









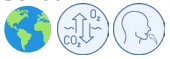

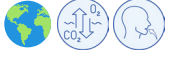

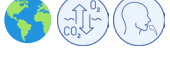






























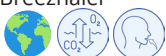

Inhaled medications for chronic obstructive pulmonary disorder (COPD)



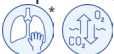



The following medications are indicated for the treatment of COPD. The long-acting beta2-agonists (LABA) formoterol fumarate (Foradil®) and indacaterol (Onbrez®) were previously indicated but are no longer on the market in Canada.

Medication	Brand name(s)	Device(s)	Delivery mechanism	Coverage and cost for usual dose (\$/100 days)	Dosing (Recommended dose is the maximum dose unless otherwise noted)
Short-acting beta2-agonist (SABA)					
Side effects of all SABA: Tremor, nervousness, hypokalemia, tachycardia, palpitations, irritability, restlessness, flushing					
<i>salbutamol</i>	Airomir® Ventolin®	Diskus®  MDI  HFA  <i>*(use spacer if poor coordination)</i> Nebules (eliminates need for quick deep voluntary inhalation)	DPI IA ISLN	NIHB: ✓ ODB: ✓ (excludes Diskus® and 0.5mg/mL Nebules) LU: 267/268 for Nebules \$20-30 (Diskus/HFA) \$165-305 (Nebules)	Diskus® (200mcg/actuation): 1 actuation inhaled TID or QID PRN Max dose: 4 actuations (800mcg)/day HFA (100mcg/actuation): 1-2 puffs inhaled TID or QID PRN Max dose: 8 actuations (800mcg)/day Nebules: 2.5-5mg inhaled QID PRN Max dose: 4 doses/day
<i>terbutaline</i>	Bricanyl®	Turbuhaler® 	DPI	NIHB: ✓ ODB: ✓ \$30-65	Turbuhaler® (0.5mg/actuation): 1 actuation inhaled q4-6h PRN Max dose: 6 actuations/day
Short-acting muscarinic antagonist (SAMA)					
Side effects of all SAMA: Dry mouth, bitter/metallic taste, mydriasis, glaucoma (precipitation or worsening), urinary retention, tachycardia, hypotension, palpitations					
<i>ipratropium</i>	Atrovent® 	MDI Nebules (eliminates need for quick deep voluntary inhalation)	IA ISLN	NIHB: ✓ ODB: ✓ \$30-65	MDI (20mcg/actuations): 2 - 4 actuations inhaled q6-8h Max dose: 12 actuations/day Nebules: 250 – 500mcg inhaled TID or QID Max dose: 2000mcg /day (unless under medical supervision)
Short-acting muscarinic antagonist/Short-acting beta2-agonist (SAMA/SABA)					
<i>ipratropium/salbutamol</i>	Combivent® 	Respimat®  <i>*(use spacer if poor coordination)</i> Nebules (eliminates need for quick deep voluntary inhalation)	SMI ISLN	NIHB: ✓ ODB: ✓ (excludes Respimat®) LU: 267/268 for Nebules \$350-530 (Nebules) \$120-180 (Respimat)	Respimat® (20/100mcg per actuation): 1 actuation inhaled QID Max dose: 6 actuations/day Nebules (0.5/2.5mg per 2.5mL): 2.5mL inhaled q6h PRN Max dose: 6 doses/day

Medication	Brand name(s)	Device(s)	Delivery mechanism	Coverage and cost for usual dose (\$/100 days)	Dosing (Recommended dose is the maximum dose unless otherwise noted)
Long-acting beta2-agonist (LABA)					
Side effects of all LABA: Tremor, nervousness, hypokalemia, tachycardia palpitations					
<i>formoterol</i>	Oxeze®	Turbuhaler® 	DPI	NIHB: ✓ ODB: ✓ LU: 132 (asthma) \$137-180	Turbuhaler® (6 or 12mcg/actuation): 1 actuation inhaled q12h Max dose: 48mcg/day
<i>salmeterol</i>	Serevent®	Diskus® 	DPI	NIHB: ✓ ODB: ✓ LU: 132 (asthma) LU: 391 (COPD) \$267	Diskus® (50mcg/actuation): 1 actuation inhaled BID Max dose: Same as above dosing
Long-acting muscarinic antagonist (LAMA)					
Side effects of all LAMA: Dry mouth, metallic taste, mydriasis, glaucoma if released into eye, urinary retention					
<i>aclidinium</i>	Tudorza® 	Genuair® 	DPI	NIHB: ✓ ODB: ✓ \$206	Genuair® (400mcg/actuation): 1 actuation inhaled BID Max dose: Same as above dosing
<i>glycopyrronium</i>	Seebri® 	Breezhaler® 	DPI-C	NIHB: ✓ ODB: ✓ \$206	Breezhaler® (50mcg/capsule): 1 capsule inhaled once daily Max dose: Same as above dosing
<i>tiotropium</i>	Spiriva® 	HandiHaler®  Respimat®  <i>*(use spacer if poor coordination)</i>	DPI-C SMI	NIHB: ✓ ODB: ✓ \$206	HandiHaler® (18mcg/capsule): 1 capsule inhaled once daily Respimat® (2.5mcg/actuation): 2 actuation inhaled once daily Max dose: Same as above dosing
<i>umeclidinium</i>	Incruse® 	Ellipta® 	DPI	NIHB: ✓ ODB: ✓ \$189	Ellipta® (62.5mcg/actuation): 1 actuation inhaled once daily Max dose: Same as above dosing
Inhaled corticosteroid/Long-acting beta2-agonist (ICS/LABA)					
Dual-agent ICS/LABA products are NOT indicated as first-line options for the treatment of COPD. However, these products may be used in tandem with LAMA.					
<i>budesonide/formoterol</i>	Symbicort® 	Turbuhaler® 	DPI	NIHB: ✓ ODB: ✓ \$140-350	Turbuhaler® (100/6mcg or 200/6mcg per actuation): 2 actuation inhaled BID Max dose: 8 actuation/day

