



Canadian Institute
for Health Information
Institut canadien
d'information sur la santé

Analysis in Brief

Taking health information further

January 2007

Understanding Emergency Department Wait Times: How Long Do People Spend in Emergency Departments in Ontario?

Executive Summary

Emergency departments (EDs) play an important role in the health care system and are used by millions of Canadians each year. This Analysis in Brief provides new population-based information on how long people spend in Ontario EDs from the time they arrive until the time they are discharged or admitted to hospital.

The Analysis in Brief focuses on variations in:

- Total time spent in the ED and
- Time spent waiting for an initial physician assessment in the ED.

Variations in ED visit times are analyzed using both hospital- and patient-specific factors. Hospital factors include ED volume/hospital type (that is, teaching or non-teaching status) and location, as defined by Ontario's local health integration networks (LHINs). Patient factors studied include the acuity of patients' presenting symptoms and whether or not patients require admission to hospital.

Key findings include the following:

- **ED Volume/Hospital Type**—People who present at high-volume community hospital EDs or at teaching hospital EDs tend to have longer ED visits and longer waits to be seen by a physician than people treated at EDs with lower annual volumes. This pattern was observed for patients admitted to the hospital and those discharged from the ED.
- **Geographic Location**—People who present for care at an ED in certain areas of Ontario (for example, the Toronto Central LHIN and greater Toronto area LHINs) tend to have longer ED visits overall and longer waits to be seen by a physician. This finding is consistent with the findings related to waits by ED volume and hospital type, in that LHIN areas with higher population densities also tend to have high-volume community and teaching hospital EDs within their boundaries.

Analysis in Brief

Taking health information further

- **Presenting Symptoms**—People who present at an ED with more urgent conditions (that is, with Canadian Triage and Acuity [CTAS] scores of I and II) tend to have shorter waits for their initial physician assessments but spend a longer time overall in an ED.
- **Admitted and Non-Admitted ED Patients**—Similarly, those patients who require admission to the hospital for at least one night are more likely to spend a longer overall time in an ED and, conversely, are likely to have a shorter wait to initial physician assessment.

Qualifying these findings, there are many factors that contribute to the length of ED visits. For example, though higher annual volumes of ED visits are associated with longer average ED visit times, this is not always the case over the course of a day within any given ED. For example, the busiest times for EDs (that is, 9 a.m. to noon) often have the shortest average visit lengths.¹ The next report in this series will examine associations between selected system-level factors and ED visit times.

The findings presented in this report are intended to add to the understanding of ED visits times by providing new insights into ED visits in Ontario.

Data Sources

The analyses presented in this report are primarily based on 2005–2006 data from the Canadian Institute for Health Information's (CIHI) National Ambulatory Care Reporting System (NACRS). The data used were limited to Ontario hospital EDs, since only 2% of NACRS data are from hospitals outside of Ontario. The data include information from 167 EDs in Ontario (see Appendix A).

Introduction

According to the recent Canadian Community Health Survey by Statistics Canada, completed in 2005, an estimated 3.5 million Canadians aged 12 or older, or one in seven individuals, were treated for their most recent injury or had their most recent contact with a health professional in an ED.² Based on the large proportion of the Canadian population that visits an ED each year and the important role of EDs in the health care system, it is not surprising that there is considerable interest in ED care and wait times. Accordingly, CIHI has undertaken the development of a three-report series entitled *Understanding Emergency Department Wait Times*. The aim of this series of reports is to use CIHI's existing data sources to add to the understanding of ED wait times in Canada.

The first report in this series, *Understanding Emergency Department Wait Times: Who Is Using Emergency Departments and How Long Are They Waiting?*,¹ focused on the characteristics of patients visiting selected EDs in Canada and the overall length of time people spent in EDs. This report is available on the CIHI website (www.cihi.ca).

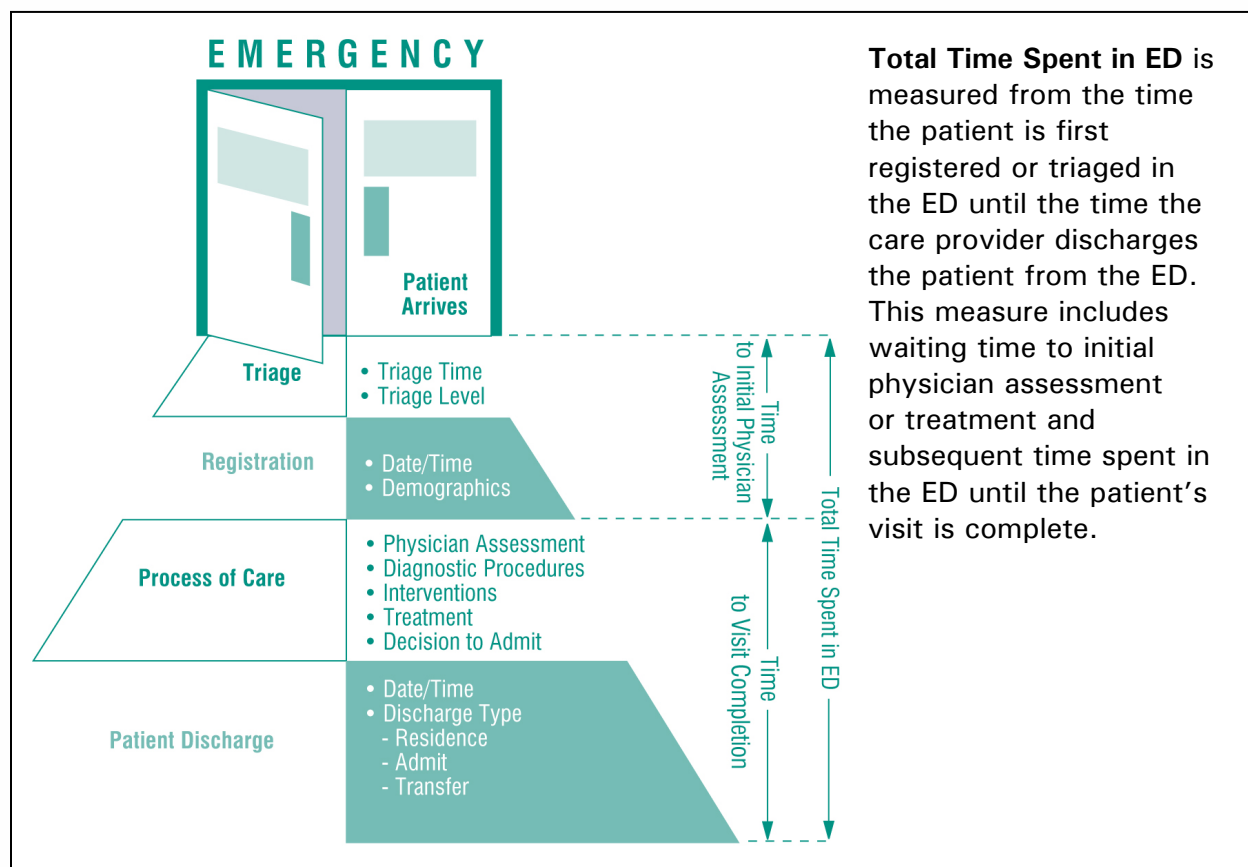
This second report looks more closely at ED care in Ontario. Specifically, the report examines variations in overall time spent in the ED by ED volume/hospital type; geographic location; wait times to initial physician assessment; and variations by patient triage level and discharge disposition.

