

CHRONIC OBSTRUCTIVE PULMONARY DISEASE TREATMENTS

Risk Factors: genetic factors, exposure to particles (tobacco smoke, occupational dusts, outdoor air pollution), oxidative stress, respiratory infections, nutrition, comorbidities.

Classification

• Stage 1: Mild – FEV₁/FVC < 0.70; FEV₁ ≥ 80% predicted.

• Stage 2: Moderate – FEV₁/FVC < 0.70; 50% ≤ FEV₁ < 80% predicted.

• Stage 3: Severe – FEV₁/FVC < 0.70; 30% ≤ FEV₁ < 50% predicted.

• Stage 4: Very Severe – FEV₁/FVC < 0.70; FEV₁ < 30% predicted or FEV₁ < 50% predicted + CRF.

Step-wise treatment: Visit the Global Initiative for Chronic Obstructive Lung Disease (GOLD) website at www.goldcopd.org for information about use of medications at various stages of COPD.

| Generic | Brand | Form | Usual Dosage |
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BRONCHODILATORS

Long-Acting Beta₂-Agonists (LABAs)

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| arformoterol | Brovana ¹ | soln | Adults: Inhale 15mcg twice daily (AM & PM) by nebulization (max: 30mcg/day). Use standard jet nebulizer with air compressor (see full labeling). Children: Not established. |
| formoterol | Perforomist ¹ | soln | Adults: Inhale one 20mcg vial twice daily (AM & PM) by nebulization. Use standard jet nebulizer and air compressor. Children: Not established. |
| indacaterol | Arcapta Neohaler ¹ | caps | Adults: 1 inh of one 75mcg caps once daily, using Neohaler device. Do not swallow caps. Children: Not established. |
| olodaterol | Striverdi Respimat ¹ | MDI | Adults: 2 inh once daily; max 2 inh/24hrs Children: Not established. |
| salmeterol | Serevent Diskus ² | DPI | Adults: 1 inh (50mcg) twice daily (approx. 12hrs apart) Children: Not established. |

Short-Acting Anticholinergics

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| ipratropium bromide | — ¹ | soln | Adults: 500mcg by oral nebulization 3–4 times daily every 6–8hrs Children: Not established. |
| | Atrovent HFA ¹ | MDI | Adults: 2 inh 4 times daily (max: 12 inh/day) Children: Not established. |

Long-Acting Anticholinergics

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| acclidinium bromide | Tudorza Pressair ¹ | DPI | Adults: 1 inh (400mcg) twice daily (approx. 12hrs apart) Children: Not established. |
| glycopyrrolate | Lonhala Magnair ¹ | soln | Adults: 1 oral inh of one 25mcg vial twice daily (AM & PM), using Magnair device Children: Not established. |
| | Seebri Neohaler ¹ | caps | Adults: 1 oral inh of one 15.6mcg caps twice daily (AM & PM), using Neohaler device. Children: Not established. |
| revefenacin | Yupelri ¹ | soln | Adults: 1 oral inh of one 175mcg vial once daily using a mouthpiece. Use standard jet nebulizer with air compressor. Children: Not established. |
| tiotropium bromide | Spiriva HandiHaler ¹ | caps | Adults: 2 inh of one 18mcg caps once daily, using HandiHaler device. Max: 2 inh/24hrs. Children: Not established. |
| | Spiriva Respimat | MDI | Adults: 2 inh of 2.5mcg/actuation (5mcg) once daily; max: 2 inh/24hrs Children: Not established. |
| umeclidinium | Incruse Ellipta ¹ | DPI | Adults: 1 inh every 24hrs Children: Not established. |

Anticholinergic + Beta₂-Agonist

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| ipratropium bromide + albuterol | — ¹ | soln | Adults: ≥18yrs: 1 vial 4–6 times daily via nebulizer Children: <18yrs: Not established. |
| | Combivent Respimat ¹ | MDI | Adults: 1 inh 4 times daily (max: 6 inh/day) Children: Not established. |

Anticholinergic + Long-Acting Beta₂-Agonist (LABA)

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| acclidinium bromide/ formoterol | Duaklir Pressair ^{1,2} | dry pwd | Adults: 1 inh twice daily (AM & PM); max 1 inh twice daily Children: Not established. |
| | Bevespi Aerosphere ^{1,2} | MDI | Adults: 2 inh twice daily (AM & PM); max 2 inh twice daily Children: Not established. |
| glycopyrrolate + indacaterol | Utibron Neohaler ^{1,2} | caps | Adults: 1 oral inh of one 27.5mcg/15.6mcg caps twice daily (AM & PM), using Neohaler device. Do not swallow caps. Children: Not established. |
| tiotropium + olodaterol | Stiolto Respimat ¹ | MDI | Adults: 2 inh once daily (max: 2 inh/24hrs) Children: Not established. |
| umeclidinium + vilanterol | Anoro Ellipta ^{1,2} | DPI | Adults: 1 inh once daily Children: Not established. |

CORTICOSTEROIDS

Corticosteroid + Long-Acting Beta₂-Agonist (LABA)

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| budesonide + formoterol | Symbicort 160/4.5 ² | MDI | Adults: 2 inh of 160/4.5mcg twice daily (approx. 12hrs apart) Children: Not indicated. |
| fluticasone + salmeterol | Advair 250/50 Diskus ^{2,3} | DPI | Adults: 1 inh of 250/50mcg twice daily (approx. 12hrs apart) Children: Not established. |
| | Wixela Inhub ² | DPI | Adults: 1 inh of 250/50mcg twice daily (approx. 12hrs apart) Children: Not established. |
| fluticasone + vilanterol | Breo Ellipta ² | DPI | Adults: 1 inh of 100/25mcg once daily (max) Children: ≤17yrs: Not established. |

Corticosteroid + Anticholinergic + Long-Acting Beta₂-Agonist (LABA)

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| fluticasone + umeclidinium + vilanterol | Trelegy Ellipta ^{1,2} | DPI | Adults: 1 inh once daily (max) Children: Not established. |
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OTHER

PDE4-Inhibitor

| | | | |
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| roflumilast | Daliresp ^{1,2} | tabs | Adults: One 500mcg tab once daily Children: Not established. |
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NOTES

Key: CRF = chronic respiratory failure; DPI = dry powder inhaler; FEV₁ = forced expiratory volume in one second; FVC = forced vital capacity; MDI = metered dose inhaler

¹Indicated only for COPD. ²Not indicated for the relief of acute bronchospasm. ³Only Advair 250/50 Diskus twice daily is approved for maintenance treatment of COPD because an efficacy advantage of the higher strength Advair 500/50 over Advair 250/50 has not been demonstrated. Other strengths and formulations of Advair are available.

Not an inclusive list of medications and/or official indications. Please see drug monograph at www.eMPPr.com and/or contact company for full drug labeling.

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