Medication	Brand name(s)	Device(s)	Delivery mechanism	Coverage and cost for usual dose (\$/100 days)	Dosing (Recommended dose is the maximum dose unless otherwise noted)
Inhaled corticosteroid/Long-acting beta2-agonist (ICS/LABA)					
Dual-agent ICS/LABA products are NOT indicated as first-line options for the treatment of COPD. However, these products may be used in tandem with LAMA.					
<i>fluticasone propionate/ salmeterol</i>	Advair®  (Diskus only) Wixela®	Diskus®  INHUB®  MDI  <i>*(use spacer if poor coordination)</i>	DPI DPI IA	NIHB: ✓ ODB: ✓ \$161-268 (Diskus®, INHUB®) \$229-634 (MDI)	Diskus®, INHUB® (100/50mcg, 250/50mcg or 500/50mcg per actuation): 1 actuation inhaled BID MDI (125/25mcg or 250/25mcg per actuation): 2 actuations inhaled BID Max dose: 1000/100mcg per day
<i>fluticasone/vilanterol</i>	Breo® 	Ellipta® 	DPI	NIHB: ✓ ODB: ✓ LU: 330 (asthma) LU: 456 (COPD) \$229-634	Ellipta® (100/25mcg or 200/25mcg per actuation): 1 actuation inhaled once daily Max dose: Same as above dosing
<i>mometasone/formoterol</i>	Zenhale® 	MDI  <i>*(use spacer if poor coordination)</i>	DPI	NIHB: ✓ ODB: ✓ LU: 330 (asthma) \$209-494	MDI (100/5mcg or 200/5mcg per actuation): 2 actuations inhaled BID Max dose: Same as above dosing
<i>mometasone/indacaterol</i>	Atecura® 	Breezhaler® 	DPI-C	NIHB: ✓ ODB: ✓ LU: 626 (asthma) \$125-208	MDI (80/150mcg, 160/150mcg or 320/150mcg per capsule): 1 capsule inhaled daily Max dose: Same as above dosing
Long-acting muscarinic antagonist/Long-acting beta2-agonist (LAMA/LABA)					
<i>aclidinium/formoterol</i>	Duaklir® 	Genuair® 	DPI	NIHB: ✓ ODB: ✓ LU: 459 (COPD) \$235	Genuair® (400/12mcg per actuation): 1 actuation inhaled BID Max dose: Same as above dosing
<i>glycopyrronium/indacaterol</i>	Ultibro® 	Breezhaler® 	DPI-C	NIHB: ✓ ODB: ✓ LU: 459 (COPD) \$288	Breezhaler® (50/110mcg per capsule): 1 capsule inhaled once daily Max dose: Same as above dosing
Long-acting muscarinic antagonist/Long-acting beta2-agonist (LAMA/LABA)					
<i>tiotropium/olodaterol</i>	Inspiroto® 	Respimat®  <i>*(use spacer if poor coordination)</i>	SMI	NIHB: ✓ ODB: ✓ LU: 459 (COPD) \$241	Respimat® (2.5/2.5mcg per actuation): 2 actuations inhaled once daily Max dose: Same as above dosing