The third report will provide insight and data on some of the factors of the health care system that are associated with ED wait times.

Analysis in Brief

Taking health information further

Figure 1. Emergency Department Flow and Related Definitions



Is There a Maximum Amount of Time Patients Should Spend in the ED?

In 2000, the National Health Service (NHS) in the United Kingdom proposed benchmarks for ED visit times in England. All patients, regardless of triage level, were expected to spend four hours or less in the ED.³ Initially, 80% of patients met this target. By June 2006, 98%⁴ of hospitals in the NHS were reported to be meeting the benchmark, although some have suggested that the results may partly reflect the use of strategies such as shifting patients from the ED to holding areas or not accepting patients into the ED if they would affect the ED's performance relative to the target.⁵

In October 2006, the Ontario Hospital Association (OHA), the Ontario Medical Association (OMA) and the Ontario Ministry of Health and Long-Term Care (MOHLTC) released a co-sponsored report entitled *Improving Access to Emergency Care: Addressing the System Issues*.⁶ The report explored an approach similar to the UK benchmarks, including targets that 90% or more of all ED patients should complete their visits within:

- ≤ 6 hours for CTAS Level I, II and III patients; and
- ≤ 4 hours for CTAS Level IV and V patients.

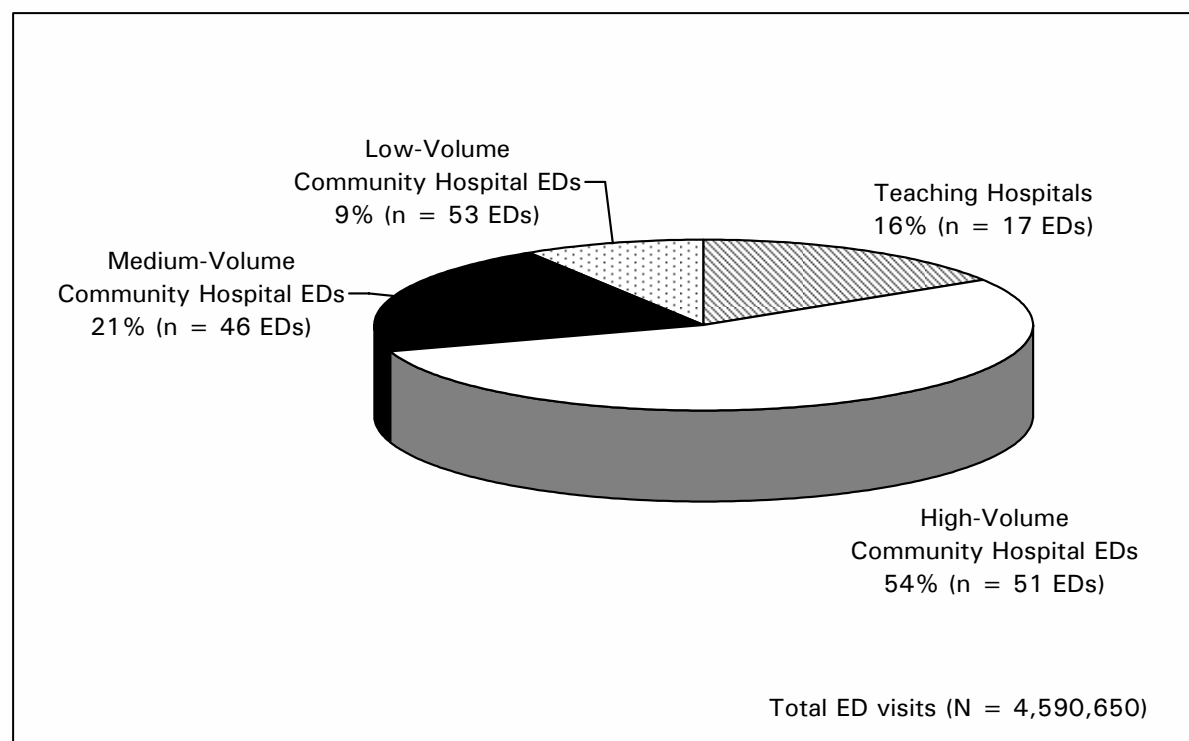
Do ED Times Vary by ED Volume/Hospital Type?

In order to examine variations among different types of hospital EDs, hospitals have been grouped into one of four categories based on their annual ED volumes and teaching status:

- **Low-volume EDs in community hospitals:** annual number of ED visits < 15,000.
- **Medium-volume EDs in community hospitals:** annual number of ED visits between 15,000 and 30,000.
- **High-volume EDs in community hospitals:** annual number of ED visits > 30,000.
- **EDs in teaching hospitals:** members of the Council of Academic Hospitals in Ontario. (All but two of these hospitals have high-volume EDs with annual visits over 30,000.)

As illustrated in Figure 2, most ED visits take place in Ontario's high-volume community and teaching hospital EDs. Seventy percent of ED visits occurred in teaching and high-volume community hospitals, while the 99 EDs in Ontario with 30,000 annual visits or fewer accounted for only 30% of the total ED visits in 2005–2006.

Figure 2. Distribution of ED Visits by ED Volume/Hospital Type, Ontario, 2005–2006



Note: These data represent visits to 167 Ontario-based emergency departments.

Source: NACRS, 2005–2006, CIHI.

Does Total Time Spent in ED Vary by ED Volume/Hospital Type?

How long patients spend in the ED varies by hospital size. Both the average ED wait to initial physician assessment and overall time spent in the ED are longest in high-volume community and teaching hospital EDs. For example, half of all ED visits at high-volume community hospitals were completed in just under three hours or less. This is somewhat shorter than the median ED visit length in teaching hospitals (just under four hours) but significantly longer than that for low-volume EDs (just over an hour). Likewise, 1 in 10 visits to high-volume community hospital EDs lasted 7.5 hours or more. This compares to 9.3 hours for teaching hospitals, which is about three times as long as for low-volume EDs. For further information, a detailed breakdown of total time spent in EDs by ED volume/hospital type is included in Appendix B.

There are many factors that contribute to longer waits and total visit times in EDs. For example, teaching hospital EDs and high-volume EDs in community hospitals tend to treat a higher proportion of patients who are seriously ill, compared to low-volume EDs in community hospitals—63% of patients in teaching hospitals are classified as category I, II or III on the CTAS, versus 17% at low-volume community hospitals. Nevertheless, compared to the overall provincial median, the least urgent patients (those categorized as CTAS IV or V) also tend to have longer ED visits at teaching hospitals, slightly longer ED visits at high-volume community hospitals and much shorter visits at low- and medium-volume EDs. The third report in this series will provide insight into additional system-level factors associated with longer ED visits.

