



Appendix C: Asthma Medication Table

Generic Name Trade name (formulation), pack-size. Dose per inhalation.	Adult Dosage Information ¹⁻⁹	Cost per device (cost per dose)	PharmaCare Coverage [†]	Therapeutic Considerations ¹⁻¹⁰
Short-Acting Beta-2 Agonists Inhaled (SABAs)				
Salbutamol Airomir™, Ventolin®, Generics (MDI), 200 doses. 100 mcg/dose.	1–2 puffs tid-qid prn	\$6.50 (\$0.03)	MDI: Regular Coverage	Nervousness, tremor, tachycardia, palpitations. High regular use (i.e., >10 puffs/day) may itself increase asthma risk. Increasing regular use indicates poor asthma control. Nebules: Not recommended for asthma given MDI + spacer device is equally efficacious. High doses can cause hypokalemia.
Ventolin® Diskus® (DPI), 60 doses. 200 mcg/dose.	200 mcg tid-qid prn	\$13 (\$0.22)	Diskus: No Coverage	
Terbutaline Bricanyl Turbuhaler® (DPI), 100 doses. 500 mcg/dose.	500 mcg prn (q4–6h)	\$8 (\$0.80)	Regular Coverage	
Inhaled Corticosteroid (ICS)		Medium dose costs \$20-45 per month		
beclomethasone dipropionate Qvar™ HFA (pMDI), 200 doses. 50 mcg, 100 mcg/dose.	Low 50–100 mcg bid Med 100–200 mcg bid High >200 mcg bid	50 mcg: \$34 (\$0.17) 100 mcg: \$67 (\$0.34)	Regular Coverage	Symptom improvement is usually evident within 1–2 weeks after start of therapy, pulmonary function improves over months. Once asthma is well controlled for 3 months, consider stepping down to lowest effective dose. In seasonal allergic asthma, cease ICS 4 weeks after end of exposure. Dysphonia, oral thrush (low with ciclesonide and can be reduced by rinsing mouth or using spacer device), sore mouth, sore throat.
Budesonide Pulmicort Turbuhaler® (DPI), 200 doses. 100, 200, 400 mcg/dose.	Low 100–200 mcg bid Med 200–400 mcg bid (can dose 400 mcg once daily) High >400 µg bid	100 mcg: \$34 (\$0.17) 200 mcg: \$69 (\$0.34) 400 mcg: \$100 (\$0.50)	Regular Coverage	
Ciclesonide Alvesco® (pMDI), 120 doses. 100 mcg, 200 mcg/dose.	Low 100–200 mcg once daily Med 200–400 mcg daily (usual starting dose) High >400 µg daily	100 mcg: \$49 (\$0.41) 200 mcg: \$81 (\$0.68)	Regular Coverage	
fluticasone propionate Flovent® HFA (pMDI), 120 doses. 50, 125, 250 mcg/dose. Flovent Diskus (DPI), 60 doses. 50, 100, 250, 500 mcg/dose.	Low 50–125 mcg bid Med 125–250 mcg bid High >250 mcg bid	For 120 dose MDI: 50 mcg: \$26 (\$0.22) 125 mcg: \$45 (\$0.37) 250 mcg: \$89 (\$0.74) 50 mcg: \$16.35 (\$0.27) For 60 dose Diskus: 100 mcg: \$26 (\$0.43) 250 mcg: \$45 (\$0.74) 500 mcg: \$76 (\$1.49)	Regular Coverage	
Mometasone Asmanex Twisterhaler (DPI), 60 doses. 200, 400 mcg/dose.	Low 200 mcg daily in evening Med 200 mcg bid or 400 mcg daily in the evening High 400 mcg bid	200 mcg \$35 (\$0.58) 400 mcg \$69 (\$1.15)	Regular Coverage	

