Emergency Department Services in Ontario

Research Atlas

ICES Institute for Clinical Evaluative Sciences

Atlas Report

Emergency Department Services in Ontario

1993 – 2000

Benjamin T.B. Chan, MD MPH MPA [1,2,3,4]
Michael J. Schull, MD MSc FRCP(C) [1,5,6]
Susan E. Schultz, MA MSc [1]

[1] Institute for Clinical Evaluative Sciences, Toronto, Ontario
[2] Department of Health Policy, Evaluation and Management, University of Toronto
[3] Department of Family and Community Medicine, University of Toronto
[4] Department of Public Health Sciences, University of Toronto
[5] Department of Medicine (Division of Emergency Medicine), University of Toronto
[6] Sunnybrook and Women's College Health Sciences Centre, Toronto

Key Findings

- ✔ About one in five people in Ontario visit an emergency department (ED) at least once a year, making these facilities a key point of contact between citizens and their health care system.
- ✔ The per capita use of EDs by Ontarians declined by 10% from 1993 to 2000. Part of this decline was related to fewer low-acuity cases being seen in the ED.
- ✔ There are highly predictable peak periods in emergency volume during holidays and weekends.
- ✔ The elderly use more ED services per capita than younger individuals, and their rate of use is rising. As the population continues to age, the burden on the ED system may increase.
- ✔ Fewer and fewer physicians are choosing to work in EDs. Those who do, have heavier clinical workloads than before and more specialized training.

Introduction

Emergency departments (EDs) offer an essential service to the general population. They provide episodic care to patients with injuries or acute and treat exacerbations of chronic diseases. They are often used as an conditions, alternative to primary care when patients cannot see their family physician or cannot find one. For disadvantaged populations, EDs may also serve as a provider of last resort.

EDs are a critical component of the health care system. They are important hubs that interact directly with primary care givers, the pre-hospital system, in-hospital care, home care, and long-term care services. EDs often serve as the portal of entry for patients admitted to hospital. As a result, EDs are also an important indicator of how well a community's health care system is functioning. When resources are reduced in other parts of the system, or demands increase from seasonal pressures, the impact is frequently felt in the ED.

Recent reports of ED overcrowding, ambulance diversion, and a growing perception of physician and nursing shortages have attracted significant public scrutiny. Yet, these issues have also highlighted the lack of systematic information on the use and provision of emergency services in Canada. The purpose of this report is to enhance the present understanding of emergency services in Ontario, and assist policy makers and planners in anticipating future trends. In this ICES Atlas Report, the following questions are examined:

The Organization and Funding of EDs

1. How many EDs are there in Ontario and how has the organization of the ED system changed over time?
2. How are ED services funded and how has this changed over time?

The Use of ED Services by Patients

3. How often do people visit the ED?
4. How has the use of EDs changed over time?
5. When do peaks and dips in ED volume occur?
6. How often do patients visit the ED in the middle of the night?
7. What types of medical conditions are managed in the ED?
8. How does ED use vary across the province?

The ED Physician Workforce

9. How many physicians work in the ED and how has this changed over time?
10. What type of training do ED physicians have?
11. How has the clinical workload of ED physicians changed over time?
12. What are the demographics of the ED physician workforce?

Methods

Data Sources

Data from the Ontario Health Insurance Plan (OHIP) were used. The time frame for this study was from fiscal year 1993 to 2000. During this period, most physicians working in EDs were paid on a fee-for-service basis, whereby they submitted a claim to OHIP for each service provided. This claim identified the physician and patient,[A] the type of service provided, the ED where the service took place, date and amount paid.

Physicians in some EDs were paid on an alternate funding plan (AFP) or a sessional (hourly) fee. Some, but not all, of these physicians were required to submit "shadow billings," where they submitted claims to OHIP but attached a zero dollar value to the bill. Data on ED use in AFPs with no shadow billing were unavailable.

Information about the funding and organization of ED services was obtained through consultations with the Emergency Health Services Branch of the Ontario Ministry of Health and Long-Term Care (herein referred to as 'the Ministry'), surveys to each District Health Council and, where warranted, telephone calls to individual hospitals identified as having unique funding arrangements or organizational structures.

Defining an Emergency Department

Remarkably, there is no standard definition of an emergency department in Ontario. Walk-in clinics, urgent care centres and EDs mostly treat unscheduled patients presenting with acute or episodic conditions. Yet, they differ greatly in the level of service provided and the acuity of conditions managed. There are no clear guidelines to differentiate which ones should and should not be considered EDs.

[A] All patient and physician identifiers were scrambled to protect the confidentiality of individuals.

For the purpose of this study, **an ED is defined as a facility that fulfills all of the following criteria:**

1. It serves unscheduled patients;
2. It is staffed by physicians;
3. Physicians' services are remunerated on a fee-for-service basis using OHIP emergency department fee codes, or through an emergency department AFP under the auspices of the Ministry.

The following additional distinctions are made:[B]

- A **"full service" ED** accepts walk-in and ambulance patients 24 hours a day, seven days a week;
- A **"limited service" ED** limits walk-in or ambulance patients to certain hours of the day or certain days of the week. Such a category includes some EDs which are termed "urgent care centres" or "ambulatory care centres";
- A **"closed" ED** is a previously designated full or limited service ED which ceases to offer ED services.

Counting Emergency Department Visits

This study counted only those visits where a patient with a valid Ontario health insurance number came to an ED on an unscheduled basis and was assessed by the emergency physician on-duty. This definition excludes all of the following situations:

- Patients who left without being seen;
- Patients assessed by a nurse and not a physician;
- Visitors from outside of Ontario;
- Ontario residents eligible for a health card, but who do not have one (e.g. homeless individuals or persons with severe mental health disorders who lack the life skills necessary to apply for a health card);
- Occupational accidents where the Workplace and Safety Inspection Board pays for the assessment;
- Scheduled appointments to see a physician in the ED;
- Direct referrals to a specialist, where the patient does not see the ED physician on duty;
- Repeat patient assessments on the same day in the same ED by the same physician (such claims are generally disallowed by OHIP);
- Services provided in non-fee-for-service ED settings which do not submit shadow billings.

[B] Note that some EDs which describe themselves as "closed" would, by the definition used in this report, be considered EDs with "limited service". For example, a previously full service ED which converts to an urgent care centre seeing unscheduled patients only 14 hours per day would be considered a limited service ED in this analysis, if their physicians continued to bill OHIP emergency department fee codes or were remunerated through an alternate funding plan under the auspices of the Ministry.

Interpretive Cautions

Because this report relied on OHIP data, activity in the small number of non-fee-for-service, non-shadow billing EDs could not be captured. Almost all of these EDs for which data were unavailable were in university-affiliated teaching hospitals. These EDs are estimated to account for 10% of all ED visits in the province in 2000 (see Technical Appendix for calculations). The omission of these EDs may lead to results being biased toward community and small hospitals and data on regional variations in ED use must be treated with caution.