Do Wait Times to Initial Physician Assessment Vary by ED Volume/Hospital Type?

Time to initial physician assessment is important because it reflects how long ED patients wait before being assessed by a doctor, which may then be followed by further testing or treatment.

In general, time to physician initial assessment is slightly longer at high-volume EDs in community hospitals than at teaching hospital EDs, and is lower at medium-volume and low-volume EDs in community hospitals. More specifically:

- Average waits to initial assessment by a physician tend to be longer in high-volume community hospital EDs, regardless of whether a patient is eventually admitted to a hospital or discharged from the ED. In these settings, at least half of the patients wait 1.2 hours or more to be seen by a physician; 10% of patients are seen within 0.3 hours (10th percentile); and the same proportion of patients wait 3.6 hours or more (90th percentile).
- In teaching hospital EDs, at least half of the patients wait 1.1 hours or less for their initial physician assessment and 10% of patients wait 3.3 hours or more (90th percentile).

Analysis in Brief

Taking health information further

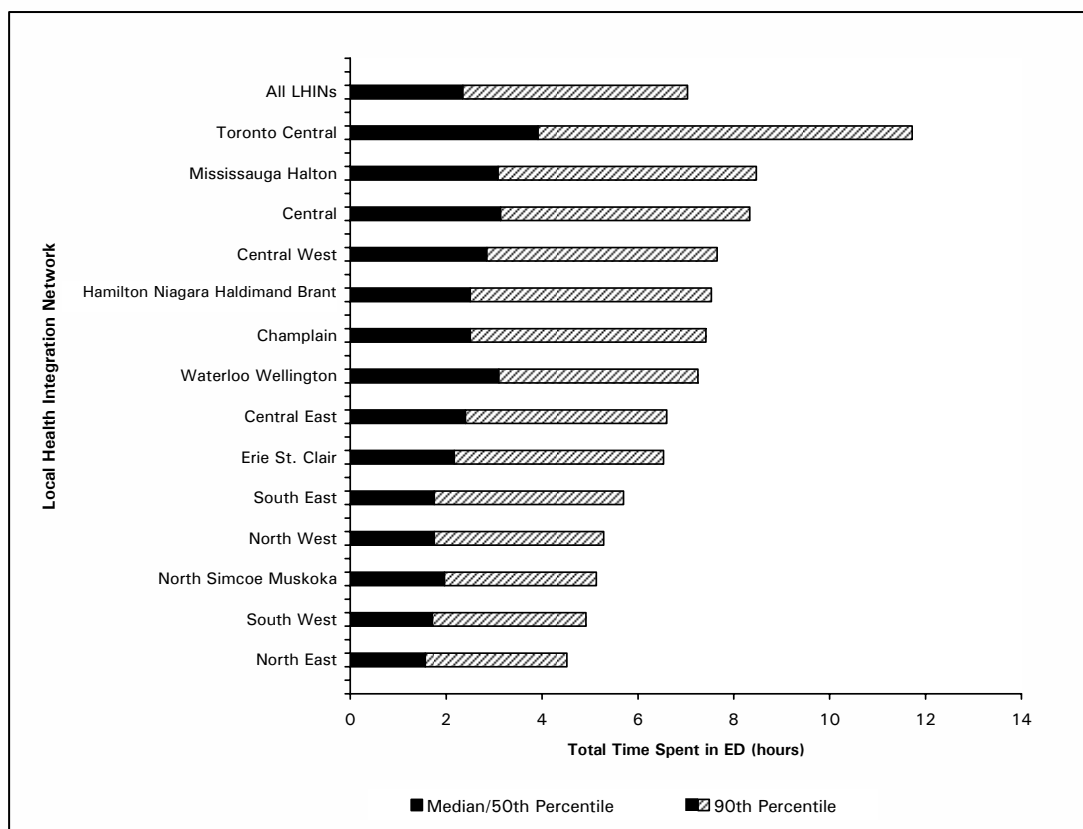
- Conversely, at low-volume and medium-volume EDs in community hospitals, the time to initial physician assessment for at least half of patients is 0.5 and 0.8 hours, respectively. The 10% of patients who wait the longest (90th percentile) spend at least 1.6 and 2.3 hours, respectively, waiting to be seen by a doctor.

Do ED Visit Times Vary by Region in Ontario?

Does Total Time Spent in the ED Vary by LHIN?

As part of the MOHLTC's transformation agenda, LHINs were created to reflect local areas where people seek health care. As the previous section showed, longer ED visits tend to occur more often in hospitals with high volumes of ED visits and in teaching hospitals. Consequently, those LHINs with more of these types of hospitals have longer average ED visits than other parts of the province. The results presented in this analysis reflect ED visits taking place within an LHIN, regardless of the place of residence of the patient.

Figure 3. Total Time Spent in ED by Hospital Location in LHIN, Ontario, 2005–2006



Note: These data represent visits to 167 Ontario-based emergency departments.

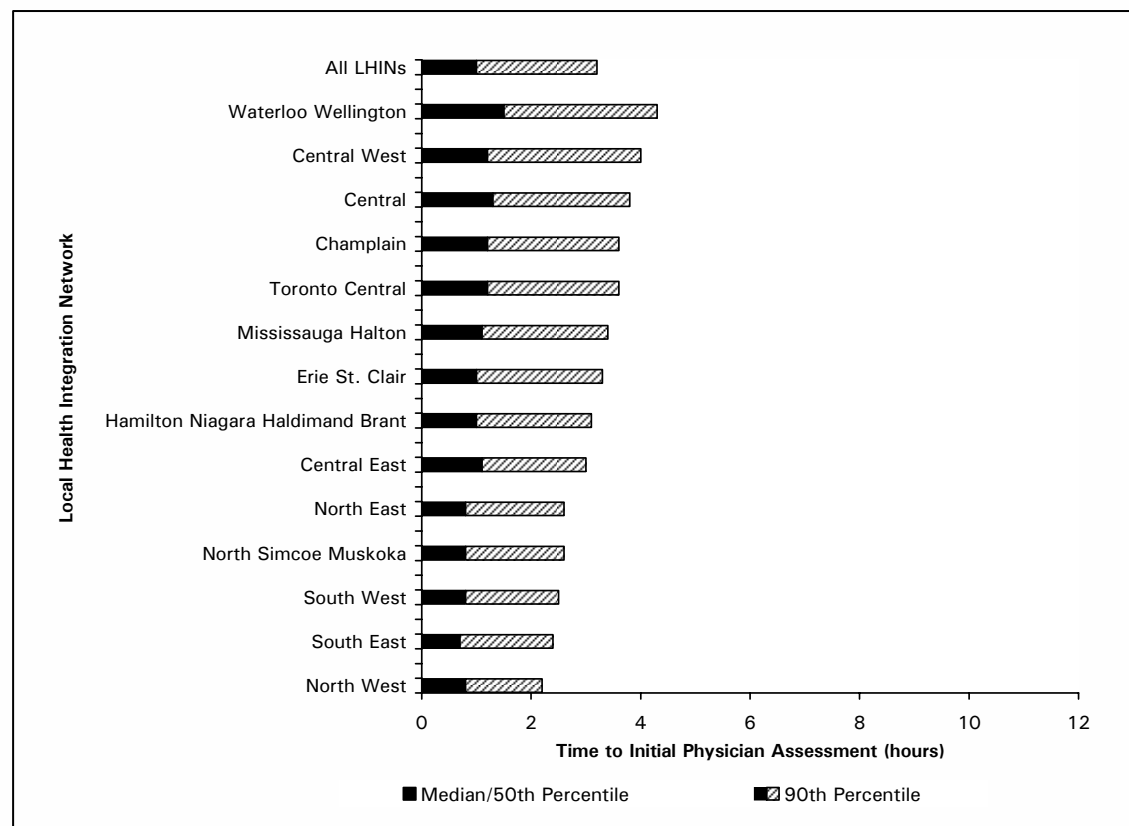
Source: NACRS, 2005–2006, CIHI.