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Inhaled Corticosteroid / Long-acting Beta-2 Agonist Combination (ICS/LABA)		Medium dose costs \$45-55 per month		
budesonide/ formoterol Symbicort® Turbuhaler® (DPI), 120 doses. (100/6, 200/6 mcg)/dose.	Low 100/6 mcg 1–2 doses bid Med 200/6 mcg 1–2 doses bid (4 inhalations of 200/6 mcg daily is High maintenance dose)	100/6 mcg: \$69 (\$0.57) 200/6 mcg: \$90 (\$0.75)	Limited Coverage Special Authority Criteria: <i>Diagnosis of asthma PLUS inadequate response on optimal dose of inhaled corticosteroid.</i> See: www.health.gov.bc.ca/ pharmacare/sa/saindex. html#list	Only prescribe for patients not adequately controlled on a low dose ICS treatment. High dose treatment should not be stopped abruptly, but tapered.
fluticasone/ salmeterol Advair® Diskus® (DPI), 60 doses. (100/50, 250/50, or 500/50 mcg)/dose.	Prescribe as 1 inhalation bid of: Low 100/50 (not for >18y) Med 250/50 High >250/50	100/50 mcg: \$88 (\$1.47) 250/50 mcg: \$105 (\$1.75) 500/50 mcg: \$149 (\$2.49)		
fluticasone/ salmeterol Advair® (pMDI), 120 doses. (125/25, 250/25 mcg)/ dose.	Prescribe as 2 inhalations bid of: Med 125/25 mcg, High 250/25 mcg	125/25 mcg: \$105 (\$0.88) 250/25 mcg: \$149 (\$1.25)		
Mometasone/ formoterol Zenhale (MDI), 120 doses. (50/5, 100/5, 200/5 mcg)/ dose.	Prescribe as 2 inhalations bid of: Low 50/5 µg Med 100/5 µg High 200/5 µg	50/5 mcg: \$66 (\$0.88) 100/5 mcg: \$86 (\$0.55) 200/5 mcg: \$105 (\$0.72)		
Fluticasone furoate/ vilanterol ¹¹ Breo® Ellipta® (powder for oral inhalation), 30 doses. (100/25, 200/25 mcg)/dose.	1 dose once daily	\$130 (\$4.30)	Pending	Nasopharyngitis, upper respiratory tract infection.
Beta₂-adrenergic agonists, long acting (LABAs)				
formoterol fumarate Foradil® (DPI), 60 doses. 12 mcg/dose.	1 cap bid (max 48 mcg/day)	12 mcg: \$55 (\$0.91)	Limited Coverage Special Authority Criteria:	Combination LABA/ corticosteroid product preferred. Recommended only if confident patient will use prescribed inhaled corticosteroid as well. More expensive than combo-inhalers. Nervousness, tremor, tachycardia, palpitations.
formoterol fumarate dehydrate Oxeze® Turbuhaler® (DPI) 60 doses. 6, 12 mcg/dose.	6–12 µg q12h; max 48 µg/day	6 mcg: \$36 (\$0.61) 12 mcg: \$48 (\$ 0.81)	<i>Diagnosis of asthma PLUS inadequate response on optimal dose of inhaled corticosteroid.</i>	
Salmeterol Serevent® Diskus®, Serevent® Diskhaler® (DPI), 60 doses. 50 mcg/dose.	Diskhaler 50 µg/blister: 1 blister bid Diskus 50 µg/inhalation: 1 inhalation bid	50 mcg: \$61 (\$1)	See: www.health.gov.bc.ca/ pharmacare/sa/saindex. html#list	

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Other (Leukotriene receptor agonists, IgE neutralizing antibody, xanthine derivatives)				
Montelukast Singulair, G (4,5 mg chew) (10 mg tab)	≥ 15 y: 10 mg QHS po 6–14y: 5 mg QHS	4 mg: \$36 (\$1.18) 5 mg: \$39 (\$1.31) 10 mg: \$58 (\$1.91) per 30 days (unit dose)	No Coverage	Headache, abdominal pain, flu-like symptoms.
Zafirlukast Accolate 20mg	20 mg bid 1-2h after meals	20 mg: \$50 (\$0.83) per 30 days (unit dose)	No Coverage	Headache, nausea, diarrhea.
Oxtriphylline 100 mg/5ml	Initial: 200 mg QID po Maintenance dose: 800–1200 mg/day po given in 3–4 divided doses	\$0.04/ml	Regular Coverage	Monitor serum levels. Multiple drug interactions (phenytoin, carbamazepine and rifampin reduce levels, macrolides, quinolones, smoking cessation increase theophylline levels.) Nausea, vomiting, abdominal cramps, headache, palpitations, CNS stimulation.
Theophylline Anhydrous 100, 200, 300 mg 12h ER I (400, 600mg 24hr ER)	Initial: 400–600 mg/day po, given in 1–3 divided doses depending on preparation used	\$0.14/100 mg LA \$0.15/200 mg LA \$0.19/300 mg LA \$0.36/400 mg ER \$0.44/600 mg ER		
Omalizumab Xolair 150 mg	Refer to specialist if in need of these therapies.			Injection site reactions (45%), viral infections (24%), upper respiratory tract infections (19%), headache (15%), sinusitis (16%), pharyngitis (10%). Anaphylaxis (0.2%), cardiovascular and cerebrovascular events.

