

Treatment Gaps in the Control of Asthma in Canada

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Asthma is one of the most common chronic conditions seen in primary care, and its prevalence in Canada continues to rise.¹ The goal of treatment for all patients with asthma is complete control of the disease.¹⁻³ Achieving control reduces the risk of asthma-related morbidity and mortality, improves patient quality of life and minimizes the burden of asthma on the healthcare system.^{1,4-7} Clinical practice guidelines are in place to aid clinicians and their patients in the quest to achieve control, but evidence indicates that a considerable proportion of people with asthma do not achieve this objective and remain uncontrolled.

This review summarizes the most recent Canadian recommendations for asthma management² and touches on some of the evidence demonstrating the treatment gap between these recommendations and what is happening in clinical practice.

Current Canadian Recommendations for Asthma Control

The most recent Canadian recommendations for asthma management in children and adults come from the 2010 Consensus Summary of the Canadian Thoracic Society's (CTS) Asthma Management Continuum.² This group defines asthma control using eight variables, as shown in Table 1. A patient must meet all eight of these criteria to be considered controlled. The Cana-

TABLE 1. Criteria for Asthma Control: 2010 CTS Asthma Management Continuum²

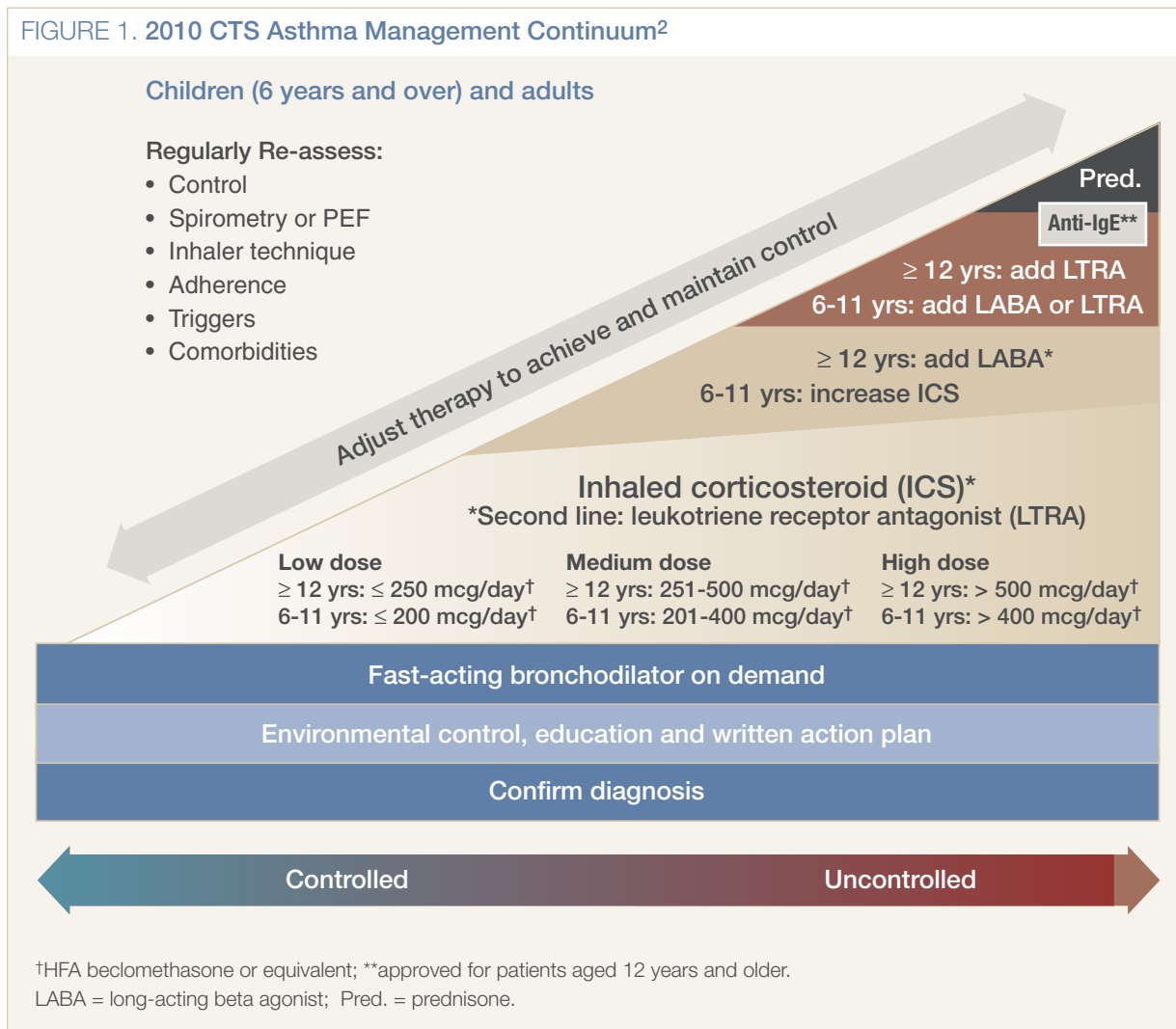
Characteristic	Frequency or Value
Daytime symptoms	< 4 days/week
Night-time symptoms	< 1 night/week
Physical activity	Normal
Exacerbations	Mild, infrequent
Absence from work or school due to asthma	None
Need for a fast-acting beta agonist	< 4 doses/week
FEV ₁ or PEF	≥ 90% personal best
PEF diurnal variation*	< 10% to 15%