Does Length of Time to Initial Physician Assessment Vary by LHIN?

Wait times to initial physician assessment are longer in certain LHINs than in others. For example, median waits to see a physician ranged from 0.7 to 1.5 hours across the province. Overall, the province had a median wait time to initial physician assessment of about one hour. The 90th percentile (the time within which 90% of patients had been seen) varied from 2.2 hours in the North West LHIN to 4.3 hours in the Waterloo Wellington LHIN.

In general, geographic patterns for times to initial physician assessment are relatively consistent with patterns of total time spent in the ED. Areas with higher volumes of ED visits and those with greater numbers of teaching hospitals tend to have longer times to initial physician assessment.

Figure 4. Time to Initial Physician Assessment by Hospital Location in LHIN, Ontario, 2005–2006



Note: These data represent visits to 167 Ontario-based emergency departments.

Source: NACRS, 2005–2006, CIHI.

Are Patients With the Most Urgent Presenting Symptoms Seen Most Quickly?

Waits also vary by patient characteristics. The triage principle is simple: Ontario EDs use the CTAS, a triage protocol designed to systematically ensure that patients who need the most immediate care are assessed by physicians first. Following arrival at an ED, patients are assigned to one of five categories according to urgency. Within each category, the developers of the CTAS identified a response goal for the time between triage and time to initial physician assessment. For example, they specified that those who need to be resuscitated (CTAS I) require immediate care, whereas those who have less urgent conditions may be able to wait for a short period of time to receive care if a more urgent case must be treated first. Those who are categorized as CTAS V would require the least urgent care according to their presenting symptoms. While assignment of triage level is usually based on the patient's presenting complaint, other factors (such as the care provider's experience or intuition) as well as additional information (for example, vital signs, oxygen saturation levels and pain level) may also affect the triage decision.

CTAS Explained

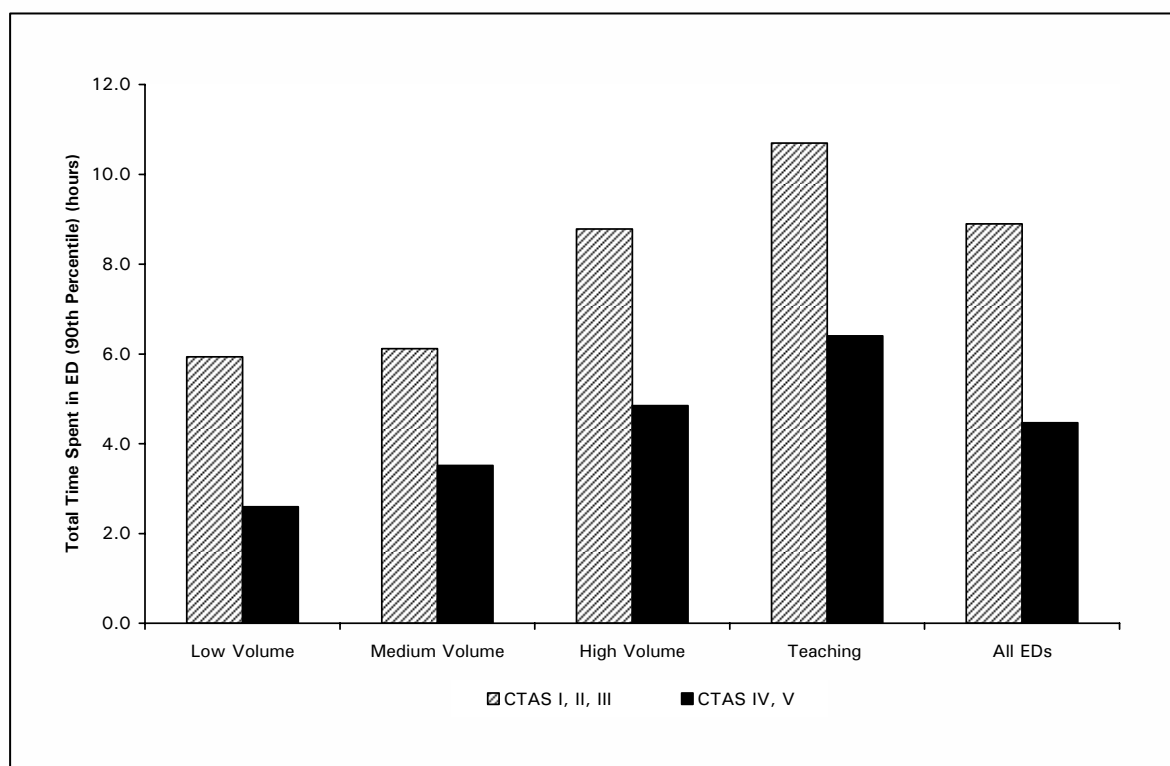
One way of assessing the severity of illness for ED patients is the Canadian Triage and Acuity Scale (CTAS). The CTAS is designed to ensure that the most urgent patients get seen first. The CTAS system groups patients into five categories:^{7,8,9}

- **CTAS I:** requires resuscitation and includes conditions that are threats to life or imminent risk of deterioration, requiring immediate aggressive interventions (for example, cardiac arrest, major trauma, or shock states).
- **CTAS II:** requires urgent care and includes conditions that are a potential threat to life or limb function, requiring rapid medical intervention or delegated acts (for example, head injury, chest pain, GI bleeding, abdominal pain with visceral symptoms or hyperbilirubinemia in neonates).
- **CTAS III:** requires urgent care and includes conditions that could potentially progress to a serious problem requiring emergency intervention, such as mild to moderate asthma or dyspnea, moderate trauma or vomiting and diarrhea in patients younger than 2 years.
- **CTAS IV:** requires less urgent care and includes conditions related to patient age, distress or potential for deterioration, or complications that would benefit from intervention or reassurance within one to two hours, such as urinary symptoms, mild abdominal pain or earache.
- **CTAS V:** requires non-urgent care and includes conditions in which investigations or interventions could be delayed or referred to other areas of the hospital or health care system, such as sore throat, conditions related to chronic problems or psychiatric complaints with no suicidal ideation or attempts.

