosteroids
- Advise patients to have short-acting beta agonists at ALL times for rescue therapy
- Avoid DUPLICATION of LABAs in patients regimens (see table for available products and their contents)

reduce short-acting rescue inhaler use compared to ICS dose escalation.⁴ There is currently no evidence to support the use of LABA/ICS as both maintenance and quick relief treatment as opposed to what was recommended in the SMART (Single inhaler Maintenance And Reliever Therapy) study.⁵

There is however no evidence that supports use of this combination as first line of therapy for asthma or COPD patients.

supports use of this combination as first line of therapy for asthma

improve airway function, asthma symptoms, quality of life, and

Products available in United States (not all inclusive)

Drug	Active Ingredient	Indication	Dosage Forms	Dosage and administration	Common Side Effects
Long-acting Beta-2 Agonists					
Arcapta®	indacaterol maleate	Long-term maintenance bronchodilator treatment of airflow obstruction in patients with COPD, including chronic bronchitis and/or emphysema	Powder for inhalation via Neohaler	75 mcg capsule inhaled orally daily Max = 75 mcg/24 hrs	Post-inhalation cough, nasopharyngitis, headache, nausea, oropharyngeal pain, etc.
Brovana®	aformoterol tartrate	Long-term maintenance treatment of bronchoconstriction in patients with COPD including chronic bronchitis and/or emphysema	Solution in ready-to-use vials used via nebulizer	15 mcg via nebulization twice daily (morning and evening) Max = 30 mcg/day	Chest pain, back pain, diarrhea, sinusitis, leg cramps, dyspnea, etc.
Foradil®	formoterol fumarate	Treatment of asthma and prevention of exercise-induced bronchospasm (EIB) in patients ≥ 5 years. Maintenance treatment of bronchospasm in patients with COPD	Capsule with dry powder for oral inhalation	12 mcg inhaled every 12 hours	Viral infection, bronchitis, dyspnea, chest pain, tremor, dizziness, etc.
Perforomist® inhalation solution			Solution for oral inhalation	20mcg inhaled via nebulizer every 12 hours	
Serevent®	salmeterol	For the maintenance treatment of asthma and COPD. For the prevention of exercise-induced bronchospasm (EIB)	Diskus for oral inhalation	50 mcg (1 inhalation) twice daily EIB: 1 inhalation 30 minutes before exercise	Headache, nasal congestion, bronchitis, influenza, asthma, etc.
Combination (LA Beta-2 Agonist + Corticosteroid)					
Advair®	salmeterol and fluticasone	Maintenance treatment of asthma in patients 4 years and older Maintenance treatment of airflow obstruction and reducing exacerbations in patients with COPD	Diskus (powder) for oral inhalation HFA – inhalation aerosol	Diskus: 50/100, 50/250, 50/500* twice daily HFA: 21/45, 21/115, 21/230 (2 inhalations twice daily (asthma only))	Upper respiratory tract infection, pharyngitis, headache, throat irritation, musculoskeletal pain, etc.
Dulera®	mometasone and formoterol	Treatment of asthma patients 12 years of age and older	Inhalation aerosol	2 inhalations twice daily Max = mometasone 800 mcg/formoterol 20 mcg per day	Nasopharyngitis, headache, sinusitis, oral candidiasis, angiodema
Symbicort®	budesonide and formoterol	Treatment of asthma patients 12 years of age and older. Maintenance treatment of airflow obstruction in patients with COPD including chronic bronchitis and emphysema	Metered dose inhaler	80/4.5, 160/4.5** 2 inhalations twice daily Max = 640/18/day	Headache, nasopharyngitis, upper resp. infection, pharyngolaryngeal pain, etc.
*Advair Diskus® 50/500 not recommended in the treatment of COPD					
**Symbicort® 320/9 dose limit for COPD					

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