*Diurnal variation is calculated as the highest peak expiratory flow (PEF) minus the lowest PEF divided by the highest PEF multiplied by 100 for morning and night (determined over a two-week period). FEV₁ = forced expiratory volume in 1 second.

dian recommendations are similar to those in use in other parts of the world, though it should be noted that the Global Initiative for Asthma (GINA) criteria are slightly different.³ For example, GINA requires that the frequency of daytime symptoms be twice weekly or less, while the Canadian criteria allow for daytime symptoms three times per week or less.

Similarly, the GINA criteria only allow for two or fewer uses of reliever/rescue medication per

FIGURE 1. 2010 CTS Asthma Management Continuum²



week, while the Canadian criteria are less stringent, allowing for three or fewer uses. More aggressive control criteria should assist in improving asthma related outcomes, and this will be reviewed in Canada in the future.

The approach to treatment recommended by the 2010 CTS group is multifaceted (Figure 1). As illustrated, all plans should include environmental control, patient education and a written action plan.⁸ In terms of pharmacotherapy, all patients with asthma should be prescribed a short-acting bronchodilator (SABA) for use when

needed. With respect to medications aimed at symptom control, the initial treatment of choice should be a low-dose (≤ 250 mcg/day) inhaled corticosteroid (ICS). Should this fail to provide control in those older than 12 years of age, the next recommended step is to add a long-acting beta agonist (LABA) to the ICS. This combination can be prescribed in a fixed-dose single device (*e.g.*, budesonide/formoterol, fluticasone/salmeterol) along with rescue medication (*i.e.*, salbutamol or terbutaline), or the so-called SMART (Single-inhaler Maintenance And Re-

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liever Therapy; only available with budesonide/formoterol) approach, which does not require a second rescue medication inhaler due to formoterol's fast onset of action. It should be noted, however, that adding a LABA to an ICS should only be done after first confirming a real lack of adequate response to treatment by ruling out other common causes of poor control. These causes include: incorrect diagnosis of asthma, poor inhaler-device technique, poor adherence to treatment, ongoing exposure to environmental triggers, and comorbidities.²

Should the ICS + LABA combination still be inadequate to provide control, the CTS recommends increasing the ICS to a moderate dose (*i.e.*, 251 to 500 mcg/day), or the addition of a leukotriene receptor antagonist (LTRA). In those younger than 12 years, the first step up is usually to increase the ICS dose; subsequent steps include adding an LTRA or (less evidence) a LABA.