Does Total Time Spent in the ED Vary by CTAS Score?

Patients who are categorized as CTAS I, II or III tend to spend longer in the ED than patients categorized as CTAS IV or V. As illustrated in Figure 5, for example, 10% of the patients categorized as CTAS I, II or III spent a total of nine hours or more in the ED. In contrast, 10% of patients categorized as CTAS IV or V spent four hours or more in an ED. This pattern holds true across the province (see Appendix C). That said, regardless of the CTAS level, teaching hospital EDs and high-volume EDs in community hospitals tend to have longer ED visit times.

Figure 5. Total Time Spent in ED by ED Volume/Hospital Type and CTAS Score, Ontario, 2005–2006



Note: These data represent visits to 167 Ontario-based emergency departments.

Source: NACRS, 2005–2006, CIHI.

Does Time Spent Waiting to See a Physician Vary by CTAS Score?

The time spent waiting to be seen by a physician in the ED varied in 2005–2006 by the acuity of patients' conditions. Overall, for example, 50% of patients triaged as CTAS I were seen by a physician within 6 minutes and 86% were seen within 30 minutes of arriving at the ED. In contrast, the 50% of patients triaged as CTAS IV or V who were seen most quickly waited an hour or less, while 1 in 10 waited three hours or more.

Regardless of ED volume or ED location in Ontario, those patients who are in the most urgent need of care (CTAS I and II) are more likely to be admitted to the hospital. This group of patients tends to spend more time in the ED than those who are discharged home.

Analysis in Brief

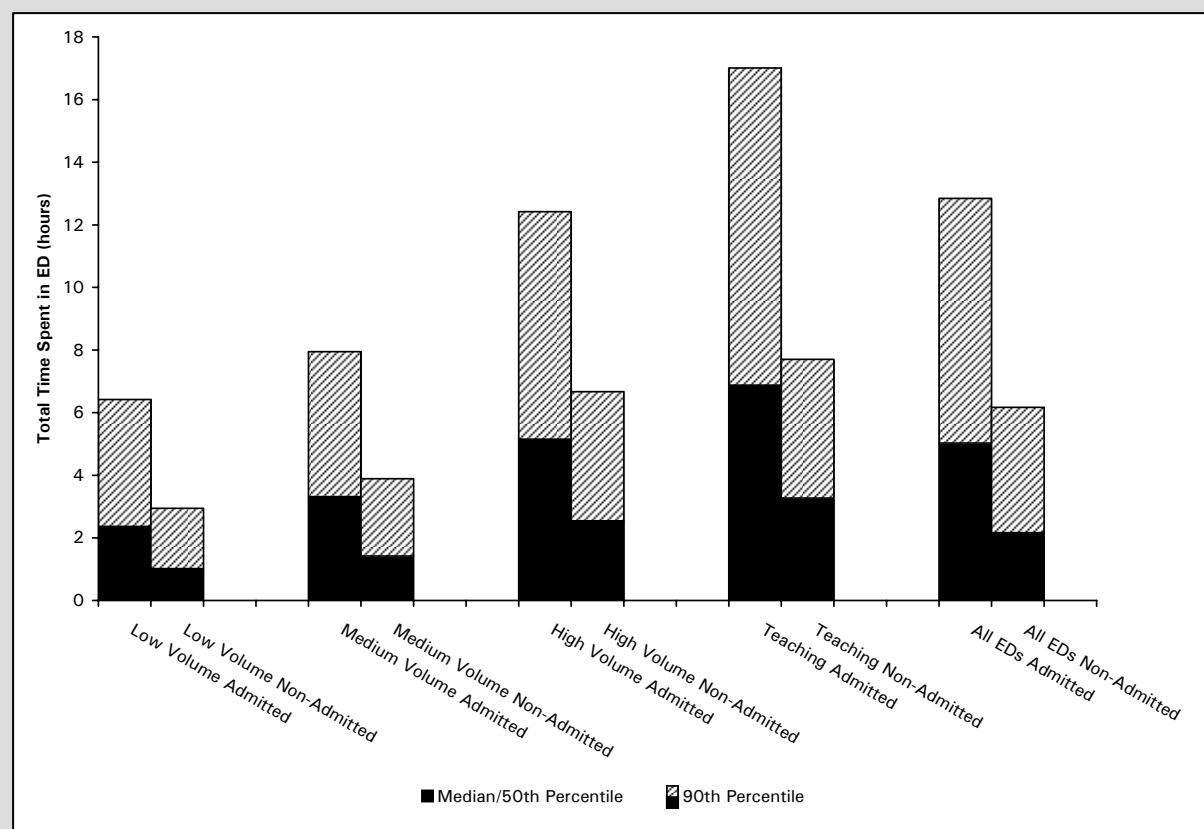
Taking health information further

Who Spends Longer in the ED—Patients Admitted to Hospital or Those Who Are Discharged Home?

In 2005–2006, 10.5% of ED visits in Ontario resulted in an admission to the hospital where the ED visit occurred. The balance of the ED visits led to a discharge home (82.7%), transfer to another facility (0.8%), patient departures before completion of their care (4.2%) and other results, including dying while in the ED (1.8%). Patients who are admitted tend to have longer stays in the ED because they may require additional testing, consults with specialists or, in some cases, they must wait for an inpatient hospital bed to become available.⁶ ED visits that do not require an inpatient admission tend to be much shorter. Ninety percent of these visits are completed in just over six hours (Figure 6).

ED visits for both admitted and non-admitted patients tend to be longer in high-volume EDs in community hospitals and teaching hospital EDs than they are in medium- and lower-volume EDs in community hospitals.

Figure 6. Total Time Spent in ED by ED Volume/Hospital Type and ED Discharge Status (Admitted to Hospital or Not Admitted), Ontario, 2005–2006



Note: These data represent visits to 167 Ontario-based emergency departments.

Source: NACRS, 2005–2006, CIHI.

Appendix A

Table A-1. Number of Hospital Emergency Departments by Hospital Type and LHIN, 2005–2006

LHIN	Type of Hospital Emergency Department				Total
	Low Volume	Medium Volume	High Volume	Teaching	
Erie St. Clair	1	2	4	-	7
South West	14	10	2	3	29
Waterloo Wellington	2	1	4	-	7
Hamilton Niagara Haldimand Brant	1	8	4	4	17
Central West	-	-	3	-	3
Mississauga Halton	1	2	3	-	6
Toronto Central	-	-	2	6	8
Central	-	-	7	-	7
Central East	3	2	9	-	14
South East	1	5	-	1	7
Champlain	4	6	4	3	17
North Simcoe Muskoka	-	1	4	-	5
North East	16	7	4	-	27
North West	10	2	1	-	13
Total	53	46	51	17	167

Notes:

171 hospital EDs in Ontario were included in the original data set. Four EDs were excluded from the analyses due to data quality issues.