Secondly, because of the stringent criteria used in defining ED visits, the estimates of ED volumes are approximately 15% lower than figures reported by individual hospitals. Hospital figures generally represent all patients registered in the ED, and hence include patients with the exclusions noted above. It is expected that this discrepancy is greater in EDs close to an international or provincial border, or in those that serve as tertiary referral centres and accept large volumes of direct referrals to non-emergency specialists.

The advantage of this method is that standard definitions have been applied to all hospitals to facilitate comparisons of service provided at different EDs across Ontario. The disadvantage is that important components of ED activity have not been captured. It is anticipated that the new National Ambulatory Care Reporting System (NACRS) will fill in these data gaps. The Canadian Institute for Health Information (CIHI), which developed this system, began collecting data in the fall of 2000.

The diagnostic coding in OHIP billings may be imprecise. Coding is often done by physicians, their administrative staff or commercial billing services instead of health records personnel, and coding accuracy is not routinely audited. Although the impact of imprecise coding has been minimized by grouping diagnoses into broad system-based categories, these results should be interpreted with caution.

In the analyses of the most recent fiscal year (2000), results were based on data from all EDs that were reporting either fee-for-service or shadow billing data

during that year. Where changes over time were reported, calculations excluded all EDs that did not report either fee-for-service or shadow billing data in each fiscal year. Calculations were done in this way to ensure that the movement of some EDs into or out of the fee-for-service system would not distort trends over time.

Findings

The Organization and Funding of EDs

How many EDs are there in Ontario and how has the organization of the ED system changed over time?

In 1992, there were 201 EDs in Ontario. The number of EDs in each of the 16 District Health Council (DHC) planning areas ranged from 5 to 23. By March of 2000, 20 (9.5%) EDs had closed and another 7 (3.5%) had reduced their services, leaving a total of 174 full service and 6 limited service EDs in the province (and one temporarily closed ED in the federal hospital in Sioux Lookout). The number of EDs affected in each DHC area varied considerably. In three DHC areas there were no EDs that changed their status, while in one DHC area, 4 of 11 EDs closed (see Exhibit 1). No new EDs were opened during the study period. Appendix A lists all of the EDs in each DHC planning area.

How are ED services funded and how has this changed over time?

With the exception of physicians' services, EDs are funded through hospitals' global budgets. Such funding allocations cover costs of overhead, equipment, nursing and other health human resources.

Most physicians working in EDs were paid on a fee-for-service basis by OHIP. Some EDs participated in alternate funding plans (AFPs) where the hospital, or the group of ED physicians, received a special budget for all physician services. From this budget, physicians were paid a salary or a set amount per shift worked.[C] In the early to mid-1990's, most of these EDs were academic institutions which did not shadow bill. During the study period, there were several funding changes, either from fee-for-service to AFP or vice versa. Appendix B provides a complete list of hospitals and their funding status during the study period.

In January 1996, the Ministry introduced Scott[1] sessional fees for after-hours (8 pm to 8 am) and weekend ED coverage in rural hospitals. During these time periods, physicians received an hourly fee (initially set at $70 /hr) for their services, and submitted shadow billings for each service rendered. During regular weekday hours (8 am to 8 pm), physicians were paid fee-for-service. In 1999, there were 71 hospitals where physicians billed Scott sessional fees for part or all of the fiscal year (see Appendix B).

Also in 1996, the Ministry began offering AFPs to rural Northern Ontario physicians as a recruitment tool. Community-sponsored contracts (CSCs) were reserved for selected communities that required one to two physicians, while Northern Group Funded Practices (NGFPs) were targeted to larger physician groups. These special AFPs remunerated physicians for their office practice and daytime ED visits. Nighttime and weekend ED visits were remunerated using the Scott sessional fee system. Shadow billing was mandatory.

In 1999, the Ministry began implementing a new AFP, called an Alternate Funding Arrangement (AFA). It was offered to most EDs in Ontario, and where accepted, it replaced fee-for-service, pre-existing AFPs, or Scott sessional fees. Each physician group participating in an AFA was paid for a given number of physician-hours per day at a set hourly rate. Total remuneration was based on Ministry guidelines which took into account the ED patient census and hospital type. Physician groups could adjust the hourly rate up or down to reflect fluctuations in workload intensity, as long as the average rate did not exceed the Ministry's set hourly rate. All EDs with AFAs were required to submit shadow billings.

Interim AFAs were introduced in three phases (see Appendix C), and all were scheduled to expire between September and November 2001. However, to provide all parties with adequate time to review the proposed permanent AFAs, phases one and two have been extended to January 2002. The revised expiration date for phase 3 is pending approval.

At various points during the study period, individual hospitals offered financial bonuses to encourage physicians to work in their EDs. These bonuses were paid for out of hospitals' global budgets and were provided in addition to physicians' fee-for-service billings. There is no available data on the extent to which this occurred.

[C] Note that this is distinct from the practice of 'pooled billings' which occur in some fee-for-service hospitals. In such cases, physicians bill OHIP, place their earnings into a pool, and each physician is then paid a salary or set rate per shift from this pool.

The Use of ED Services by Patients

How often do people visit the ED?

In 2000, there were 3.7 million ED visits in Ontario. Of the approximately 11.5 million people in Ontario, 2.25 million individuals, or almost one-fifth of the population, made at least one visit to an ED. Most patients who visited EDs did so only occasionally. Two-thirds of ED patients visited the ED only once during the year. Only 6.6 per cent of ED patients visited an ED four or more times in a year.

Young children and the elderly had the highest rates of ED use. Thirty-four per cent of children under five years of age visited an ED at least once, as did 29 per cent of the population 75 and older, compared to 18 per cent for persons 5 to 74 years of age. The number of visits per person also varied by age, again with young children and the elderly having the highest number of visits (Exhibit 2).

Although the elderly had high rates of use, they accounted for a relatively small proportion of total ED visits, because they represent a relatively small part of the population. Adults aged 20 to 64 made up 52.4 per cent of all ED visits, compared to 31.0 per cent for individuals under age 20 and 16.5 per cent for those aged 65 and over.

How has the use of EDs changed over time?

Per capita ED use declined by 10.3 per cent during the study period (Exhibit 3), with most of the decline occurring around the middle of the decade (1995 to 1997). Per capita ED use rose for the elderly during the study period and declined for the pediatric and young adult population (Exhibit 2). This corresponded with a rise in the average age of the ED visitor, from 32.4 years in 1993 to 36.5 in 2000. The average age of Ontarians was 35.1 in 1993 and 36.4 in 2000.

The substantial decline in per capita ED use during the study period was accompanied by an 8.9 per cent increase in the population. The total number of ED visits in Ontario declined by 2.2 per cent. However, with the closure of 20 EDs, the average number of patients seen at an ED per year rose by 9.7 per cent, from 19,100 to 21,000.

When do peaks and dips in ED volume occur?

The ED system as a whole experienced large fluctuations in daily volume throughout the course of the each study year. On the busiest day of 2000, the total ED visit volume was 56 per cent above the average daily volume for that year. The lightest day was 25 per cent below average.