The Treatment Gap in Asthma Control in Canada

Although the criteria for asthma control and the recommendations for therapy are clear and have been disseminated for many years (criteria for control were introduced in Canada in the 1996 asthma guidelines),⁹ a substantial number of asthma patients still do not achieve control. Some of these patients may be truly refractory to treatment, making control difficult to achieve even with optimal therapy, and these patients require specialist involvement. However, it is likely that the majority of uncontrolled patients could achieve control within primary care if they were to receive optimal treatment as recommended by the CTS and complied with this treatment.

TRAC study. Some of the best data showing suboptimal control in Canada come from The Reality of Asthma Control (TRAC) study, published in 2006.¹⁰ This study involved telephone interviews with 893 adults with diagnosed

asthma, aged 18 to 54 years. Physicians were also surveyed by telephone and mail. The results of the survey showed that, by guideline criteria (*i.e.*, the 1999 Canadian guidelines), only 47% of patients had their asthma controlled. This stood in stark contrast to the perception of control held by patients and physicians: 97% of the patients believed their asthma was "very well" or "somewhat well" controlled, while 88% of family physicians and 90% of specialists indicated that they felt they were achieving control of their patients' asthma (Figure 2).

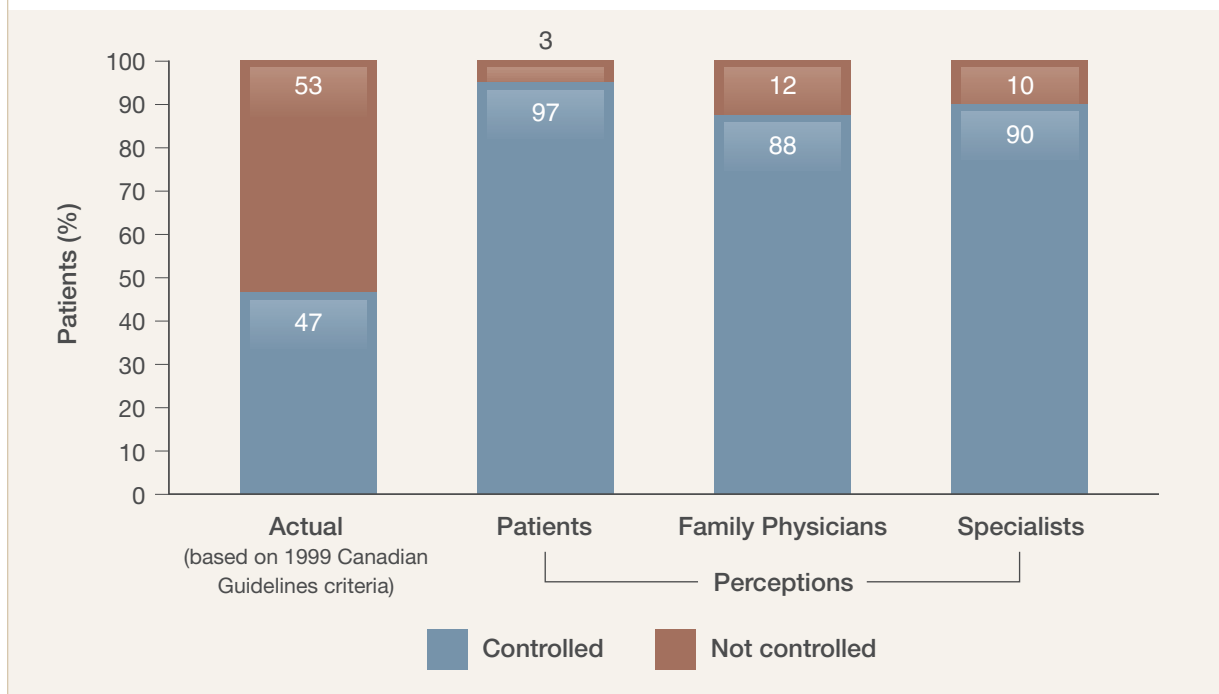
INSPIRE. The results of the TRAC study in Canada were similar to those reported elsewhere. In the International Asthma Patient In-

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sight Research (INSPIRE) study,¹¹ 3,415 adults with diagnosed asthma in 11 countries (including Canada) were surveyed. Of these patients, 51% were found to have uncontrolled asthma, as classified using the Asthma Control Questionnaire (ACQ). Within this group of patients with uncontrolled asthma by ACQ, 87% classed their own asthma control as "relatively good" during the week preceding the interview.