Source: NACRS, 2005–2006, CIHI.

Appendix B

Table B-1. Distribution of ED Visits by Time Spent in the ED for Ontario LHIN Regions, 2005–2006

LHIN	Distribution of Visits by Percentile											Total
	10th		25th		50th (Median)		75th		90th		> 90th	
	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	No. of Visits
Erie St. Clair	29,417	0.7	40,300	1.2	66,671	2.2	66,659	3.9	39,913	6.5	26,994	269,954
South West	53,669	0.5	80,389	0.9	130,058	1.7	129,416	3.1	78,885	5.0	52,259	524,676
Waterloo Wellington	20,954	0.8	30,661	1.6	51,995	3.0	51,314	4.9	30,807	7.2	20,574	206,305
Hamilton Niagara Haldimand Brant	49,578	0.7	78,411	1.3	121,501	2.5	122,926	4.5	73,095	7.5	49,494	495,005
Central West	16,861	0.8	24,177	1.5	40,468	2.9	40,632	5.0	24,103	7.7	16,169	162,410
Mississauga Halton	24,481	1.0	35,745	1.8	59,329	3.1	59,951	5.3	35,788	8.5	23,799	239,093
Toronto Central	35,695	1.4	53,965	2.3	88,106	3.9	88,976	6.8	53,229	11.4	35,508	355,479
Central	35,894	1.0	50,651	1.7	86,563	3.1	86,351	5.4	51,523	8.3	34,192	345,174
Central East	50,683	0.7	76,909	1.4	125,801	2.5	126,252	4.3	75,872	7.1	50,595	506,112
South East	17,499	0.5	25,074	0.9	42,089	1.8	41,829	3.3	25,301	5.7	16,799	168,591
Champlain	48,717	0.7	75,862	1.3	118,926	2.5	120,969	4.5	72,813	7.4	48,383	485,670
North Simcoe Muskoka	22,402	0.7	31,615	1.1	54,640	2.0	53,561	3.3	32,242	5.1	21,488	215,948
North East	43,601	0.5	62,514	0.9	106,352	1.6	105,687	2.8	63,464	4.5	42,278	423,896
North West	20,264	0.5	27,907	0.9	48,933	1.8	47,324	3.2	28,692	5.3	19,217	192,337
Total	469,715		694,180		1,141,432		1,141,847		685,727		457,749	4,590,650

Notes:

- These data represent visits to 167 Ontario-based emergency departments.
- ED Length of Stay (LOS) = total time spent in the emergency department (from triage/registration to discharge). Time is represented in hours.
- Number of visits within each percentile reflect the distribution of visits within that percentile, not a cumulative proportion of visits.

Source: NACRS, 2005–2006, CIHI.

Analysis in Brief

Taking health information further

Table B-2. Distribution of ED Visits by Time Spent in the ED by ED Volume/Hospital Type, Ontario, 2005–2006

ED Volume/ Hospital Type	Distribution of Visits by Percentile											Total No. of Visits
	10th		25th		50th (Median)		75th		90th		>90th	
	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	ED LOS (hrs)	No. of Visits	
Low Volume	104,046	0.3	104,670	0.6	114,211	1.1	69,433	1.9	23,038	3.2	14,901	430,299
Medium Volume	146,845	0.5	202,742	0.8	275,275	1.5	209,533	2.6	86,810	4.2	44,393	965,598
High Volume	193,257	0.9	323,088	1.5	600,871	2.8	657,157	4.8	422,543	7.5	282,518	2,479,434
Teaching	25,644	1.3	61,624	2.2	151,249	3.6	209,281	5.9	151,670	9.3	115,851	715,319
Total	469,792		692,124		1,141,606		1,145,404		684,061		457,663	4,590,650

Notes:

- a) These data represent visits to 167 Ontario-based emergency departments.
- b) ED Length of Stay (LOS) = total time spent in the emergency department (from triage/registration to discharge). Time is represented in hours.
- c) Number of visits within each percentile reflect the distribution of visits within that percentile, not a cumulative proportion of visits.
- d) **Low-volume EDs in community hospitals:** annual number of ED visits < 15,000.
Medium-volume EDs in community hospitals: annual number of ED visits between 15,000 and 30,000.
High-volume EDs in community hospitals: annual number of ED visits > 30,000.
EDs in teaching hospitals: members of the Council of Academic Hospitals in Ontario. (All but two of these hospitals have high-volume EDs with annual visits over 30,000.)

Source: NACRS, 2005–2006, CIHI.

Appendix C

Table C-1. Total Time Spent in ED and Time Spent to Initial Physician Assessment by LHIN and CTAS Group, Ontario, 2005–2006

LHIN	CTAS Score	Total Time Spent in ED			Time to Initial Physician Assessment		
		No. of Visits	Median (hours)	90th Percentile (hours)	No. of Visits	Median (hours) *	90th Percentile (hours)
All EDs	I, II, III	2,291,091	3.4	8.9	1,843,167	1.1	3.5
All EDs	IV, V	2,299,559	1.6	4.5	1,676,321	1.0	3.0
All EDs	I–V	4,590,650	2.4	7.0	3,519,488	1.0	3.2
Erie St. Clair	I, II, III	128,446	3.2	8.3	113,558	1.0	3.7
Erie St. Clair	IV, V	141,508	1.6	4.2	114,763	1.0	2.9
Erie St. Clair	I–V	269,954	2.2	6.5	228,321	1.0	3.3
South West	I, II, III	186,032	2.7	6.9	152,078	0.7	2.1
South West	IV, V	338,644	1.3	3.6	223,297	1.0	2.7
South West	I–V	524,676	1.7	5.0	375,375	0.8	2.5
Waterloo Wellington	I, II, III	115,548	3.8	8.2	102,246	1.5	4.4
Waterloo Wellington	IV, V	90,757	2.2	5.5	75,310	1.5	4.3
Waterloo Wellington	I–V	206,305	3.1	7.2	177,556	1.5	4.3
Hamilton Niagara Haldimand Brant	I, II, III	249,166	3.3	9.1	172,833	0.9	3.1
Hamilton Niagara Haldimand Brant	IV, V	245,839	1.9	5.3	165,524	1.1	3.0
Hamilton Niagara Haldimand Brant	I–V	495,005	2.5	7.5	338,357	1.0	3.1
Central West	I, II, III	110,919	3.7	8.6	103,258	1.3	4.4
Central West	IV, V	51,491	1.6	4.3	47,256	0.9	2.8
Central West	I–V	162,410	2.9	7.7	150,514	1.2	4.0
Mississauga Halton	I, II, III	164,940	3.8	9.7	127,976	1.2	3.8
Mississauga Halton	IV, V	74,153	2.0	4.6	57,257	1.1	2.8
Mississauga Halton	I–V	239,093	3.1	8.5	185,233	1.1	3.5
Toronto Central	I, II, III	248,987	4.7	13.5	224,384	1.1	3.7
Toronto Central	IV, V	106,492	2.8	6.7	96,387	1.2	3.3
Toronto Central	I–V	355,479	3.9	11.7	320,771	1.2	3.5
Central	I, II, III	199,834	4.3	9.8	174,696	1.5	4.2
Central	IV, V	145,340	2.0	5.1	122,116	1.1	3.0
Central	I–V	345,174	3.1	8.3	296,812	1.3	3.8
Central East	I, II, III	289,552	3.1	7.9	205,028	1.2	3.1
Central East	IV, V	216,560	1.7	4.3	160,919	1.1	2.9
Central East	I–V	506,112	2.4	6.6	365,947	1.1	3.0
South East	I, II, III	70,648	2.6	7.5	51,906	0.6	2.0
South East	IV, V	97,943	1.3	4.2	72,470	0.7	2.7
South East	I–V	168,591	1.8	5.7	124,376	0.7	2.3
Champlain	I, II, III	227,260	3.8	9.6	201,510	1.3	3.7
Champlain	IV, V	258,410	1.7	4.9	193,600	1.1	3.5
Champlain	I–V	485,670	2.5	7.4	395,110	1.2	3.6