Some of this variation was predictable. ED use varied by the day of the week, with the heaviest volume of visits occurring on Sunday, then Saturday and Monday (Exhibit 4). ED use also varied by the time of the year (Exhibit 5). Utilization was higher in the winter and summer months, and characteristic peaks coincided with public holidays. The week straddling the Christmas holiday was the busiest in the year in terms of ED visit volume. Exhibit 6 identifies some typically busy days during the year.

How often do patients visit the ED in the middle of the night?

Exhibit 7 lists the proportion of ED visits which occur between midnight and morning hours (7 or 8 am—see Exhibit T1 in the Technical Appendix). Urban EDs had a substantially higher proportion of their caseload occurring after midnight compared to rural EDs (rural EDs being those eligible for the Scott sessional fee for rural hospitals). The proportion of ED visits occurring after midnight in urban EDs rose during the study period.

What types of medical conditions are managed in the ED?

Exhibit 8 lists the discharge diagnoses of patients visiting the ED and compares them to those reported in EDs in the United States (U.S.) in 1999. Diagnoses are quite similar overall, and small differences may reflect variations in coding. In both Ontario and the U.S., the top three reasons for visiting an ED are the same: trauma (major and minor), general signs and symptoms, and respiratory diseases.

Discharge diagnoses varied by patient age and sex category (Exhibit 9). Trauma (major and minor) was common in all ages, but more common in pediatric and middle-aged males. In the pediatric age group, the most common diagnoses were colds, ear infections and other infectious diseases. Young and middle-aged men and women were diagnosed more often than other age groups with psychological and social disorders. Among the elderly, cardiovascular disease and chest pain not yet diagnosed were common. Other categories representing signs and symptoms not yet diagnosed were also more common in the elderly.

There was a modest decline in the proportion of all patients with colds, ear infections and other infectious diseases, from 19.2 per cent in 1993 to 17.8 per cent in 2000.

How does ED use vary across the province?

Exhibit 10 illustrates ED use by DHC planning area. There was wide variation in the rate of ED use among residents of different DHC areas. Northern Ontario had high rates of use, as did Grey Bruce Huron Perth and Southeastern Ontario. Lowest rates were found in DHC areas bordering Halton-Peel (see Table T4 in the Technical Appendix).

Patients may visit EDs outside their DHC area boundaries. There is "net inflow" when the number of ED visits taking place within a given DHC area is greater than the number of ED visits made by residents of that area. Conversely, "net outflow" exists when the number of visits made by DHC area residents is greater than the number of visits made to EDs in that area. Certain DHC areas in Southern Ontario had particularly high net inflows of over 4 per cent, including Northern Shores, Grey Bruce Huron Perth and Southeastern Ontario (see Table T4 in the Technical Appendix).

The ED Physician Workforce

How many physicians work in the ED? What type of training do they have and how has this changed over time?

EDs may be staffed by general practitioners, family physicians or specialists in emergency medicine who have completed a residency program and have passed their fellowship exams (FRCP(C)). Some family physicians obtain a special certification from the College of Family Physicians of Canada in emergency medicine (CCFP(EM)), either by doing an extra year of residency training in emergency medicine, or by passing an evaluation of their clinical competence after accumulating several years of ED experience. A small number of ED physicians belong to other specialties.

The total number of physicians who provide ED coverage has decreased over time, from 2,525 in 1993 to 1,987 in 2000. (All figures in this section on workforce exclude physicians working in non-fee-for-service, non-shadow billing EDs). Almost all of this decline occurred among general practitioners or family physicians without certification in emergency medicine (herein referred to as GP/FPs). The number of CCFP(EM) physicians rose, as did the number of emergency medicine specialists (Exhibit 11).

Most patient care in Ontario's EDs is still provided by GP/FPs. However, the proportion of the total ED visits provided by this group declined from 82 per cent in 1993 to 71 per cent in 2000, while the proportion of visits provided by CCFP(EM) physicians rose from 13 per cent to 25 per cent. The proportion of ED visits provided by FRCP(C) specialists remained stable at four per cent during the study period. Care provided by physicians of other specialties accounted for less than one per cent of ED visits.

How hard do ED physicians work?

Physicians who worked in EDs in 2000 spent more days working in the ED, saw about the same number of patients per day and saw more patients over the course of the year, compared to their counterparts in 1993 (Exhibit 12). These trends were observed for all specialties, except for FRCP(C) specialists.

What is the age and sex distribution of physicians who work in the ED?

The proportion of ED physicians who are women was relatively constant during the study period (Exhibit 13). The proportion of ED physicians aged 40 years and over, however, has risen significantly (Exhibit 13). The aging of the physician pool was noticeable for all ED physicians regardless of type of training.

Discussion and Recommendations

EDs are a common source of medical care for patients of all ages. One in five Ontarians visit an ED at least once in a year, a rate comparable to previous surveys of self-reported ED use in Ontario.[2] At younger ages, acute and self-limited infections account for a large proportion of visits and most of these individuals visit the ED no more than once a year. Not surprisingly, the elderly are the most frequent users of ED services, often with conditions related to their chronic diseases. During their child-bearing years, women use emergency services more frequently than men. These trends are consistent with utilization patterns for most other types of physician services.[3]

Emergency Department Closures and Restructuring

During the study period, 9.5 per cent of Ontario's EDs closed and 3.5 per cent reduced their services. These numbers are similar to U.S. figures, where 8 per cent of EDs closed between 1994 and 1999.[4] Reasons for U.S. closures are unclear, but the desire of health maintenance organizations to rationalize services may have been a contributing factor.[5] Some rural hospitals also closed due to financial pressures.[5]

In Ontario, most ED closures and reductions were implemented as part of the overall restructuring of the hospital sector that took place over the past decade.

In the early 1990's, planners believed that EDs could be consolidated if non-urgent cases were diverted to care settings outside the ED. On this basis, a Toronto study concluded that the city had an oversupply of ED capacity[6] and a Windsor report recommended the closure of two of four EDs.[7]

In the latter part of the 1990's, the responsibility for hospital restructuring was given to the Health Services Restructuring Commission (HSRC). Unlike earlier restructuring efforts, which were voluntary, the HSRC's recommendations were made mandatory through provincial legislation. The HSRC closed or merged numerous institutions in order to consolidate hospital services into fewer sites, make better use of existing capacity and reduce duplication of administrative staff. Many EDs either closed or reduced their services as hospitals were closed or converted to other uses. ED renovation and expansion was also undertaken at a number of the remaining hospitals.

Utilization of Emergency Departments

Longer Term Trends

Ontario residents made 314 ED visits per 1,000 persons in 2000, which was lower than rates reported in the U.S. (378 visits/1000)[8] or Edmonton (426 visits/1000).[9] Part of this difference may be due to the exclusion of twelve EDs on AFPs from this study, which resulted in an approximate undercount of ten per cent of visits. Comparisons with other jurisdictions should be made with caution, as different definitions of EDs and visits may have been used.

