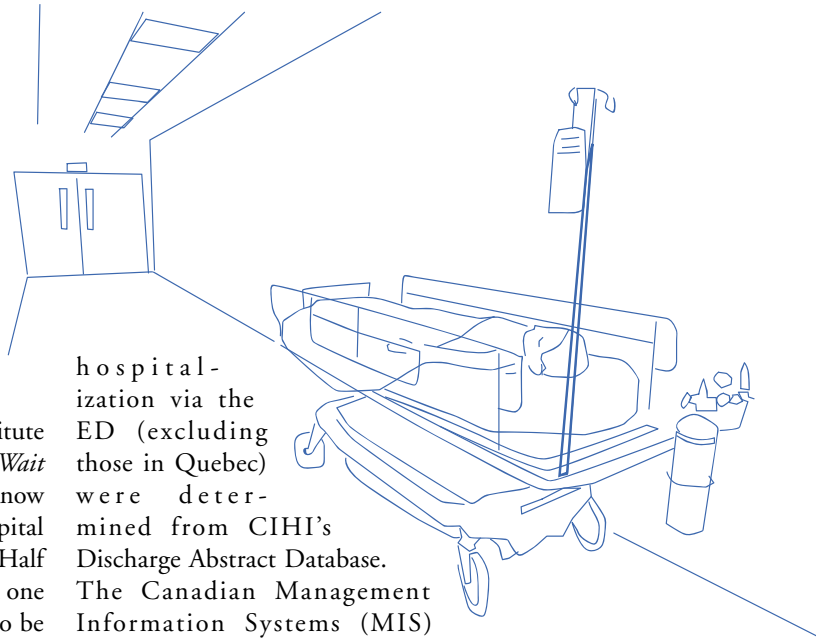
ED Spending in Canada: A Focus on the Cost of Patients Waiting for Access to an In-Patient Bed in Ontario

Heather Dawson and Greg Zinck



In 2005–2006, hospitals in Canada spent $1.8 billion on their emergency departments (EDs). In the same year, more than one million patients were admitted via EDs. (This rate excludes hospitalizations in Quebec and hospitalizations for woman admitted for childbirth and infants born in hospital.) Based on analyses included in the Canadian Institute for Health Information (CIHI) *Understanding Emergency Wait Times: Access to Inpatient Beds and Patient Flow* (2007), we know that the majority of emergency patients admitted to hospital via an ED wait in the ED for access to an in-patient bed. Half the patients in our study waited for at least two hours, and one quarter of admitted patients waited more than 24 hours to be moved from the ED to an acute care bed. In this article, we have explored the proportion of ED spending that is dedicated to patients waiting for a bed. We have found that 6.5% of ED spending in Ontario (or $51 million) was dedicated to these patients in Ontario.

It is generally agreed that there have been few studies of the costs of ED services (Bamezai et al. 2005; Williams 1996). Studies that have looked at ED costs for admitted patients compared with those discharged home have found higher costs associated with admitted patients, particularly those who are older and those who visit large EDs located in urban areas (Bennett et al. 2007; Higginson and Guly 2007).

The intent of this article is to describe a method that can be used to determine the proportion of hospital spending and an estimated dollar value of spending in the ED that is associated with admitted patients waiting for access to an in-patient bed. Estimates at the provincial and Local Health Integration Network (LHIN) levels are provided. The method is based on financial and nursing workload reporting; it does not take into consideration issues external to the hospital that could impact costs such as availability of family physicians near the ED. Additional questions that need to be considered to more fully examine and understand ED costs are proposed in our conclusion.

