

The Medical Letter®

on Drugs and Therapeutics

Inhaled Long-Acting Bronchodilators for Treatment of COPD

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Inhaled Long-Acting Bronchodilators for Treatment of COPD					
Drug	Some Formulations	Delivery Device ¹	Usual Adult Dosage	Comments ^{2,3}	Cost ⁴
Long-Acting Antimuscarinic Agents (LAMAs)⁵					
Aclidinium – <i>Tudorza Pressair</i> (AstraZeneca)	400 mcg/inh	DPI (30, 60 inh/unit)	1 inh bid	<ul style="list-style-type: none"> ▶ Regular treatment with a long-acting bronchodilator (LAMA or LABA) is recommended for patients who have moderate to severe dyspnea or symptoms, or who are at increased risk for exacerbations ▶ Can be combined with a LABA ▶ May be more effective in preventing exacerbations than LABAs in patients with moderate to very severe COPD ▶ Most common adverse effect is dry mouth ▶ ISIs do not depend on the strength of breath intake to deliver drug to the lungs ▶ DPIs require ability to perform rapid, deep inhalation ▶ HFA MDIs require hand-breath coordination ▶ <i>Seebri Neohaler</i> and <i>Spiriva Handihaler</i> are supplied with capsules for inhalation, which should not be swallowed; insertion of capsules into the device may be difficult for some patients ▶ Assembly of <i>Respimat</i> inhaler may be difficult for some patients ▶ Doses may be wasted if <i>Ellipta</i> inhaler is opened/closed accidentally 	\$341.50
Glycopyrrolate – <i>Seebri Neohaler</i> (Sunovion) <i>Lonhala Magnair</i> (Sunovion)	15.6 mcg/cap 25 mcg/mL soln	DPI (6, 60 inh/unit) <i>Magnair</i> nebulizer	1 inh bid 25 mcg bid administered over a period of 2-3 minutes		394.20 566.40
Tiotropium – <i>Spiriva Handihaler</i> (Boehringer Ingelheim)	18 mcg/cap	DPI (5, 30, 90 inh/unit)	18 mcg once/d (two inh of the contents of one capsule)		397.70
<i>Spiriva Respimat</i> (Boehringer Ingelheim)	2.5 mcg/inh	ISI (60 inh/unit)	2 inh once/d		397.70
Umeclidinium – <i>Incruse Ellipta</i> (GSK)	62.5 mcg/inh	DPI (7, 30 inh/unit)	1 inh once/d		324.10
Long-Acting Beta₂-Agonists (LABAs)					
Arformoterol – <i>Brovana</i> (Sunovion)	15 mcg/2 mL soln	Nebulizer ⁶	15 mcg bid	<ul style="list-style-type: none"> ▶ Regular treatment with a long-acting bronchodilator (LAMA or LABA) is recommended for patients who have moderate to severe dyspnea or symptoms, or who are at increased risk for exacerbations ▶ Can be combined with a LABA ▶ Adverse effects include: tachycardia, palpitations, prolongation of the QT interval, hypokalemia, skeletal muscle tremors and cramping, headache, insomnia, and increases in serum glucose concentrations. Tolerance can develop with continued use. ▶ ISIs do not depend on the strength of breath intake to deliver drug to the lungs ▶ DPIs require ability to perform rapid, deep inhalation ▶ <i>Arcapta Neohaler</i> is supplied with capsules for inhalation, which should not be swallowed; insertion of capsules into the device may be difficult for some patients 	970.80
Indacaterol – <i>Arcapta Neohaler</i> (Sunovion)	75 mcg/cap	DPI (30 inh/unit)	1 inh once/d		257.70
Olodaterol – <i>Striverdi Respimat</i> (Boehringer Ingelheim)	2.5 mcg/inh	ISI (60 inh/unit)	2 inh once/d		196.10
Salmeterol – <i>Serevent Diskus</i> (GSK)	50 mcg/blister	DPI (28, 60 inh/unit)	1 inh bid		376.20
Formoterol – <i>Perforomist</i> (Mylan)	20 mcg/2 mL soln	Nebulizer ⁶	20 mcg bid		972.00
Long-Acting Antimuscarinic Agent/Long-Acting Beta₂-Agonist Combinations (LAMA/LABA Combinations)					
Glycopyrrolate/formoterol – <i>Bevespi Aerosphere</i> (AstraZeneca)	9 mcg/4.8 mcg/inh	HFA MDI (120 inh/unit)	2 inh bid	<ul style="list-style-type: none"> ▶ Recommended for patients with moderate to severe dyspnea or symptoms who are at increased risk for exacerbations and in those inadequately controlled on a single agent ▶ Combination therapy can improve lung function and reduce symptoms, and may decrease exacerbation rates ▶ In patients who are at risk of exacerbations, a LAMA/LABA combination appears to be more effective than an ICS/LABA combination in reducing exacerbations ▶ HFA MDIs require hand-breath coordination ▶ ISIs do not depend on the strength of breath intake to deliver drug to the lungs ▶ DPIs require ability to perform rapid, deep inhalation ▶ <i>Utibron Neohaler</i> is supplied with capsules for inhalation, which should not be swallowed; insertion of capsules into the device may be difficult for some patients ▶ Assembly of <i>Respimat</i> inhaler may be difficult for some patients ▶ Doses may be wasted if <i>Ellipta</i> inhaler is opened/closed accidentally 	354.70
Glycopyrrolate/indacaterol – <i>Utibron Neohaler</i> (Sunovion)	15.6 mcg/27.5 mcg/cap	DPI (60 inh/unit)	1 inh bid		367.20
Tiotropium/olodaterol – <i>Stiolto Respimat</i> (Boehringer Ingelheim)	2.5 mcg/2.5 mcg/inh	ISI (60 inh/unit)	2 inh once/d		368.20
Umeclidinium/vilanterol – <i>Anoro Ellipta</i> (GSK)	62.5 mcg/25 mcg/inh	DPI (7, 30 inh/unit)	1 inh once/d		397.70