Abbreviations: **bid:** twice daily; **DPI:** dry power inhaler; **ER:** extended-release; **G:** generic; **h:** hours; **ICS:** inhaled corticosteroids; **LA:** long acting; **LABA:** long acting beta agonist; **MDI:** metered dose inhaler; **mcg:** micrograms; **mg:** milligrams; **ml:** milliliters; **pMDI:** pressurized metered dose inhaler; **po:** oral; **prn:** as needed; **q4–6h:** every 4–6 hours; **q12h:** every 12 hours; **QHS:** nightly at bedtime; **qid:** 4 times a day; **SABA:** Short-Acting Beta-2 Agonists; **tid:** 3 times a day; **µg:** micrograms; **y:** years of age.

Note: Please review product monographs at <http://hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php> and regularly review current Health Canada advisories, warnings and recalls at www.hc-sc.gc.ca/ahc-asc/media/advisories-avis/index_e.html.

Pricing is approximate as per PharmaNet 2015/05/01 and does not include dispensing fee or additional markups.

[†] PharmaCare Coverage Definitions

Regular Coverage: also known as regular benefit; does not require Special Authority. Regular benefits may be fully or partially covered.^Ω

Limited Coverage: requires Special Authority for coverage. Limited Coverage benefits approved by Special Authority may be fully or partially covered.^Ω

No Coverage: also known as non-benefit; does not fit the above categories.

^Ω Information on which products PharmaCare covers can be obtained using the B.C. PharmaCare Formulary Search (www.health.gov.bc.ca/pharmacare/benefitslookup). In all cases, coverage is subject to drug price limits set by PharmaCare and to the patient's PharmaCare plan rules and deductibles. See: www.health.gov.bc.ca/pharmacare/plans/index.html and www.health.gov.bc.ca/pharmacare/policy.html for further information.

Drugs which can trigger or exacerbate asthma:

- Beta-blockers (including amounts in ophthalmic solutions)
- Aspirin and NSAID drugs
- ACE Inhibitors (can cause cough)

Estimated Equipotent Daily doses of inhaled glucocorticosteroids⁴

Drug	Low Dose	Medium Daily Dose	High Daily Dose	Max Dose Approved by Health Canada
Beclomethasone dipropionate HFA (QVAR)	100–200	>200–400	>400	800
Budesonide (Pulmicort)	200–400	>400–800	>800	2400
Ciclesonide (Alvesco)	100–200	>200–400	>400	800
Fluticasone propionate (Flovent)	100–250	>250–500	>500	2000
Mometasone (Asthmanex)	200	>200–400	>400–800	800

References:

- 1 E-CPS. Therapeutic Choices. © Canadian Pharmacists Association, 2014. <https://www-e-therapeutics-ca.ezproxy.library.ubc.ca/tc.showPopupTable.action?chapterId=c0039n00081>
- 2 [®]QVAR™ Inhalation Aerosol. Product Monograph. Valeant Canada. Date of Revision: September 18, 2013
- 3 PULMICORT®TURBUHALER® Product Monograph. AstraZeneca Canada. Date of Revision: January 6, 2014
- 4 [®]Alvesco® Product Monograph. Takeda Canada. Date of Preparation: June 25, 2012
- 5 [®]FLOVENT® HFA Product Monograph. GlaxoSmithKline Inc. Date of Revision: July 29, 2014.
- 6 [®]ASMANEX® Twisthaler® Product Monograph. Merck Canada. Date of Revision: August 20, 2013.
- 7 SYMBICORT® TURBUHALER® Product Monograph. AstraZeneca Canada. Date of Revision June 21, 2012.
- 8 ADAIR® DISKUS® Product Monograph. GlaxoSmithKline Inc. Date of Revision: July 29, 2014.
- 9 ZENHALE® Product Monograph. Merck Canada. Date of Revision: October 21, 2014
- 10 Pocket Guide for Asthma Management and Prevention (for adults and children older than 5 years). A Pocket Guide for Physicians and Nurses Revised 2014. Global Initiative for Asthma. Available at: www.ginasthma.org/local/uploads/files/GINA_Pocket_2014_Jun11.pdf
- 11 [®]BREO® ELLIPTA® Product Monograph. GlaxoSmithKline Inc. Date of Revision: August 26, 2015.