

High Quality & **Low** Carbon Asthma Care

A primary care toolkit for improving asthma management in
British Columbia

This toolkit was reviewed and supported by:



Sustainable Inhaler Initiative



Planetary Health Committee

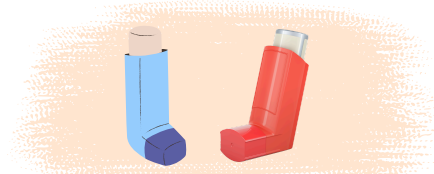
There are no conflicts of interest or pharmaceutical funding involved

Introduction

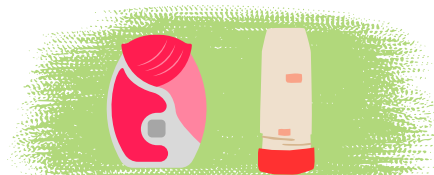
In 2019, the Global Initiative for Asthma (GINA) introduced a significant shift in asthma treatment regarding the use of short-acting β 2-agonists (SABAs). GINA showed that the overuse of SABAs, or using them as the sole management strategy for asthma, leads to higher rates of asthma exacerbations and hospitalizations.

Both GINA and the Canadian Thoracic Society (CTS) now recommend prescribing budesonide-formoterol (also known as Symbicort or bud-form) for patients aged ≥ 12 years with mild asthma **as a first-line medication**.

Recent studies have also highlighted the climate impact of pressurized metered-dose inhalers (pMDIs)—their use contributes to global warming by releasing powerful greenhouse gases. Alternative devices, such as dry-powder inhalers (DPIs), are much more climate-friendly and do not release pollutants with use.



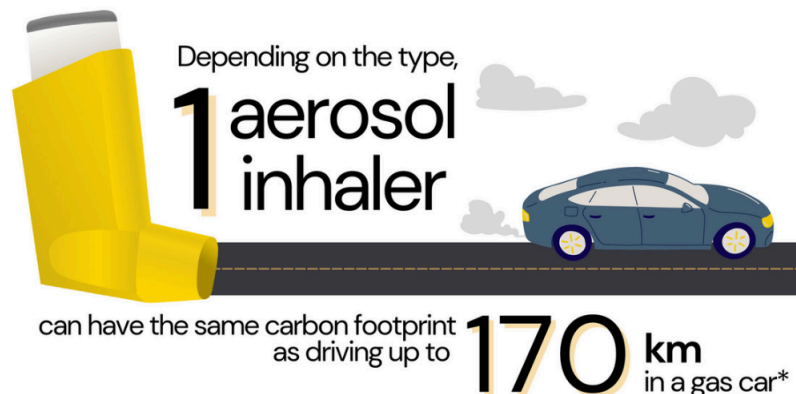
Examples of pMDIs



Examples of DPIs

In Canada, where bud-form is only available as a DPI, the new asthma guidelines present an opportunity to simultaneously:

- 1 Provide better asthma care and reduce exacerbations and hospitalizations (when compared to SABA mono-therapy)*
- 2 Prescribe more sustainable inhalers (e.g. DPIs)

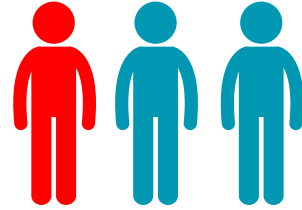


* In a double-blind, placebo-controlled trials, bud-form used on an as-needed basis resulted in a lower risk of severe exacerbation of asthma than as-needed use of a short-acting β 2-agonist (SABA)

To improve asthma care, we recommend clinicians:

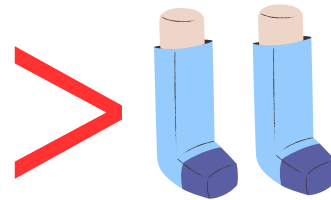
1. **ENSURE** patients ≥ 6 years old with any asthma medications complete a spirometry test to confirm diagnosis

Did You Know: in Canada, more than a third of asthma diagnoses made on clinical grounds are incorrect



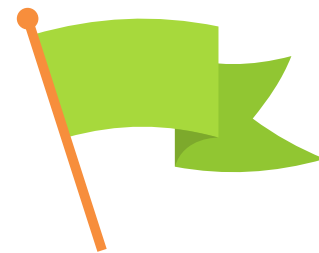
2. **ASSESS** for SABA overuse and SABA monotherapy

Using over **2 doses of a SABA medication/week** or **2 canisters of salbutamol (Ventolin)/year** increases the risk of asthma exacerbation

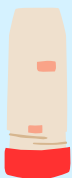


3. **START** budesonide-formoterol PRN or the MART plan with patients ≥ 12 years old

When clinically appropriate, discuss with patients a switch over to bud-form DPI and use this medication as both their controller and reliever inhaler (MART plan)



What is the **maintenance and reliever therapy (MART)** plan?