Over the study period, ED use declined significantly in Ontario. This trend is opposite to that in the US, where ED use rose 14 per cent over 7 years (357 visits/1000 population in 1992 to 378 in 1999).[8;10] Reasons for the increase in the US are not entirely clear, but possibilities include:

- Population growth and aging;
- The easing of restrictions on emergency care utilization by health maintenance organizations;[4]
- Stricter enforcement of legislation guaranteeing access to emergency care;[4]
- Increasing numbers of uninsured Americans who use the ED as the provider of last resort.[4;11]

The decline in ED use in Ontario was more noticeable among visits for colds, ear infections and other infectious diseases. Such conditions represent relatively low acuity cases, although the reader should be cautioned that such inferences are imprecise when based on an after-the-fact diagnosis. Nonetheless, this finding helps explain why ED use has declined in the pediatric population, among whom these minor conditions are most common.

There are several possible reasons for the decline in ED use:

- There may have been a proliferation of walk-in clinics to handle low acuity cases;
- The closure of EDs may have reduced access to care;
- The shift from fee-for-service to remuneration by the hour may have encouraged the diversion of non-urgent patients to other care settings.

It must be emphasized that these theories are speculative and further research is needed to determine their validity.

Some observers may find a decline in ED use unusual given the attention paid to ED overcrowding in the past few years. However, several studies have failed to identify a strong relationship between ED overcrowding and overall utilization.[12,13] This study suggests two reasons why overcrowding may be worsening despite reduced overall utilization. First, ED closures have led to a 10 per cent increase in visits at the remaining centres. Second, ED patients are older and have fewer minor conditions than before. This may have resulted in higher patient acuity and increased ED workload. A third possibility is that admitted patients may remain in the ED longer because hospital restructuring has led to reductions in acute care beds and planned increases to community-based long-term care services have not been fully implemented.

Predictable Variations in Demand Over Time

This study shows that there are clearly identifiable peak periods in ED volume which occur at a system-wide level. Frequent headlines about ED congestion in the media suggest that management of these peaks is a significant concern among the public. These peaks are predictable and occur during public holidays, weekends, and the summer months when hospitals typically reduce staff.[14] Similarly, family physician offices may be closed or have reduced hours during these periods. When patient load is heavy in the ED, it may not be possible to shift patient volumes to other EDs in the system because these facilities are also likely facing similar burdens.

Given the fact that ED volume can, on certain predictable days, be one-third above average, this study raises questions about how to best manage these peaks. In theory, managers may want to ensure that additional staffed hospital beds, physicians and other personnel are present or on standby to clear the overload on predictably busy days. Ensuring flexibility in the system, such as by having a pool of staff available for short-term peaks or being able to vary the number of hospital beds from day to day, may mitigate the impact of these peaks. This assumes, however, that hospitals have the resources and staff available to do so. Furthermore, the peak periods—public holidays and weekends—occur when physicians and hospital personnel themselves want

time off from work. An incentive structure may need to be established to encourage individuals to work during these time periods.

Regional Variations

There was marked variation in ED use across the province. The higher rate of utilization in Northern Ontario deserves further research. Possible explanations for this occurrence may be that small, remote communities do not have the population size to sustain the creation of walk-in clinics, or that access to primary care in these communities may be limited.

The high net inflows into selected regions of Southern Ontario also deserves further research. One possibility is that these areas are prime cottage country and receive large numbers of urban residents during summer and holiday periods. Policy makers and hospital management need to take these patient flows into consideration when planning ED infrastructure and staffing levels.

ED Physician Workforce

Supply and Training

The number of physicians practicing in EDs has declined substantially over the past decade. Those who do work in EDs tend to have more emergency training than in the past and have heavier clinical workloads. There are several potential benefits and drawbacks of such a development. Having physicians with extra qualifications who devote more of their time to emergency medicine may improve quality of care. These physicians may also act as a resource to those GP/FPs who do continue to practice in EDs. On the other hand, the decline in the number of ED physicians raises questions about whether there will be sufficient supply in the future. Fewer physicians may also reduce the degree of flexibility available when designing call schedules. Furthermore, as GP/FPs reduce their work in EDs, they will have limited contact with an environment that may provide enhanced peer interactions and varied clinical exposure. Such exposure may help GP/FPs to maintain their clinical skills in the management of complex patients.

Policy makers need to examine these trends to determine whether or not they best reflect community needs. At present, there is no formal process for planners to determine what is the optimal mix of physicians of different types for individual communities in the province.[15] There is also no mechanism to feed this information to medical schools and residency programs, so that the output from these programs will match community needs. This problem affects physician human resource planning for all specialties, not just those related to emergency medicine.

Planners should also recognize that different regions have different needs. Small rural communities in particular may prefer having GP/FPs staff their EDs because they may not have the critical mass to sustain a group of physicians dedicated to working primarily in EDs. Alternatively, EDs in larger cities, such as those in teaching hospitals, may insist on a higher level of training among their physician staff.

Demographics of the Workforce

Emergency medicine has traditionally been the domain of younger physicians, but, in recent years, the average age of physicians working in EDs has increased. This trend is consistent with past ICES research showing that, over the past decade, the number of newly trained physicians starting practice in Ontario has decreased and the average age of physicians has increased.[16] During the 1990's, policies were enacted to limit growth in the supply of physicians, but most of these policies were aimed at young physicians, such as the restriction of new billing numbers for out-of-province graduates[17] and penalties for physicians starting practice in urban areas.[18] These policies may have discouraged some young physicians from working in Ontario and may have had a disproportionate impact on the ED workforce.

Recommendations for Improving Data and Standards

This study is limited by the absence of fee-for-service data for all EDs. Furthermore, fee-for-service data, while useful for examining utilization trends, are limited in the amount of clinical information available to determine the appropriateness of the visit or the quality of care. The new National Ambulatory Care Reporting System (NACRS) will address some of these limitations. It is strongly recommend that all EDs submit data to NACRS and shadow billings to OHIP so that all EDs can be compared on an equal footing.

Another difficulty in conducting this study is the lack of a standard definition for an ED. In some instances, hospitals reported that they did not believe they had an ED, yet emergency department fee codes were being billed from their ambulatory care departments. It is recommended that the Ministry develop a standard classification system for facilities that primarily accept unscheduled patients for episodic care. Some of the characteristics which might be considered in defining an ED include the following:

- The facility has equipment and staff to manage high acuity emergencies (e.g. cardiac arrest, trauma, other resuscitations);
- The facility accepts ambulances;
- The facility operates on a 24 hour basis;
- The facility is adjacent to and affiliated with a hospital.

Predicting Future Demand for ED Services

Predicting future demand for ED care, and the number of ED physicians required to meet the demand, it is a major challenge for planners. Yet, growing perceptions of difficult or diminished access to emergency care[19,20] make this task all the more important.