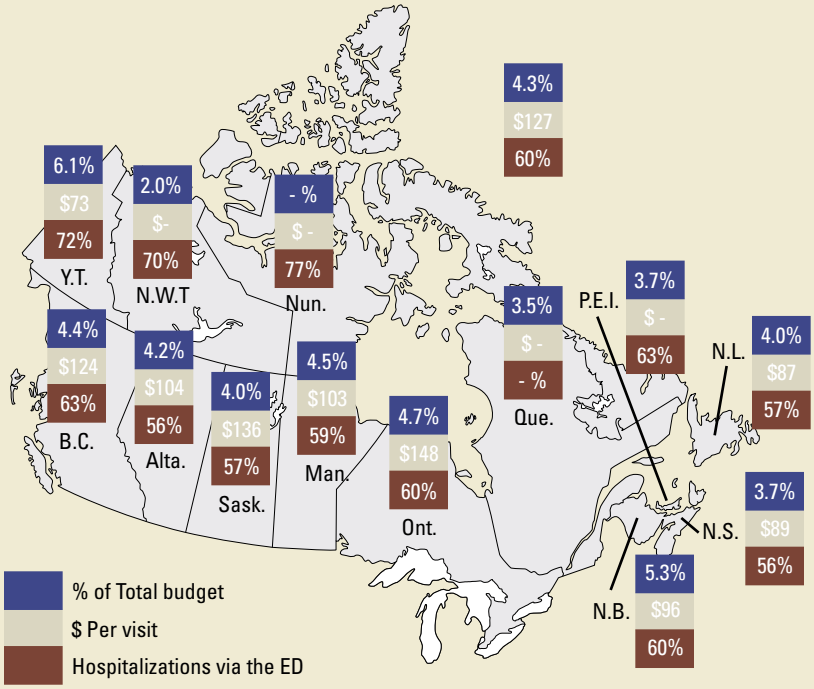
Data Sources and Methods

All analyses reflect fiscal year 2005–2006. Pan Canadian rates of hospitalization via the ED (excluding those in Quebec) were determined from CIHI's Discharge Abstract Database. The Canadian Management Information Systems (MIS) Database (CMDB) holds financial and statistical data reported by healthcare organizations across Canada (including Quebec). Through the ability to use CMDB to link data from hospitals' clinical and financial databases, total spending on EDs, average cost per ED visit and the proportion of spending on admitted patients waiting in the ED were determined. Because data are submitted using the MIS standards chart of accounts, they are comparable across jurisdictions. ED volumes in Ontario were determined from CIHI's National Ambulatory Care Reporting System (NACRS).

Hospital costs reported in the ED include salaries for nurses and other staff, medical supplies and drugs and maintenance and operation of ED equipment. The cost of non-salaried physicians working in the ED and costs associated with laboratory tests and other diagnostics have not been included.

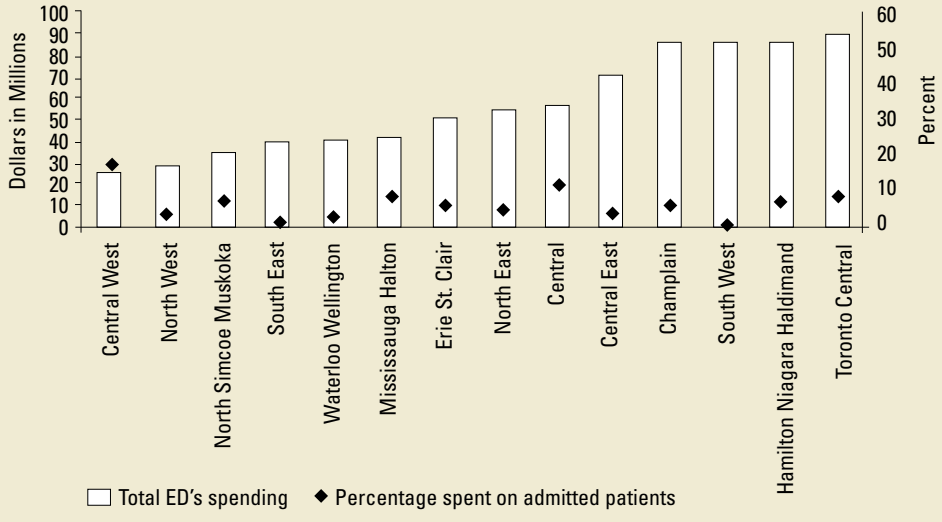
For provinces/territories outside of Ontario, cost per visit was estimated by dividing the costs charged directly to EDs by the number of ED visits as reported in the CMDB. For Ontario, costs per ED visit represents costs charged directly to EDs in the CMDB divided by the number of ED visits as reported in the NACRS. The portion of ED costs for patients who were admitted but waited in the ED for an in-patient bed were estimated by using nursing workload reported the hospitals. Workload in the ED is reported for both inpatients and outpatients and it is this split that allows the estimation of the cost associated with patients waiting for a bed. The estimates are only

Figure 1. Percentage of total hospital budget spent on emergency departments (EDs), average cost per visit and percent hospitalizations via the ED



Sources: Canadian Institute for Health Information's Canadian Management Information Systems Database, 2005–2006, and Discharge Abstract Database, 2005–2006.

Figure 2. Total ED spending and percent spent on patients admitted via the ED, by LHIN



ED = emergency department; LHIN = Local Health Integration Network.

Sources: Canadian Institute for Health Information's Canadian Management Information Systems Database, 2005–2006, and National Ambulatory Care Reporting System, 2005–2006.

provided for Ontario since they are the only province that provides both nursing workload and NACRS data.