Budesonide-Formoterol
*1 puff twice a day,
plus 1 to 2 puffs PRN
for up to 8 puffs in one day.*

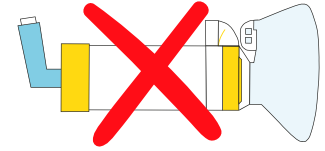
Formoterol provides both **fast onset** (within 1-3 minutes) with **long-acting** (at least 12 hours) bronchodilation.

Patients can take bud-form 200/6 twice a day as their **maintenance** medication and use it as **reliever therapy**

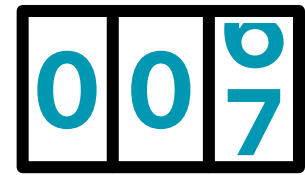
Dry Powder Inhaler (DPI) benefits

In addition to reduced environmental harm, DPIs have other clinical benefits over an pMDI that clinicians can discuss with patients. These include:

- 1 No spacer needed**
DPIs do not require a spacer with each use, unlike pMDIs



- 2 Dose counter**
Unlike most pMDIs, DPIs have a dose counter that informs patient how many puffs are left in the inhaler



- 3 Easier to use**
Research shows that patients find DPIs easier to use and make fewer critical mistakes compared to pMDIs



Medication Cost & Coverage

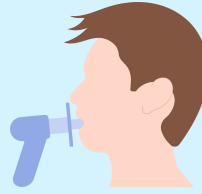


Bud-form needs special authority approval for PharmaCare coverage. Most patients are eligible for coverage and this medication is also covered by numerous private insurance plans for asthma. Additionally, this inhaler is less expensive than similar MDI options, such as fluticasone/salmeterol.

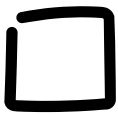
How to start the MART Plan: a checklist



Patient has a spirometry-confirmed asthma diagnosis



Arrange for spirometry in patients ≥ 6 years old with suspected asthma



Patient is at least 12 years old

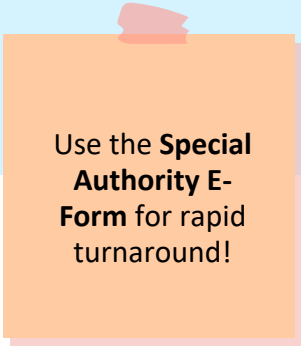
Patients ≤ 12 can benefit from other DPIs. For more info see: www.bcinhalers.ca



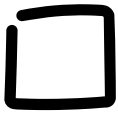
Apply for PharmaCare Special Authority Coverage for eligible patients

Special Authority criteria:

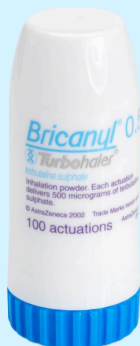
- Diagnosis of asthma
- Inadequate response on optimal dose of inhaled corticosteroid



Use the **Special Authority E-Form** for rapid turnaround!



Start the MART plan!



Terbutaline 0.5 mg/dose
Directions: 1 inhalation every 4 hours as needed

Consider Terbutaline (Bricanyl)

For patients who require a SABA/rescue inhaler, consider the use of terbutaline (Bricanyl) instead of salbutamol (Ventolin).

It comes in the same device type as bud-form and is covered by PharmaCare **without** special authority.

This medication is approved for anyone ≥ 6 year old.

Tools and Resources

1

How to use a Turbuhaler DPI

1 Hold upright

2 Twist open. Remove cap.

3 Turn base in one direction and then back again

4 Breathe out

[Download Handout](#)

How to use your Turbuhaler

Watch on YouTube



[Watch Video](#)

2

MART & Asthma Action Plan (from RxFiles)

Rx FILES **ADULT ASTHMA ACTION PLAN**
(age 16 years and older using budesonide-formoterol)

Name: _____
Date: _____

This asthma action plan shows me how and when to increase the dose of my asthma medications.