The HSRC attempted to do this, by assuming that the ratio of ED visits to acute care beds observed in 1995 was appropriate, and then projected future ED visits according estimated growth in the number of hospital beds needed. Based on this method, a 20 per cent increase in ED capacity over 1995 levels was projected for 2003.[21] Yet, the HSRC, by its own admission, felt that the "insufficient precision in the data reported by hospitals respecting ER visits and ambulatory care" limited the usefulness of this formula.[22] After a decade of restructuring, it may be time for a comprehensive, province-wide review of emergency department services, given the significant changes that have taken place in the system. Data from NACRS might be used to establish benchmarks for emergency department services and to evaluate access across different regions of Ontario.

Efforts to predict future demand should carefully consider the finding that ED use is declining in the pediatric and young adult population and rising among the elderly. This trend, also documented in studies of EDs in the U.S.,[8;10] needs to be monitored closely, as the aging of the population, combined with rising ED use per capita in the elderly, may lead to greater strains on the ED system.

Predictions of future demand should also consider the following:

- Are there other opportunities to shift non-urgent cases to other settings?
- What will the impact of primary care reform be on ED visit volume, if, as planned, primary care groups provide 24 hour coverage for their patients?
- What impact will changes in other parts of the health care system have on ED demand? Will investments or cutbacks in the acute care, home care or long-term care sectors result in decreases or increases in ED visits for complications of illnesses?
- Will recently introduced telephone triage systems decrease or increase demand on EDs?

Conclusions

This study identifies a number of trends in how ED services are used in Ontario and how these services are provided by the health care system (Exhibit 14). Policy makers need to anticipate the impact of these trends, if they continue. First, strategies for dealing with predictable peaks in ED system demand need to be developed. Such strategies should consider options such as expanded primary care coverage during weekends and holidays, or greater flexibility in the availability of staff and resources in the ED and in the settings to which ED patients are discharged (inpatient wards, long-term care and home care).

Second, the ED physician workforce requires careful planning. Increased training may improve the quality of care, but careful attention needs to be paid to the total number of physicians available to work in the ED. Planners and physician groups should also consider the future role of the GP/FPs without emergency medicine certification in the staffing of EDs, since they will continue to be needed in this capacity in the foreseeable future.

Third, the aging of the ED patient population is outpacing that of the general population, which has the potential to increase demand for emergency services. Strategies to address this trend include reducing the demand for ED services through community-based alternatives to ED care, coupled with strategies to better manage chronic diseases, or increasing ED capacity. However, ED capacity depends as much on resources in other parts of the health care system, such as inpatient or long-term care beds, as it does on the size and staffing of EDs. Therefore, successfully managing these trends will require careful planning of health care resources both inside and outside of Ontario's EDs.

Acknowledgements

We would like to express our appreciation to Dr. Brian Rowe, Dr. Ian Stiell, Mr. James Whaley and Dr. Andreas Laupacis for providing helpful comments on an earlier draft of this report.

We also wish the acknowledge the excellent work of the ICES Research Transfer Unit, including Paula McColgan, Laura Benben and Donna Hoppenheim, in the editing, design and publication of this Report.

Any errors or omissions in this report remain solely the responsibility of the authors.

Exhibit 1: Ontario Emergency Departments that Closed or Reduced Services between Fiscal Years 1993 and 2000

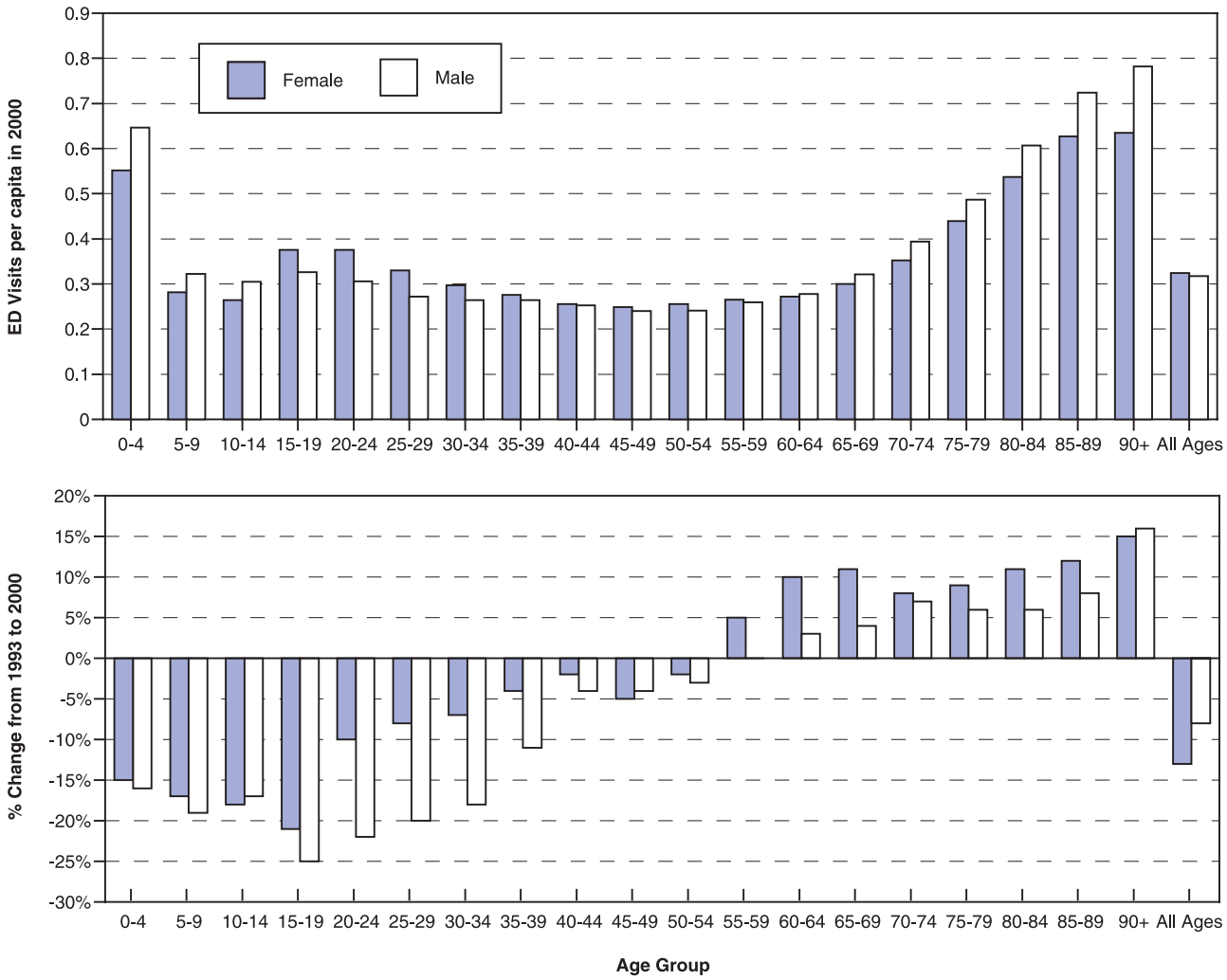
District Health Council	Number of Full or Limited Service EDs as of March 2000	Hospitals with Emergency Departments that changed status April 1992-March 2000	Community	Status Change
Algoma, Cochrane, Manitoulin and Sudbury[1]	20	Plummer Memorial Public Hospital Porcupine General Sudbury Memorial	Sault Ste-Marie Timmins Sudbury	Closed Closed Closed
Champlain	16	Pembroke Civic Riverside	Pembroke Ottawa	Closed Reduced Service
Durham, Haliburton, Kawartha & Pine Ridge	11	St. Joseph's General Port Hope and District Whitby General	Peterborough Port Hope Whitby	Closed Closed Closed[2]
Essex, Kent, Lambton	7	St. Joseph's St. Joseph's Health Centre Windsor Western Hospital Centre Salvation Army Grace	Chatham Sarnia Windsor Windsor	Closed Closed Closed Closed
Grand River	5	No changes		
Grey Bruce Huron Perth	19	Durham Memorial Hospital	Durham	Reduced Service
Halton-Peel	7	No changes		
Hamilton-Wentworth	5	Hamilton Health Sciences–Chedoke Site	Hamilton	Closed
Northern Shores *(formerly Muskoka, Parry Sound, Nipissing, Timiskaming)*	10	North Bay General McLaren Site Burks Falls	North Bay Burks Falls	Closed Reduced Service
Niagara	7	Niagara-on-the-Lake	Niagara-on-the-Lake	Closed
Northwestern Ontario	16	St. Joseph's General Emo	Thunder Bay Emo	Closed Reduced Service
Southeastern Ontario *(formerly Quinte, Kingston, Rideau)*	13	St.Vincent-de-Paul Hotel Dieu (Kingston)	Brockville Kingston	Closed Reduced Service
Simcoe-York	8	Penetanguishene General	Penetanguishene	Closed
Thames Valley	10	No changes		
Toronto	19	Doctors' North York Branson Queensway General Northwestern General	Toronto Toronto Toronto Toronto	Closed Reduced Service Reduced Service Closed
Waterloo Wellington-Dufferin	8	Shelburne District	Shelburne	Closed
All Ontario	**181**			Closed **20** Reduced Service **7**