Provincial Spending on EDs

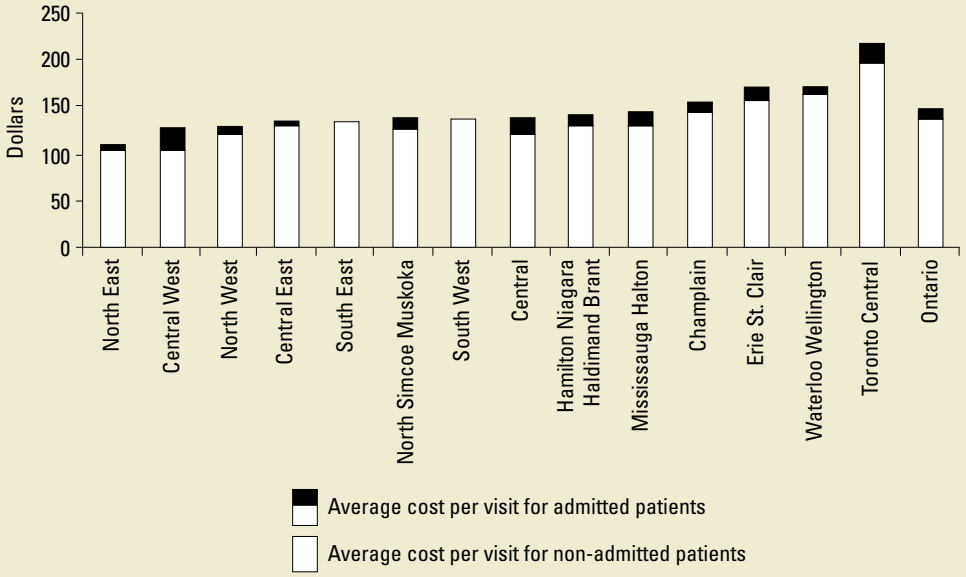
On average, provinces/territories spent about 4% of their hospital budgets on EDs (Figure 1). This ranged from $1.8 million in the Yukon to $791 million in Ontario. The average amount spent per ED visit was estimated to range from $73 in the Yukon (and <$100 per visit in the Maritime provinces) to $136 per visit in Saskatchewan to $148 dollars in Ontario. Variances may be due to ED staffing and operations and/or the type of hospital or community in which the ED is located.

Hospitals in Canada admitted 60% of patients via the ED, and half of these patients waited at least two hours in the ED for access to an in-patient bed. Hospitalization rates via the ED varied slightly across the provinces/territories, ranging from 56% in Nova Scotia to 77% in Nunavut. The average amount spent per ED visit and this hospitalization rate includes costs for admitted patients waiting in the ED for an inpatient bed. We were able to estimate this cost for Ontario; an estimated 6.5% of total ED spending (or $51 million) was dedicated to patients admitted via the ED.

ED Spending and Percentage Spent on Patients Admitted via the ED in Ontario's LHINs

Using CMDB and NACRS data for Ontario's EDs, we were able to take a closer look at regional variation in ED spending. Total spending on EDs was $791 million. This ranged from just over $25 million in

Figure 3. Average cost per ED visit for admitted and non-admitted patients, by LHIN



ED = emergency department; LHIN = Local Health Integration Network.

Sources: Canadian Institute for Health Information's Canadian Management Information Systems Database, 2005–2006, and National Ambulatory Care Reporting System, 2005–2006.

Central West LHIN 5 to almost $90 million in Toronto Central LHIN 7 (Figure 2). On average, 10% of ED patients were admitted, with admission rates ranging from almost 7.6% in the South East LHIN 10 to almost 14% in Toronto Central LHIN 7. While there appears to be little relationship between total ED spending, the proportion of spending on patients admitted via the ED and hospitalization rates via the ED, there does appear to be regional variation that could be explored in greater detail.

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Putting a Dollar Amount on Spending per ED Visit in Ontario

The average amount per ED visit in Ontario was estimated to be $148. This ranged from $111 per visit in the North East LHIN 13 to $219 per visit in Toronto Central LHIN 7 (Figure 3). When costs associated with admitted patients were removed, the average rate per visit dropped to $138 per visit, a drop of nearly 7%. While there does appear to be an association between the average amount spent per ED visit and the proportion of patients admitted via the ED, there appears be variation in the proportion spent on admitted ED patients.

What Else Needs to Be Considered?

This analysis provides a cursory exploration of the costs associated with patients waiting in the ED for access to an in-patient bed. The rates provided are simply estimates based on ED volumes, existing cost data and nursing workload in Ontario. There are many factors associated with ED costs and wait times that can be explored, such as in-patient bed capacity, hospital type and location, patient acuity, the size and staffing of EDs, hospital operational patterns and changes in the demand for hospital services (Bagust et al. 1999; Chan et al. 2001; Forster et al. 2003; Rathlev et al. 2007). With additional CMDB data, physician billing data and more in-depth analysis of NACRS or other provincial ED data, these factors could be considered in order to get a truer understanding of spending in the ED from a national perspective. While NACRS data is currently unavailable for provinces other than Ontario, CIHI has undertaken a redevelopment of NACRS that will allow all provinces to submit data with less reporting burden. The newly developed NACRS will provide more information on wait times and on patients flowing through the ED. HQ

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Heather Dawson, MHSc, is manager of health services research at the Canadian Institute for Health Information (CIHI). In this role, Heather oversees the development of health services analyses with the view to addressing relevant questions for policy and health systems issues. She has previously worked in leadership roles in hospitals and health planning and advocacy organizations in Ontario.

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