AIRE. Even among patients with severe asthma, the subjective perception of control has been shown to be far from the objective reality. In the Asthma Insights and Reality in Europe (AIRE) study, among patients identified as having severe persistent symptoms, 50% reported that they felt their asthma was completely or well controlled.¹²

FIGURE 2. Actual and Perceived Asthma Control Rates in Canada: TRAC Study¹⁰



Canadian Practice Reflective Program. In 2009, a practice reflective program was initiated across Canada in an attempt to quantify several aspects of asthma care, including medication usage and the rates of control.¹³ For this program, 966 physicians were recruited to participate in a prospective patient survey, which they

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completed after/during patient visits. Each physician surveyed at least 15 asthma patients in their practice. These physicians provided aggregate data for a total of 19,519 patients across Canada.

The majority of patients (59%) were aged between 25 and 64 years, while a small minority (9%) were aged 12 years or younger and 15%

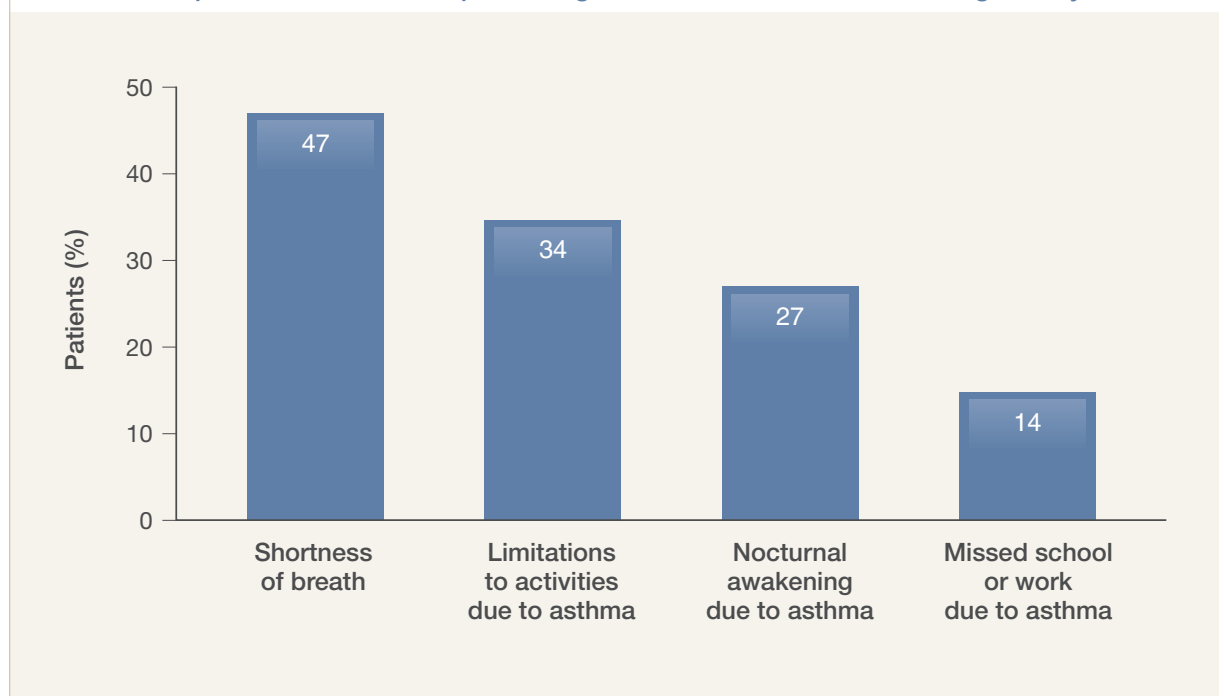
were older than 64 years. Asthma was considered intermittent in 46% of patients, persistent in 44% and exercise-induced in 10%. Asthma diagnoses were confirmed by pulmonary function testing in 59% of cases.