(cont'd)

Analysis in Brief

Taking health information further

Table C-1. Total Time Spent in ED and Time Spent to Initial Physician Assessment by LHIN and CTAS Group, Ontario, 2005–2006 (cont'd)

LHIN	CTAS Score	Total Time Spent in ED			Time to Initial Physician Assessment		
		No. of Visits	Median (hours)	90th Percentile (hours)	No. of Visits	Median (hours) *	90th Percentile (hours)
North Simcoe Muskoka	I, II, III	92,834	2.7	6.5	72,213	0.7	2.7
North Simcoe Muskoka	IV, V	123,114	1.6	3.8	92,154	0.8	2.4
North Simcoe Muskoka	I–V	215,948	2.0	5.1	164,367	0.8	2.5
North East	I, II, III	127,886	2.7	6.3	97,090	0.9	3.1
North East	IV, V	296,010	1.3	3.4	189,429	0.8	2.4
North East	I–V	423,896	1.6	4.5	286,519	0.8	2.7
North West	I, II, III	79,039	2.8	7.0	44,391	1.0	2.3
North West	IV, V	113,298	1.3	3.5	65,839	0.6	2.1
North West	I–V	192,337	1.8	5.3	110,230	0.8	2.2

Notes:

- a) These data represent visits to 167 Ontario-based emergency departments.
- b) Total time spent in ED = total time spent in the emergency department (from triage/registration to discharge).
- c) Time to Initial Physician Assessment (TIPA) = Time spent waiting for initial physician assessment in the ED (from time of triage/registration to time of initial physician assessment).

Source: NACRS, 2005–2006, CIHI.

Table C-2. Total Time Spent in ED and Time Spent to Initial Physician Assessment by ED Volume/ Hospital Type and CTAS Group, Ontario, 2005–2006

ED Volume/ Hospital Type	Patient Discharge	CTAS Score	Total Time Spent in the ED			Time to Initial Physician Assessment		
			No. of Visits	Median (hours)	90th Percentile (hours)	No. of Visits	Median (hours)	90th Percentile (hours)
Low Volume	Non-Admitted	I, II, III	62,120	1.8	5.7	40,297	0.5	1.7
		IV, V	346,238	0.9	2.5	207,970	0.5	1.6
		I–V	408,358	1.0	3.0	248,267	0.5	1.6
	Admitted	I, II, III	13,122	2.4	6.8	7,918	0.4	1.4
		IV, V	8,819	2.3	5.9	5,144	0.5	1.8
		I–V	21,941	2.4	6.4	13,062	0.4	1.6
Medium Volume	Non-Admitted	I, II, III	216,022	2.0	5.6	161,505	0.6	2.1
		IV, V	690,376	1.3	3.4	471,657	0.8	2.4
		I–V	906,398	1.4	3.9	633,162	0.8	2.3
	Admitted	I, II, III	43,642	3.3	7.9	29,855	0.5	1.8
		IV, V	15,558	3.4	8.1	9,421	0.8	2.6
		I–V	59,200	3.3	8.0	39,276	0.6	2.1
High Volume	Non-Admitted	I, II, III	1,217,949	3.2	7.8	981,987	1.3	3.8
		IV, V	949,639	1.9	4.7	736,908	1.2	3.3
		I–V	2,167,588	2.6	6.7	1,718,895	1.2	3.6
	Admitted	I, II, III	290,815	5.2	12.5	230,533	1.0	3.5
		IV, V	21,031	4.8	11.8	15,684	1.4	4.0
		I–V	311,846	5.2	12.4	246,217	1.0	3.5
Teaching	Non-Admitted	I, II, III	351,774	3.8	8.8	314,069	1.1	3.3
		IV, V	256,049	2.7	5.8	220,456	1.4	3.5
		I–V	607,823	3.3	7.7	534,525	1.2	3.4
	Admitted	I, II, III	95,647	6.8	17.1	77,003	0.7	2.8
		IV, V	11,849	7.4	16.5	9,081	1.4	3.7
		I–V	107,496	6.9	17.0	86,084	0.8	2.9
All EDs	Non-Admitted	I, II, III	1,847,865	3.1	7.8	1,497,858	1.1	3.5
		IV, V	2,242,302	1.6	4.3	1,636,991	1.0	2.9
		I–V	4,090,167	2.2	6.2	3,134,849	1.0	3.2
	Admitted	I, II, III	443,226	5.1	13.0	345,309	0.9	3.2
		IV, V	57,257	4.3	11.5	39,330	1.1	3.5
		I–V	500,483	5.0	12.9	384,639	0.9	3.2

Notes:

- These data represent visits to 167 Ontario-based emergency departments.
- Total time spent in ED = total time spent in the emergency department (from triage/registration to discharge).
- Time to Initial Physician Assessment (TIPA) = Time spent waiting for initial physician assessment in the ED (from time of triage/registration to time of initial physician assessment).
- Low-volume EDs in community hospitals:** annual number of ED visits < 15,000.
Medium-volume EDs in community hospitals: annual number of ED visits between 15,000 and 30,000.
High-volume EDs in community hospitals: annual number of ED visits > 30,000.
EDs in teaching hospitals: members of the Council of Academic Hospitals in Ontario. (All but two of these hospitals have high-volume EDs with annual visits over 30,000.)

Source: NACRS, 2005–2006, CIHI.

