BRIEF NOTE

Urgent care costs of uncontrolled asthma in Canada, 2004

Soo Jin Seung HBSc¹, Nicole Mittmann MSc PhD²

It has been more than a decade since Krahn evaluated the direct and indirect costs of asthma in Canada. Asthma is often uncontrolled and the cost of providing urgent care has not been determined. Hospitalizations, unscheduled physician visits, emergency department visits, drug treatments and ambulance rides are resources used by the uncontrolled asthmatic population, resulting in $162 million in costs annually. Improved control of asthma could decrease these costs.

Key Words: Burden of illness; Costs; Uncontrolled asthma

METHODS

The uncontrolled asthmatic population

In 1998/1999, the number of asthmatic patients in Canada was 2,389,085, or 8.5% of the population aged four years or older (7). If 57% of asthmatic patients are uncontrolled (2), this would result in a population of 1,350,871 individuals with uncontrolled asthma.

Costs

All costs are given in 2004 Canadian dollars (Table 1). Earlier costs were inflated to 2004 via the consumer price index for Canada (8). The unit cost of an ED visit ($240.96) was determined by inflating Krahn et al's 1990 estimate of $120 (3) and adding the Ontario ED physician consultation fee of $80.75 (9). For the unit cost of an ambulance ride ($195), it was assumed that the ED physician would assess that the ambulatory transport was medically necessary for uncontrolled asthmatic patients, as per the guidelines of the Ontario Ministry of Health and Long-Term Care (10). The unit cost of a hospital day ($804.32) was determined based on Ontario Case Costing Initiative data from the 2001/2002 dataset (11) using the Ninth International Classification of Diseases (12) code 493 for asthma. A total of 1118 cases yielded an average total cost of $2,128.90 for a length of stay of 2.8 days. For the unit cost of an unscheduled family physician visit ($27.85), the Ontario Ministry of Health and Long-Term Care billing code A888 was used (9). Only the $4.64 drug acquisition cost of a salbutamol 100 µg metered dose inhaler for 200 doses (13) was considered in the present analysis (pharmacy markup and dispensing fees were excluded).

Resource utilization

It was assumed that all ED visits, hospitalizations and unscheduled family physician visits of asthmatic patients in Canada were due to their asthma being uncontrolled. The 2001/2002 National Ambulatory Care Reporting System (14) indicated a total of 80,595 ED visits due to asthma (Table 1). Krahn et al (3) assumed that 5% of asthma-related ED visits in Canada would require an ambulance ride and this assumption was also used in the present study, giving a total of 4030 ambulance rides. The rate of hospitalization due to asthma in Canada (143 per 100,000) (15) was multiplied by Statistics Canada's January 1, 2004, postcensal estimate of the national population (31,788,635) to yield 45,458 hospitalizations and 127,282 hospital days (2.8 days per hospitalization). The number of unscheduled physician visits was based on 88% of uncontrolled asthmatic patients making unscheduled physician visits (2) and, therefore, almost 1.2 million unscheduled (family) physician visits were made. It was assumed that all of the uncontrolled asthmatic patients in Canada required at least one salbutamol inhaler over one year.

RESULTS

Table 1 summarizes the unit costs that were multiplied by the resource utilization rates to obtain an overall total of $162 million,
the amount that is spent annually for treating uncontrolled asthma in Canada. Hospitalizations due to uncontrolled asthma were the largest cost contributor (63%), followed by unscheduled family physician visits (20%), ED visits (12%), salbutamol treatment (4%) and ambulance rides (0.5%).

**DISCUSSION**

The present cost-assessment study is the first attempt at calculating the urgent care cost of uncontrolled asthmatic patients in Canada. Previously, Krahn et al (3) calculated that the direct overall costs (in 1990) of asthma totalled $306 million and consisted of nine different cost components. Asthma drugs were the largest cost component ($124 million) and consisted of beta-2-adrenergic agonists, ipratropium bromide, theophylline preparations, sodium cromoglycate and inhaled corticosteroids. Because this analysis determined only the urgent care costs of uncontrolled asthma, the bronchodilator salbutamol was the only asthma drug considered for the symptomatic relief of exacerbations. The costs of inhaled corticosteroids would be associated with acute asthma: A prospective economic analysis. Can Respir J 1999;6:521-5.

The use of certain assumptions in the absence of specific data limited the present study. For example, ED visits for asthma in 2001/2002 were used and assumed to be the same for 2004, as well as fees and costs from one province (Ontario) to represent all of Canada.

Moreover, another limitation of the present study is that the results could be an underestimation of the actual costs of urgent care for uncontrolled asthmatic patients. For example, based on the 2001/2002 National Ambulatory Care Reporting System (14), there were 80,595 ED visits. However, Health Canada’s report on respiratory diseases in Canada (15) cited the 1996/1997 National Population Health Survey Asthma Supplement, which found that 18% of active asthmatic patients had been to the ER at least once in the previous year, compared with 28% from the GlaxoWellcome survey of 1001 asthmatic patients (2). Table 2 outlines other utilization data for three urgent care components.

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**REFERENCES**


3. Krahn MD, Berka C, Langlois P, Detsky AS. Direct and indirect costs of asthma in Canada. Previously, Krahn et al (3) calculated that the direct overall costs (in 1990) of asthma totalled $306 million and consisted of nine different cost components. Asthma drugs were the largest cost component ($124 million) and consisted of beta-2-adrenergic agonists, ipratropium bromide, theophylline preparations, sodium cromoglycate and inhaled corticosteroids. Because this analysis determined only the urgent care costs of uncontrolled asthma, the bronchodilator salbutamol was the only asthma drug considered for the symptomatic relief of exacerbations. The costs of inhaled corticosteroids would be associated with acute asthma: A prospective economic analysis. Can Respir J 1999;6:521-5.


