


















## Appendix C: Asthma Medication Table




Generic Name Trade name Dose per inhalation Doses per device	Usual Dosage				Cost per device <sup>A</sup>	PharmaCare Coverage <sup>B</sup>	Adverse Effects	Therapeutic Considerations
	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>RELIEVER MEDICATION</b>								
<b>Short acting beta-agonists (SABA)</b>								
<b>Salbutamol</b> <i>Airomir™, Ventolin®, G (pMDI)</i> 100mcg/puff 200 doses  to   <i>Ventolin® Diskus (DPI)</i> 200mcg/inh 60 doses 	1 – 4 puffs (100 – 400mcg) up to q4h prn	1 – 4 puffs (100 – 400mcg) up to q4h prn	1 – 4 puffs (100 – 400mcg) up to q4h prn	1 – 4 puffs (100 – 400mcg) up to q4h prn	\$6.50	Regular benefit	Tremor (up to 38%; particularly in the hands, usually disappears as treatment continues, frequency increases with age), nervousness, pharyngitis, tachycardia (dose-related, more likely in susceptible patients)	SABAs are for symptom relief and should not be regularly used “to open the airways” before daily controller therapy as this increases risk of exacerbations.  Regular use of SABA may indicate poor asthma control (e.g., > 2X per week; > 2 SABA inhalers per year).  Paradoxical bronchospasm is unusual (~4%) and may be related to the propellant. DPI may be considered.
<b>Terbutaline</b> <i>Bricanyl Turbuhaler® (DPI)</i> 500mcg/inh 120 doses 	DPI not recommended for children <6y	1 – 2 inh (500 – 1000mcg) up to q4h prn  (max 3000mcg/day may be increased in action plan)	1 – 2 inh (500 – 1000mcg) up to q4h prn  (max 3000mcg/day may be increased in action plan)	1 – 2 inh (500 – 1000mcg) up to q4h prn  (max 3000mcg/day may be increased in action plan)	\$11.00	Regular benefit	Transient metabolic disturbances are well-known but rarely of clinical significance  ↓ in serum potassium, phosphate  ↑ in serum glucose	Use with caution in patients with cardiovascular disease (coronary artery disease, arrhythmias, hypertension); seizure disorders; hypothyroidism.   Low-volume HFA MDIs: Airomir™ and TEVA-Salbutamol   High-volume HFA MDIs: Ventolin®, APO-Salbutamol; SANIS-Salbutamol




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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>CONTROLLER MEDICATION</b>								
<b>Inhaled Corticosteroids (ICS)</b>								
<b>Beclomethasone dipropionate</b> <i>Qvar® HFA (pMDI)</i> 50, 100mcg/puff 200 doses 	<b>Low</b> 50mcg bid  <b>Med</b> 100mcg bid  <b>High</b> refer to specialist  <i>Approved age by Health Canada ≥ 5y</i>	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 150 - 200mcg bid  <b>High</b> >200mcg bid	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 150 - 250mcg bid  <b>High</b> >250mcg bid	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 150 - 250mcg bid  <b>High</b> >250mcg bid (max 800mcg/day)	50mcg: \$40 100mcg: \$80 (\$10 - \$95)	Regular benefit	Headache, upper respiratory tract infection, pharyngitis, dysphonia, oral thrush (can be reduced by rinsing mouth or using spacer device with an MDI)	Symptom improvement is usually evident within 1 - 2 weeks, pulmonary function may take months to improve.  Use safest and minimum effective ICS dose to minimize side effects in all groups.  Children not achieving asthma control despite adherence to low dose ICS should be increased to medium dose ICS.  Children < 6 years of age, not achieving control on medium dose ICS should be referred to an asthma specialist.  Once asthma is well controlled for 3 months, consider stepping down to lowest effective dose.  High dose treatment should be tapered rather than stopped abruptly.  Contraindications: Status asthmaticus; active pulmonary tuberculosis; untreated respiratory fungal, bacterial, or viral infections
<b>Budesonide</b> <i>Pulmicort Turbuhaler® (DPI)</i> 100, 200, 400mcg/inh 200 doses 	<i>DPI not recommended for children &lt; 6y</i>	<b>Low</b> 100 - 200mcg bid  <b>Med</b> 300 - 400mcg bid  <b>High</b> >400mcg bid	<b>Low</b> 100 - 200mcg bid  <b>Med</b> 300 - 400mcg bid  <b>High</b> >400mcg bid	<b>Low</b> 100 - 200mcg bid  <b>Med</b> 300 - 400mcg bid  <b>High</b> >400mcg bid (max 2400mcg/day)	100mcg: \$36 200mcg: \$74 400mcg: \$107 (\$10 - \$95)	Regular benefit		