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Inhaled Long-Acting Bronchodilators for Treatment of COPD (continued)					
Drug	Some Formulations	Delivery Device ¹	Usual Adult Dosage	Comments ^{2,3}	Cost ⁴
Inhaled Corticosteroid/Long-Acting Beta₂-Agonist Combinations (ICS/LABA Combinations)					
Fluticasone propionate/salmeterol – <i>Advair Diskus</i> ⁷ (GSK)	100, 250, 500 mcg/ 50 mcg/blister	DPI (28, 60 inh/unit)	250/50 mcg bid	<ul style="list-style-type: none"> ▶ Corticosteroids do not slow progression of COPD or reduce mortality; they should not be used as monotherapy ▶ An ICS plus a LABA improves lung function and reduces exacerbations ▶ In patients who are at risk of exacerbations, a LAMA/LABA combination appears to be more effective than an ICS/LABA combination in reducing exacerbations ▶ Addition of an ICS is recommended for patients with severe COPD who experience frequent exacerbations despite treatment with a LAMA plus a LABA 	\$393.90
<i>Advair HFA</i> ⁸ (GSK)	45, 115, 230 mcg/ 21 mcg/inh	HFA MDI (60, 120 inh/unit)	2 inh bid		518.10 ⁹
<i>AirDuo Respiclick</i> ⁸ (Teva)	55, 113, 232 mcg/ 14 mcg/inh	DPI (60 inh/unit)	1 inh bid		302.10
Fluticasone furoate/vilanterol – <i>Breo Ellipta</i> ¹⁰ (GSK)	100, 200 mcg/25 mcg/inh	DPI (14, 30 inh/unit)	1 inh once/d	<ul style="list-style-type: none"> ▶ Rinse mouth after inhalation ▶ HFA MDIs require hand-breath coordination ▶ DPIs require ability to perform rapid, deep inhalation ▶ Doses may be wasted if <i>Ellipta</i> inhaler is opened/closed accidentally 	341.00
Budesonide/formoterol – <i>Symbicort</i> ¹¹ (AstraZeneca)	80, 160 mcg/4.5 mcg/inh	HFA MDI (60, 120 inh/unit)	2 inh bid		327.20
<p>DPI = dry powder inhaler; HFA = hydrofluoroalkane; inh = inhalation; ICS = inhaled corticosteroid; ISI = inhalation spray inhaler; LABA = long-acting beta₂-agonist; LAMA = long-acting antimuscarinic agent; MDI = metered-dose inhaler</p> <p>1. All patients should be assessed for proper inhalation technique. 2. Drugs for COPD. Med Lett Drugs Ther 2017; 59:57. 3. GOLD 2017 global strategy for the diagnosis, management and prevention of COPD. Available at www.goldcopd.org. Accessed February 14, 2018. 4. Approximate WAC for 30 days' treatment at the lowest usual adult dosage. WAC = wholesaler acquisition cost or manufacturer's published price to wholesalers; WAC represents a published catalogue or list price and may not represent an actual transactional price. Source: AnalySource® Monthly. February 5, 2018. Reprinted with permission by First Databank, Inc. All rights reserved. ©2018. www.fdbhealth.com/policies/drug-pricing-policy. 5. Also called inhaled long-acting anticholinergics. 6. Nebulized solutions may be used for very young, very old, and other patients unable to use oral inhalers. More time is required to administer the drug and the device may not be portable. Nebulizers and nebulized medications may be covered as durable medical equipment (DME) under Medicare part B. 7. Only the 250/50 mcg dose is FDA-approved for use in COPD. 8. Not FDA-approved for treatment of COPD. 9. Cost for an inhaler containing 230 mcg fluticasone propionate and 21 mcg salmeterol. 10. Only the 100/25 mcg dose is FDA-approved for use in COPD. 11. Only the 160/4.5 mcg dose is FDA-approved for use in COPD.</p>					