Appendix D

Table D-1. Distribution of ED Visits by Time Spent To Initial Physician Assessment (TIPA) for Ontario LHIN Regions, 2005–2006

LHIN	Distribution of Visits by Percentile												Total
	10th		25th		50th Median		75th		90th		> 90th	Unknown	
	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	No. of Visits (%)	No. of Visits
Erie St. Clair	24,190	0.3	34,888	0.5	58,910	1.0	53,595	1.9	34,021	3.3	22,717	41,633 (15.4)	269,954
South West	37,600	0.3	57,116	0.5	94,705	0.8	92,308	1.6	56,399	2.5	37,247	149,301 (28.5)	524,676
Waterloo Wellington	17,774	0.4	28,442	0.7	44,103	1.5	42,869	2.8	26,738	4.3	17,630	28,749 (13.9)	206,305
Hamilton Niagara Haldimand Brant	39,582	0.3	52,781	0.5	80,719	1.0	80,716	1.9	50,994	3.1	33,565	156,648 (31.6)	495,005
Central West	15,216	0.3	22,939	0.5	37,351	1.2	37,849	2.3	22,208	4.0	14,951	11,896 (7.3)	162,410
Mississauga Halton	18,948	0.3	28,306	0.6	45,784	1.1	46,281	2.1	27,563	3.5	18,351	53,860 (22.5)	239,093
Toronto Central	35,044	0.2	46,343	0.5	80,011	1.2	79,966	2.2	47,345	3.6	32,062	34,708 (9.8)	355,479
Central	31,118	0.3	47,330	0.7	70,063	1.3	74,099	2.4	44,687	3.8	29,515	48,362 (14.0)	345,174
Central East	37,771	0.3	54,749	0.6	90,492	1.1	92,762	2.0	53,994	3.0	36,179	140,165 (27.7)	506,112
South East	12,952	0.2	18,430	0.3	31,058	0.7	30,978	1.3	18,521	2.3	12,437	44,215 (26.2)	168,591
Champlain	40,949	0.3	61,897	0.6	95,009	1.2	98,865	2.3	59,091	3.6	39,299	90,560 (18.6)	485,670
North Simcoe Muskoka	17,483	0.2	24,305	0.4	42,213	0.8	39,547	1.5	24,567	2.5	16,252	51,581 (23.9)	215,948
North East	29,575	0.1	43,544	0.4	71,704	0.8	70,149	1.6	43,198	2.7	28,349	137,377 (32.4)	423,896
North West	11,665	0.1	16,799	0.4	27,184	0.8	27,379	1.4	16,186	2.2	11,017	82,107 (42.7)	192,337
All EDs	369,867		537,869		869,306		867,363		525,512		349,571	1,071,162	4,590,650

Notes:

- These data represent visits to 167 Ontario-based emergency departments.
- Time to Initial Physician Assessment (TIPA) = Time spent waiting for initial physician assessment in the ED (from time of triage/registration to time of initial physician assessment). Time is represented in hours.
- Number of visits within each percentile reflect the distribution of visits within that percentile, not a cumulative proportion of visits.
- Unknown = unable to calculate TIPA.

Source: NACRS, 2005–2006, CIHI.

Table D-2. Distribution of ED Visits by Time Spent To Initial Physician Assessment (TIPA) by ED Volume/Hospital Type, Ontario, 2005–2006

	Distribution of Visits by Percentile												
ED Volume/ Hospital Type	10th		25th		50th (Median)		75th		90th		> 90th	Unknown	Total
	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	TIPA (hrs)	No. of Visits	No. of Visits (%)	No. of Visits
Low Volume	27,711	0.1	40,322	0.2	65,122	0.5	63,076	1.0	39,242	1.6	25,856	168,970 (39.3)	430,299
Medium Volume	73,376	0.2	98,895	0.4	165,604	0.8	168,148	1.4	100,480	2.3	65,935	293,160 (30.4)	965,598
High Volume	205,290	0.3	290,075	0.6	488,781	1.2	489,699	2.2	297,763	3.6	193,504	514,322 (20.7)	2,479,434
Teaching	63,850	0.2	92,391	0.5	154,097	1.1	155,688	2.1	92,908	3.3	61,675	94,710 (13.2)	715,319
Total	370,227		521,683		873,604		876,611		530,393		346,970	1,071,162	4,590,650

Notes:

- a) These data represent visits to 167 Ontario-based emergency departments.
- b) Time to Initial Physician Assessment (TIPA) = Time spent waiting for initial physician assessment in the ED (from time of triage/registration to time initial physician assessment). Time is represented in hours.
- c) Number of visits within each percentile reflect the distribution of visits within that percentile, not a cumulative proportion of visits.
- d) **Low-volume EDs in community hospitals:** annual number of ED visits < 15,000.
Medium-volume EDs in community hospitals: annual number of ED visits between 15,000 and 30,000.
High-volume EDs in community hospitals: annual number of ED visits > 30,000.
EDs in teaching hospitals: members of the Council of Academic Hospitals in Ontario. (All but two of these hospitals have high-volume EDs with annual visits over 30,000.)
- e) Unknown = unable to calculate TIPA.

Source: NACRS, 2005–2006, CIHI.

References

1. Canadian Institute for Health Information, *Understanding Emergency Department Wait Times: Who Is Using Emergency Departments and How Long Are They Waiting?* (Ottawa: CIHI, 2005).
2. Statistics Canada, *Canadian Community Health Survey: Public Use Microdatafile, 2005 (cycle 3.1)* (Ottawa: Statistics Canada, 2006), [CD-ROM], Statistics Canada Catalogue no. 82M0013XCB.
3. G. Hughes, "Political Issues in Emergency Medicine: The United Kingdom," *Emergency Medicine Australasia* 16 (2004): pp. 387–393.
4. Department of Health, *Total Time Spent in A&E From Arrival to Admission, Transfer or Discharge, NHS Organizations in England, 2006–07 April to June (Q1)* (August 11, 2006), [online], cited November 6, 2006, from http://www.performance.doh.gov.uk/hospitalactivity/data_requests/download/total_time_ae/ae_07_q1_pt3.xls.
5. Department of Health, *Improving Emergency Care in England: Sixteenth Report of Session 2004-05* (Report, Together With Formal Minutes, Oral and Written Evidence) (London: The Stationery Office Limited, 2005).
6. Physician Hospital Care Committee (A Tripartite Committee of the Ontario Hospital Association, Ontario Medical Association and the Ontario Ministry of Health and Long-Term Care), *Improving Access to Emergency Care: Addressing System Issues* (Ontario, 2006): pp. 1–63.
7. R. Beveridge, "The Canadian Triage and Acuity Scale: A New and Critical Element in Health Care Reform," *Journal of Emergency Medicine* 16 (1998): pp. 507–511.
8. R. Beveridge et al, "Canadian Emergency Department Triage and Acuity Scale: Implementation Guidelines," *Canadian Journal of Emergency Medicine* 1, 3 Suppl. (1999): pp. S2–S28.
9. R. Beveridge et al, "Reliability of the Canadian Emergency Department Triage and Acuity Scale: Interrater Agreement," *Annals of Emergency Medicine* 34 (1999): pp.155–159.