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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids (ICS)</b>								
<b>Ciclesonide</b> <i>Alvesco® (pMDI)</i> 100, 200mcg/puff 120 doses 	<b>Low</b> 100mcg once daily  <b>Med</b> 200mcg once daily  <b>High</b> refer to specialist	<b>Low</b> 100 - 200mcg once daily  <b>Med</b> 400mcg once daily  <b>High</b> >400mcg once daily  <i>Approved age by Health Canada ≥ 6y</i>	<b>Low</b> 100 - 200mcg once daily  <b>Med</b> 400mcg once daily  <b>High</b> >400mcg once daily	<b>Low</b> 100 - 200mcg once daily  <b>Med</b> 400mcg once daily  <b>High</b> >400mcg once daily (max 800mcg/day)	100mcg: \$52 200mcg: \$86 (\$15 - \$85)	Regular benefit	See above	See above
<b>Fluticasone furoate</b> <i>Arnuity Ellipta (DPI)</i> 100, 200mcg/inh 30 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	<b>Low</b> 100mcg once daily  <b>High</b> 200mcg once daily  <i>Approved age by Health Canada ≥ 12y</i>	<b>Low</b> 100mcg once daily  <b>High</b> 200mcg once daily (max 200mcg/day)	100mcg: \$46 200mcg: \$92 (\$45 - \$90)	Regular benefit		

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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids (ICS)</b>								
<b>Fluticasone propionate</b> <i>Flovent® HFA (pMDI), G</i> 50, 125, 250mcg/puff 120 doses  <i>Flovent Diskus® (DPI)</i> 100, 250, 500mcg/inh 60 doses  <i>Aermony Respiclick® (DPI)</i> 55, 113, 232mcg/inh 60 doses 	<b>Low</b> 50mcg bid  <b>Med</b> 100 - 125mcg bid  <b>High</b> refer to specialist  (max 200mcg/day for 1- 4yo and 400mcg for 5yo)  <i>DPI not recommended for children &lt; 6y</i>	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 113 - 200mcg bid  <b>High</b> >200mcg bid  (max 400mcg/day)	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 113 - 250mcg bid  <b>High</b> >250mcg bid  (max 400mcg/day for 12-16 yo and 2000mcg for 16-17yo)  <i>Approved age by Health Canada ≥ 12y for Aermony Respiclick</i>	<b>Low</b> 50 - 100mcg bid  <b>Med</b> 113 - 250mcg bid  <b>High</b> >250mcg bid  (max 2000mcg/day)	For 120 dose MDI: 50 mcg: \$30 125mcg: \$43 250mcg: \$49 (\$15- \$95)  For 60 dose Diskus: 100mcg: \$30 250mcg: \$53 500mcg: \$82 (\$30- \$165)  For 60 dose Respiclick: 55mcg: \$18 113mcg: \$33 232mcg: \$52 (\$20 - \$50)	Regular benefit	See above	See above
<b>Mometasone furoate</b> <i>Asmanex®</i> <i>Twisthaler® (DPI)</i> 200, 400mcg/inh 60 doses  100, 400 mcg/inh 30 doses 	<i>DPI not recommended for children &lt; 6y</i>	<b>Low</b> 100mcg/day  <b>Med</b> 200 - 300mcg/day  <b>High</b> ≥400mcg/day  Given once daily or bid	<b>Low</b> 100 - 200mcg/day  <b>Med</b> 300 - 400mcg/day  <b>High</b> >400mcg/day  Given once daily or bid	<b>Low</b> 100 - 200mcg/day  <b>Med</b> 300 - 400mcg/day  <b>High</b> >400mcg/day (max 800mcg/day)  Given once daily or bid	100mcg: \$40 200mcg: \$40 400mcg: \$80 (\$20 - \$80)	Regular benefit  100mcg: non benefit	See above	See above

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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids/Long-acting Beta-2 Agonists (ICS/LABA)</b>								
<b>Budesonide/ formoterol</b> <i>Symbicort</i> <sup>®</sup> <i>Turbuhaler</i> <sup>®</sup> (DPI) 100/6, 200/6mcg/inh 120 doses  200/6mcg/inh 60 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	100/6mcg or 200/6mcg once daily or bid  <b>Maintenance and Reliever Therapy (MART)</b>  200/6mcg as needed; may repeat if no relief  Max 8 inhalations per day  <i>Approved age by Health Canada ≥ 12y</i>	100/6mcg or 200/6mcg once daily or bid  <b>Maintenance and Reliever Therapy (MART)</b>  200/6mcg as needed; may repeat if no relief  Max 8 inhalations per day	100/6mcg: \$73  200/6mcg: \$95  (\$20 - \$95)	Limited Coverage	Headache, upper respiratory tract infection, pharyngitis, nasal congestion, dysphonia, oral thrush (can be reduced by rinsing mouth or using spacer device with an MDI)	For individuals ≥12 years of age not controlled on PRN SABA who have poor adherence to daily ICS despite substantial asthma education and support, consider PRN bud/form.  Based on asthma severity, bud/ form may be used as a reliever only or as part of a controller PLUS reliever regimen. Use as a reliever therapy was studied with the 200/6mcg dose; however, patients may be using their 100/6mcg as a daily controller plus reliever.  High dose treatment should be tapered rather than stopped abruptly.  Use cautiously in patients with cardiovascular disorders (e.g., coronary artery disease, arrhythmias, hypertension).