CONTROLLER AND RELIEVER
budesonide-formoterol, SYMBICORT TURBUHALER

Is my asthma well controlled?

In an average week, I should only need additional reliever doses twice at most.
If I usually need more than this, I will tell my healthcare provider.
It could be a sign that my asthma medications need to be adjusted.

If I feel well, I will take: 1 puff twice a day, plus 1 to 2 puffs if needed for asthma symptoms. Up to 8 puffs can be taken in one day.

But if my symptoms worsen, I will take: 4 puffs twice a day...until I feel better (up to 2 weeks).
For example, I might be in the yellow zone if:
• I need doses for symptom relief more than usual, OR
• I catch a cold, OR
• I am exposed to something that tends to trigger my asthma, like forest fire smoke.
You should refill your inhaler at the pharmacy now, since you are using more doses of it. A rule of thumb is that increasing your inhaler for 1 week uses up 1 month of the doses inside.

I will urgently see a healthcare provider if:

- I need more than 8 puffs of my inhaler per day, OR
- After 2 weeks I don't feel like my "normal self", OR
- I start to have difficulty sleeping because of my asthma, OR
- After 48 hours my symptoms are worse instead of better

I will urgently call 9-1-1 for an ambulance if:

- My inhaler doesn't help, OR
- I am too breathless to speak, OR
- I am constantly short of breath.

This means I am having an asthma attack. I will take puffs from my inhaler as much as I need until help arrives.

Healthcare Provider Signature: _____ Patient Signature: _____
Healthcare providers: share this plan with the entire healthcare team (e.g. family physician, community pharmacy, etc.)
Asthma Action Plans for other medications, such as budesonide, ciclesonide, and mometasone are freely available at rxfiles.ca/tools.

References

Guidelines

GINA 2019 Guideline:

<https://ginasthma.org/wp-content/uploads/2019/06/GINA-2019-main-report-June-2019-wms.pdf>

GINA 2023 Main report: <https://ginasthma.org/2023-gina-main-report/>

2021 CTS Guideline on the management of very mild and mild asthma:

<https://cts-sct.ca/wp-content/uploads/2021/03/2021-CTS-Guideline-very-mild-and-mild-asthma.pdf>

2021 CTS Guideline update: Diagnosis and management of asthma in preschoolers, children and adults: https://cts-sct.ca/wp-content/uploads/2022/01/Corrected-Ver_2021_CTS_CPG-DiagnosisManagement_Asthma.pdf

Peer-Reviewed Papers

Climate Impact of Inhalers: Liang KE, Yao JA, Hui P, Quantz D. Climate impact of inhaler therapy in the Fraser Health region, 2016-2021. *British Columbia Medical Journal*. 2023 May 1;65(4).

SABA-overuse and mono therapy: Reddel HK, FitzGerald JM, Bateman ED, Bacharier LB, Becker A, Brusselle G, Buhl R, Cruz AA, Fleming L, Inoue H, Wai-san Ko F. GINA 2019: a fundamental change in asthma management: treatment of asthma with short-acting bronchodilators alone is no longer recommended for adults and adolescents. *European Respiratory Journal*. 2019 Jun 1;53(6).

SABA-only therapy vs PRN Bud-Form: O'Byrne PM, FitzGerald JM, Bateman ED, Barnes PJ, Zhong N, Keen C, Jorup C, Lamarca R, Ivanov S, Reddel HK. Inhaled combined budesonide–formoterol as needed in mild asthma. *New England Journal of Medicine*. 2018 May 17;378(20):1865-76.

Asthma Misdiagnosis: Aaron SD, Vandemheen KL, FitzGerald JM, Ainslie M, Gupta S, Lemièrre C, Field SK, McIvor RA, Hernandez P, Mayers I, Mulpuru S. Reevaluation of diagnosis in adults with physician-diagnosed asthma. *Jama*. 2017 Jan 17;317(3):269-79.

Inhaler technique comparison: Ramadan WH, Sarkis AT. Patterns of use of dry powder inhalers versus pressurized metered-dose inhalers devices in adult patients with chronic obstructive pulmonary disease or asthma: an observational comparative study. *Chronic respiratory disease*. 2017 Aug;14(3):309-20.

Inhaler preference: Quantz D, Wong GY, Liang K. Patient perspectives on the environmental impact of inhalers: A survey in British Columbia. *Canadian Pharmacists Journal/Revue des Pharmaciens du Canada*. 2023 Nov;156(6):298-302.