Medication	Brand name(s)	Device(s)	Delivery mechanism	Coverage and cost for usual dose (\$/100 days)	Dosing (Recommended dose is the maximum dose unless otherwise noted)
Long-acting muscarinic antagonist/Long-acting beta2-agonist (LAMA/LABA)					
<i>umeclidinium/vilanterol</i>	Anoro® 	Ellipta® 	DPI	NIHB: ✓ ODB: ✓ LU: 459 (COPD) \$327	Ellipta® (62.5/25mcg per actuation): 1 actuation inhaled once daily Max dose: Same as above dosing
Inhaled corticosteroid/Long-acting muscarinic antagonist/Long-acting beta2-agonist (ICS/LAMA/LABA)					
<i>fluticasone furoate/umeclidinium/vilanterol</i>	Trelegy® 	Ellipta® 	DPI	NIHB: ✓ (excludes 200/62.5/25mcg) ODB: ✓ (excludes 200/62.5/25mcg) LU: 567 (Indefinite) \$229-634	Ellipta® (100/62.5/25 mcg per actuation): 1 actuation inhaled once daily Max dose: Same as above dosing
<i>budesonide/glycopyrronium/formoterol</i>	Breztri® 	Aerosphere®  <i>*(use spacer if poor coordination)</i>	MDI	NIHB: ✓ ODB: ✓ LU: 638 (Indefinite) \$466	Aerosphere® (182/5.8/8.2mcg per actuation): 2 actuations inhaled BID
<i>mometasone/glycopyrronium/indacaterol</i>	Enerzair® 	Breezhaler® 	DPI-C	NIHB: ✓ ODB: ✓ LU: 627 (asthma) \$379	Breezhaler® (160/50/150mcg per capsule): 1 capsule inhaled once daily Max dose: Same as above dosing
Inhaled corticosteroid (ICS) Single-agent ICS products are NOT indicated as monotherapy for the treatment of COPD. However, these products may be used in tandem with a LABA, LAMA or LABA/LAMA combination product					
Side effects of all ICS: Oropharyngeal candidiasis and hoarseness, skin bruising, posterior subcapsular, nuclear cataracts, possible worsening of glaucoma. May decrease bone mineral density and increase fracture risk.					
<i>budesonide</i>	Pulmicort®	Turbuhaler®  Nebules (<i>eliminates need for quick deep voluntary inhalation</i>)	DPI ISLN	NIHB: ✓ ODB: ✓ LU: 267/268 for Nebules \$47-239 (Turbuhaler) \$58-219 (Nebules)	Turbuhaler® (100, 200 or 400mcg per actuation): 200-400 mcg inhaled BID Max dose: 400-2400 divided BID-QID Nebules: 0.125-2mg per dose Max dose: 1-2mg BID

Medication	Brand name(s)	Device(s)	Delivery mechanism	Coverage and cost for usual dose (\$/100 days)	Dosing (Recommended dose is the maximum dose unless otherwise noted)
Inhaled corticosteroid (ICS) Single-agent ICS products are NOT indicated as monotherapy for the treatment of COPD. However, these products may be used in tandem with a LABA, LAMA or LABA/LAMA combination product					
Side effects of all ICS: Oropharyngeal candidiasis and hoarseness, skin bruising, posterior subcapsular, nuclear cataracts, possible worsening of glaucoma. May decrease bone mineral density and increase fracture risk.					
<i>fluticasone propionate</i>	Flovent® Aermony®	Diskus®  MDI  Respiclick® (MDI)  <i>*(use spacer if poor coordination)</i>	DPI IA IA	NIHB: ✓ ODB: ✓ (excludes Diskus® 100mcg) \$128-302 (Diskus®) \$69-182 (MDI, Respiclick®)	Diskus® (100, 250 or 500mcg per actuation): 200-1000mcg BID MDI (50, 100 or 250mcg per actuation): 200-1000mcg BID Max dose (Diskus®, MDI): 2000mcg/day Respiclick® (55, 113 or 232mcg per actuation): 55-232 mcg BID Max dose: 464mcg/day
<i>ciclesonide</i>	Alvesco®	MDI  <i>*(use spacer if poor coordination)</i>	IA	NIHB: ✓ ODB: ✓ \$188-306	MDI (100 or 200mcg per puff): 100-800mcg/day (if at 800mcg/day daily, divide dose into BID) Max dose: 800mcg/day
Inhaled corticosteroid (ICS) Single-agent ICS products are NOT indicated as monotherapy for the treatment of COPD. However, these products may be used in tandem with a LABA, LAMA or LABA/LAMA combination product					
Side effects of all ICS: Oropharyngeal candidiasis and hoarseness, skin bruising, posterior subcapsular, nuclear cataracts, possible worsening of glaucoma. May decrease bone mineral density and increase fracture risk.					
<i>fluticasone furoate</i>	Arnuity®	Ellipta® 	DPI	NIHB: ✓ ODB: ✓ \$173-338	Ellipta® (100 or 200mcg per actuation): 100-200mcg inhaled once daily Max dose: 200mcg/day
<i>mometasone</i>	Asmanex®	Twisthaler® 	DPI	NIHB: ✓ (excludes 100mcg) ODB: ✓ (excludes 100mcg) \$154-313	Twisthaler® (200 or 400mcg per actuation): 200-400mcg/day Max dose: 400mcg BID

Legend: DPI = dry powder inhaler, MDI = metered dose aerosol inhaler, ISLN = inhalation suspension liquid for nebulization, IDPC = inhaled dry powder capsule, SMI = soft mist inhaler

 = Environmentally friendly inhaler device,  = Sufficient hand-lung coordination required,  = Sufficient inspiratory flow required,  = Quick and deep voluntary inhalation required,

 = indicated for COPD (vs. asthma)