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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids/Long-acting Beta-2 Agonists (ICS/LABA)</b>								
<b>Fluticasone furoate/vilanterol</b> <i>Breo Ellipta</i> 100/25, 200/25mcg/inh 30 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	100/25 – 200/25mcg once daily (max 1 inh/day) Approved age by Health Canada ≥ 18y	100/25mcg: \$100 200/25mcg: \$156 (\$100-155)	Limited Coverage	Headache, upper respiratory tract infection, pharyngitis, nasal congestion, dysphonia, oral thrush (can be reduced by rinsing mouth or using spacer device with an MDI)	Initial dose based on previous asthma therapy, current control, and risk of exacerbation. If adequate response is not seen after 2 weeks of initial dose, increase dosage; once adequate control achieved, doses should be titrated to lowest effective dose.
<b>Fluticasone propionate/salmeterol</b> <i>Advair® (pMDI)</i> 125/25, 250/25mcg/puff 120 doses  <i>Advair® Diskus® (DPI), G</i> 100/50, 250/50, 500/50 mcg/inh 60 doses 	<i>Not approved by Health Canada</i> <i>DPI not recommended for children &lt; 6y</i>	<i>Not approved by Health Canada</i> 100/50mcg bid	2 puffs (250/50mcg – 500/50mcg) bid <i>Approved age by Health Canada ≥ 12y</i> 100/50mcg - 500/50mcg bid (max 1000/100mcg/day)	2 puffs (250/50mcg – 500/50mcg) bid 100/50mcg - 500/50mcg bid (max 1000/100mcg/day)	For 120 dose MDI: 125/25mcg: \$118 250/25mcg: \$168 (\$60 - \$170) For 60 dose DPI: 100/50mcg: \$46 250/50mcg: \$55 500/50mcg: \$78 (\$45 - \$80)	Limited Coverage	High dose treatment should be tapered rather than stopped abruptly. Use cautiously in patients with cardiovascular disorders (e.g., coronary artery disease, arrhythmias, hypertension).	

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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids/Long-acting Beta-2 Agonists (ICS/LABA)</b>								
<b>Mometasone furoate/indacaterol</b> <i>Atecura®</i> <i>Breezhaler® (DPI)</i> 80/150 mcg, 160/150 mcg, 320/150 mcg/inh 30 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	80-150mcg – 320 - 150mcg (1 inh) daily (max 320 - 150mcg/day) <i>Approved age by Health Canada ≥ 12y</i>	80-150mcg – 320 - 150mcg (1 inh) daily (max 320 - 150mcg/day)	80/150mcg: \$35 160/150mcg: \$43 320/150mcg: \$60 (\$35 - \$60)	Limited Coverage	See above	See above
<b>Mometasone/formoterol</b> <i>Zenhale® (pMDI)</i> 100/5, 200/5mcg/puff 60, 120 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	200/10mcg - 400/10mcg (2 puffs) bid Max 800/20mcg/day	200/10mcg - 400/10mcg (2 puffs) bid Max 800/20mcg/day	100/5mcg: \$104 200/5mcg: \$128 (\$105- \$130)	Limited Coverage		
<b>Long-Acting Muscarinic Antagonist (LAMA)</b>								
<b>Tiotropium</b> <i>Spiriva® Respimat</i> 2.5mcg/inh 60 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	2 inh (5mcg) daily <i>Approved age by Health Canada ≥ 18y</i>	\$59	Regular benefit	Dry mouth (rinse mouth after inhalation to decrease), headache, pharyngitis, sinusitis, dyspepsia	Should not be used for the relief of acute symptoms. Usually for severe asthma and initiated by asthma specialists.