[1]Excludes Attawapiskat, Fort Albany, Moosonee. [2]Converted to family care centre which does not bill ED fee codes.

Exhibit Highlights

- ✔ Twenty-seven emergency departments across the province either closed or reduced their services over the past decade.

Exhibit 2: Trends in Emergency Department Use by Age and Sex Group

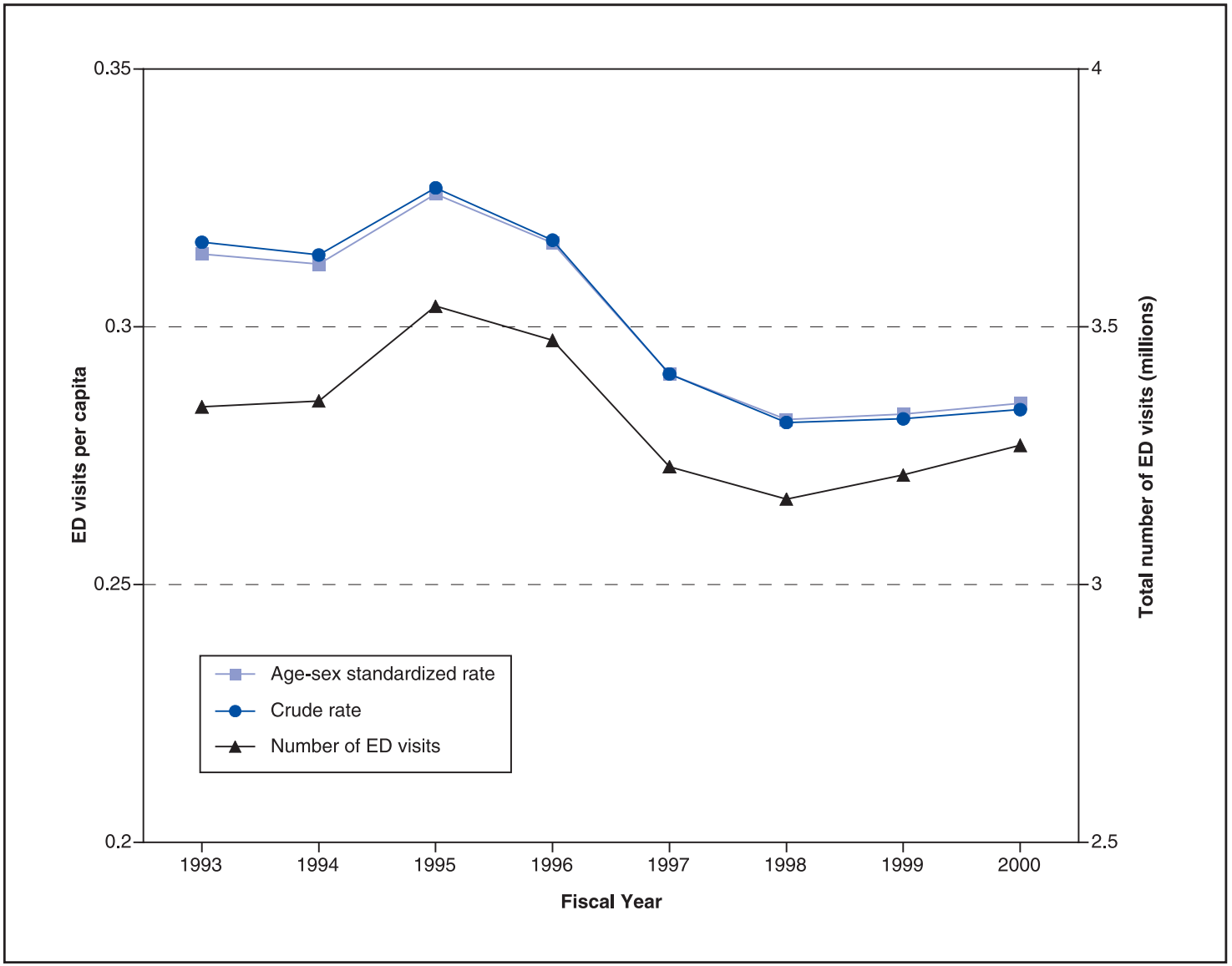


Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit Highlights

- ✔ The very young and the elderly have the highest rates of use of emergency departments.
- ✔ Over the past decade, emergency department use has increased among the elderly and decreased among children.