Overall, the program's physicians indicated that they believed only 58% of their patients had well-controlled asthma according to the guideline criteria. Other findings further supported the conclusion that a substantial proportion of patients were not controlled. For example, when asked how often patients experienced asthma worsenings or asthma "acting up" in the previous week, physicians indicated no worsenings in only 43% of patients. In addition, 35% of patients were reported to have used rescue medication (SABA) three or more times per week.

The proportion of patients who required urgent care or visited the emergency room for asthma during the previous month was re-

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FIGURE 3. Proportion of Patients Experiencing Asthma-related Issues Affecting Quality of Life¹³



ported to be 11%, and 26% required an unscheduled visit to a physician or walk-in clinic for their asthma.

The effects of asthma on quality of life was also quantified. The proportion of patients who experienced shortness of breath was 47%; 34% experienced limitations in activity due to their asthma, 27% experienced nocturnal awakenings due to their asthma; and 14% missed school or work due to their asthma (Figure 3).

The program data also showed that 36% of physicians chose to change or initiate a new treatment based on their patient's level of asthma control, and 10% made referrals to a specialist.

Discussion: Why the Treatment Gap?

There are many potential reasons for the treatment gap in asthma management in Canada. Patient-related factors include poor (or non) adherence to the prescribed regimen, affordability,

a reluctance to use the recommended treatment agent (e.g., steroid phobia), comorbidities and suboptimal inhaler technique. There are also physician-related factors, including incorrect diagnosis,¹⁴ not setting proper goals (i.e., complete control), not ensuring proper inhaler technique, and not assessing for and managing

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comorbidities. Further, physicians may not be asking the correct questions when assessing if a patient's asthma is well controlled. Rather than simply asking patients if their asthma is well controlled, physicians should be asking questions aligned with the CTS criteria for asthma

control (Table 1). These would include questions about the number of times the patient uses their reliever per week, if they have any nighttime problems or if they have missed school or work due to their asthma. Another marker of control is optimizing lung function. For this, physicians need spirometry to be available and

Physicians need to aim for complete control (without residual symptoms) in all of their asthmatic patients, and to adjust therapy beyond that which achieves only modest improvements.

then actually performed (this is a barrier for many physicians). Finally, there are factors related to the healthcare system itself, including the cost of medications and devices, access to primary-care providers, access to spirometry and access to asthma educators and clinics.

Conclusions

Although mortality rates for asthma have fallen steadily over recent decades, the management of asthma remains suboptimal, resulting in continued morbidity. There is a wealth of published data showing that approximately half of patients with asthma do not achieve control as defined

by clinical practice guidelines. Closing this care gap should be a priority.

Physicians need to aim for complete control (without residual symptoms) in all of their asthmatic patients, and to adjust therapy beyond that which achieves only modest improvements. Every asthma-treatment strategy should include a plan with exacerbations. Aggressive management of worsening may help prevent exacerbations and may provide an opportunity to effectively intervene early and reduce the risk of disease progression. A panel of Canadian experts, the Asthma Worsenings Working Group, recently published a statement on approaches to the prevention and management of these episodes.¹⁵ This includes education on how to recognize worsening and treat it early, before symptoms deteriorate further.

There are effective interventions available to help prevent exacerbations and achieve asthma control (*e.g.*, lifestyle, trigger control and appropriate use of controller medications, including combination therapies). Patients also need to know what they should expect in terms of good asthma control. To provide optimal care for patients with asthma, healthcare professionals need to become familiar with the current evidence-based recommendations, which clearly explain how these modalities should be used.

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