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	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Inhaled Corticosteroids/ Long-Acting Muscarinic Antagonists/ Long Acting Beta2 Agonists (ICS/LAMA/LABA)</b>								
<b>Fluticasone furoate/ umeclidinium/ vilanterol</b> <i>Trelegy Ellipta (DPI)</i> 100/62.5/25, 200/62.5/25 mcg/inh 30 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	100/62.5/ 25mcg - 200/62.5/25mcg (1 inh) daily  <i>Approved age by Health Canada ≥ 18y</i>	100/62.5/25: \$149  200/62.5/ 25mcg: \$163 (\$150 - \$165)	Non benefit	Similar adverse effects as ICS/LABAs and LAMAs (see above).	For patients experiencing exacerbations despite low dose ICS-LABA, ICS dose should be increased, or treatment switched to maintenance and reliever therapy with bud/form, before considering adding a LAMA.  Usually for severe asthma and initiated by asthma specialists.
<b>Mometasone furoate/ glycopyrronium/ indacaterol</b> <i>Energair®</i> <i>Breezhaler®(DPI)</i> 160/50/150 mcg/inh 30 doses 	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	<i>Not approved by Health Canada</i>	160/50/150mcg (1 inh) daily  <i>Approved age by Health Canada ≥ 18y</i>	\$110	Limited Coverage		



Generic Name Trade name Dose per inhalation Doses per device	Usual Dosage				Cost per device <sup>A</sup>	PharmaCare Coverage <sup>B</sup>	Adverse Effects	Therapeutic Considerations
	< 6 years	6 - 11 years	12 - 17 years	≥ 18 years				
<b>Leukotriene receptor antagonist (LTRA)</b>								
<b>Montelukast</b> <i>Singulair<sup>®</sup>, G</i> Chewable: 4mg, 5mg Granules: 4mg Tablet: 10mg	4mg po daily <i>Approved age by Health Canada ≥ 2y</i>	5mg po daily	5mg po daily (12 - 14y) 10mg po daily (≥15y)	10mg po daily	Chewable \$35 - \$40 Granules \$45 Tablet \$60	Non benefit	Neuropsychiatric AE: irritability, aggressiveness, anxiety, sleep disturbance including suicidal thoughts/actions (up to 16% of pediatric patients; typically occurred within 2 weeks of initiation)	In all age groups LTRA are 2nd line to daily ICS.

Abbreviations: **AE:** adverse effects; **bid:** twice daily; **DPI:** dry power inhaler; **bud/form:** budesonide/formoterol; **HFA:** Hydrofluoroalkane; **ICS:** inhaled corticosteroids; **inh:** inhalation; **LABA:** long acting beta-2 agonist; **LTRA:** leukotriene receptor antagonist; **MART:** maintenance and reliever therapy; **mcg:** micrograms; **MDI:** metered dose inhaler; **mg:** milligrams; **pMDI:** pressurized metered dose inhaler; **po:** oral; **prn:** as needed; **q4h:** every 4 hours; **SABA:** short acting beta agonist; **y:** years of age.

A Drugs costs are average retail cost of the generic, when available. Current as of Oct 2022 and does not include retail markups or pharmacy fees. Cost per month is approximate and rounded to nearest \$5.


B PharmaCare coverage as of Oct 2022 (subject to revision). Regular Benefit: Eligible for full reimbursement\*. Limited Coverage: Requires Special Authority to be eligible for reimbursement\*. Non-benefit: Not eligible for reimbursement. \*Reimbursement is subject to the rules of a patient's PharmaCare plan, including any deductibles. In all cases, coverage is subject to drug price limits set by PharmaCare. See: [www.health.gov.bc.ca/pharmacare/plans/index.html](http://www.health.gov.bc.ca/pharmacare/plans/index.html) and [www.health.gov.bc.ca/pharmacare/policy.html](http://www.health.gov.bc.ca/pharmacare/policy.html) for further information. \* [Special Authority drug list](#).


## References:

1. Yang CL et al. Canadian Thoracic Society 2021 Guideline update: Diagnosis and management of asthma in preschoolers, children and adults. Published 2021. Canadian Journal of Respiratory, Critical Care, and Sleep Medicine. DOI: 10.1080/24745332.2021.1945887
2. Global Initiative for Asthma. Global Strategy for Asthma Management and Prevention (2022 Update) [Internet]. 2022 p. 225. Available from: <https://ginasthma.org/wp-content/uploads/2022/07/GINA-Main-Report-2022-FINAL-22-07-01-WMS.pdf>
3. Jobson MD. UpToDate [Internet]. Waltham, MA: UpToDate Inc.; c2019 [Accessed October 14, 2022]
4. Health Canada Drug Product Database Product Monographs. Ottawa, ON: Health Canada; 20194 [Accessed September 23, 2022].

Note: Information on which products PharmaCare covers can be obtained using the B.C. PharmaCare Formulary Search (<https://pharmacareformularysearch.gov.bc.ca/>)

 = Higher environmental impact option (per inhaler carbon footprint of > 100 km by car)

 = Mid-range environmental impact option (per inhaler carbon footprint of 38.8 - 50 km by car)

 = Lowest environmental impact option (per inhaler carbon footprint of 5 - 27.1 km by car)

For more information on the environmental impact of specific medications, please see the *Inhaler Coverage and Environmental Impact Guide*