Exhibit 3: Emergency Department Utilization Over Time



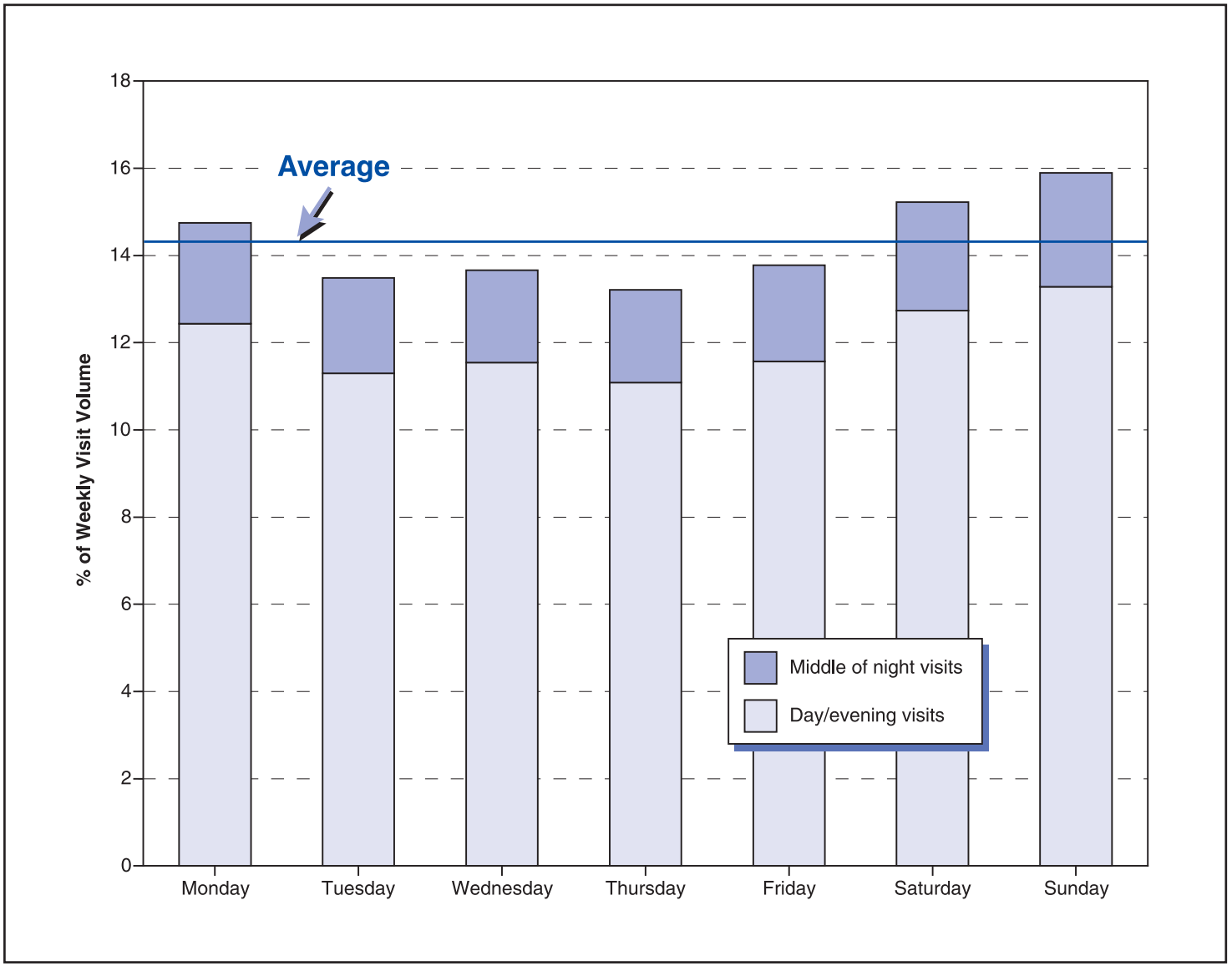
Note: Standardized to the 1996 Ontario population.

Data Sources: Ontario Health Insurance Plan (OHIP), Statistics Canada 1996 Census.

Exhibit Highlights

- ✔ The use of emergency departments declined from 1993 to 2000.

Exhibit 4: Distribution of Emergency Department Visits by Day of Week and Time of Day, 2000

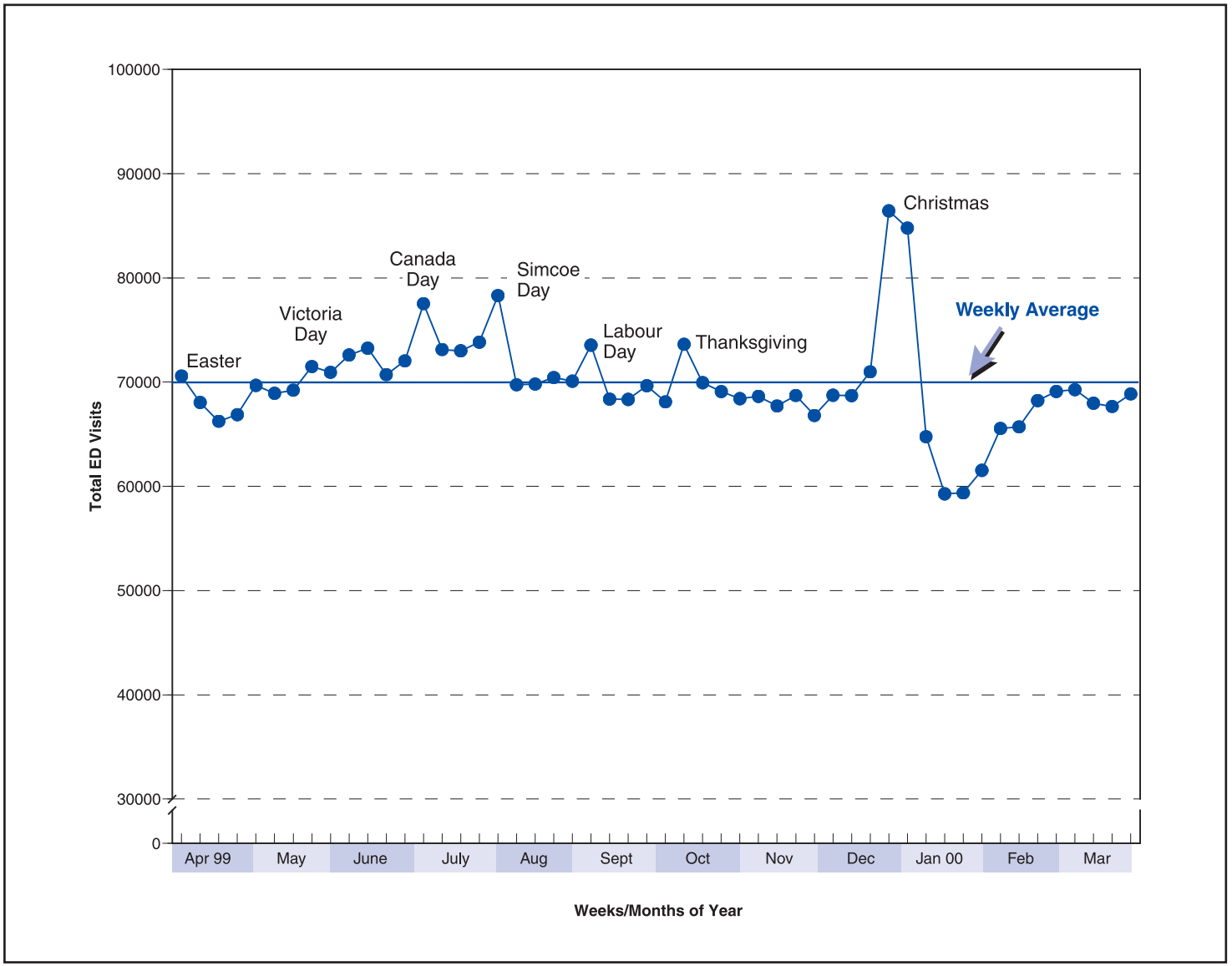


Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit Highlights

✔ Emergency departments are busiest on weekends and Mondays.

