

CHRONIC OBSTRUCTIVE PULMONARY DISEASE TREATMENT

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

BRONCHODILATORS

Long-Acting Beta₂-Agonists (LABAs)

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.
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

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

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

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)

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.
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)

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)

budesonide + glycopyrrolate + formoterol	Breztri Aerosphere ^{1,2}	MDI	Adults: 2 inh twice daily (AM & PM); max 2 inh twice daily Children: Not established.
	Trelegy Ellipta ²	DPI	Adults: 1 inh of 100/62.5/25mcg once daily (max) Children: Not established.

OTHER

PDE4-Inhibitor

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.eMPR.com and/or contact company for full drug labeling.

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