Exhibit 5: Seasonal Variation in Emergency Department Volumes, 2000



Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit Highlights

- ✔ The week following Christmas is the busiest week during the year.
- ✔ Summer is the busiest season for emergency departments.

Exhibit 6: Busiest Days in the Emergency Department System in Ontario, 1993 to 2000

	Number of times the day appears in the list of twenty busiest days of the year (max=8)	% above average daily visit volume for the year[1]
Day		
August Holiday Weekend[3] (Monday)	8	30%
Boxing Day (December 26)	7	32%
August Holiday Weekend[3] (Sunday)	7	23%
December 27	6	35%
Victoria Day[4] (Monday)	6	27%
December 28	5	26%
Victoria Day (Sunday)	5	24%
January 2	5[2]	24%
Labour Day (Monday)	5	22%
New Years Day (January 1)	4[2]	26%
Labour Day (Sunday)	4	20%
Thanksgiving (Monday)	4	19%
Easter (Saturday)	3	22%
Canada Day (July 1)	3	20%

[1] Average calculated over 1993 to 2000

[2] In years when these dates made the top 20 list, the date was associated with a weekend

[3] In Ontario, the first Monday in August is a holiday now known as Simcoe Day, formerly Civic Holiday.

[4] The Victoria Day holiday falls on the Monday closest to, but not after, May 24.

Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit Highlights

✔ There are predictable peaks in emergency department volumes, which coincide with public holidays.

Exhibit 7: Night-time Visits to Emergency Departments by Urban/Rural[1] Status, 1993 and 2000

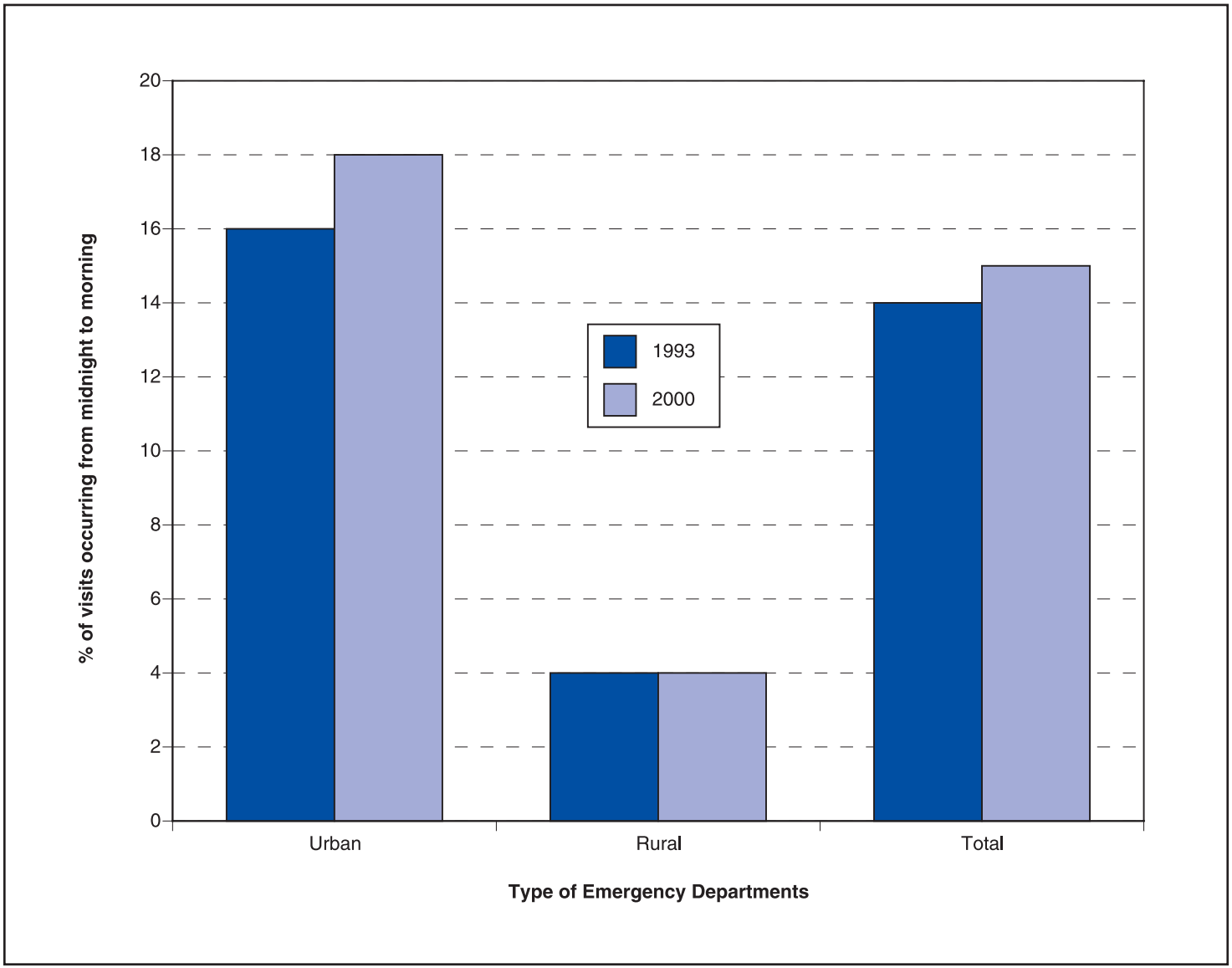


Exhibit Highlights

- ✔ Urban emergency departments see a greater proportion of their patients in the middle of the night than rural ones.
- ✔ The proportion of patients seen in the middle of the night has increased in urban areas.

[1] Rural EDs are defined as those which were eligible for Scott Sessional fees in 1999.

Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit 8: Emergency Department Discharge Diagnoses, Ontario and US

Diagnosis	Percentage of all ED visits	
	Ontario 2000	USA 1999
Infectious diseases	4.7	2.8
Cancer/neoplasms	0.6	0.3
Endocrine disorders	0.9	1.8
Psychiatric/social problems	2.9	2.9
Central nervous system & special senses	8.0	5.8
Cardiovascular diseases	3.5	4.4
Respiratory diseases	15.5	12.9
Gastrointestinal disorders	3.0	5.9
Genitourinary disorders	3.5	4.3
Skin/subcutaneous disorders	5.0	2.8
Musculoskeletal disorders	3.0	5.5
Other medical (hematologic, obstetric, congenital)	1.3	1.7
Trauma	25.4	27.8
Poisonings	1.4	0.9
Burns	0.6	0.6
Signs/symptoms[1]	20.6	16.2
Supplemental Class	0.1	3.8

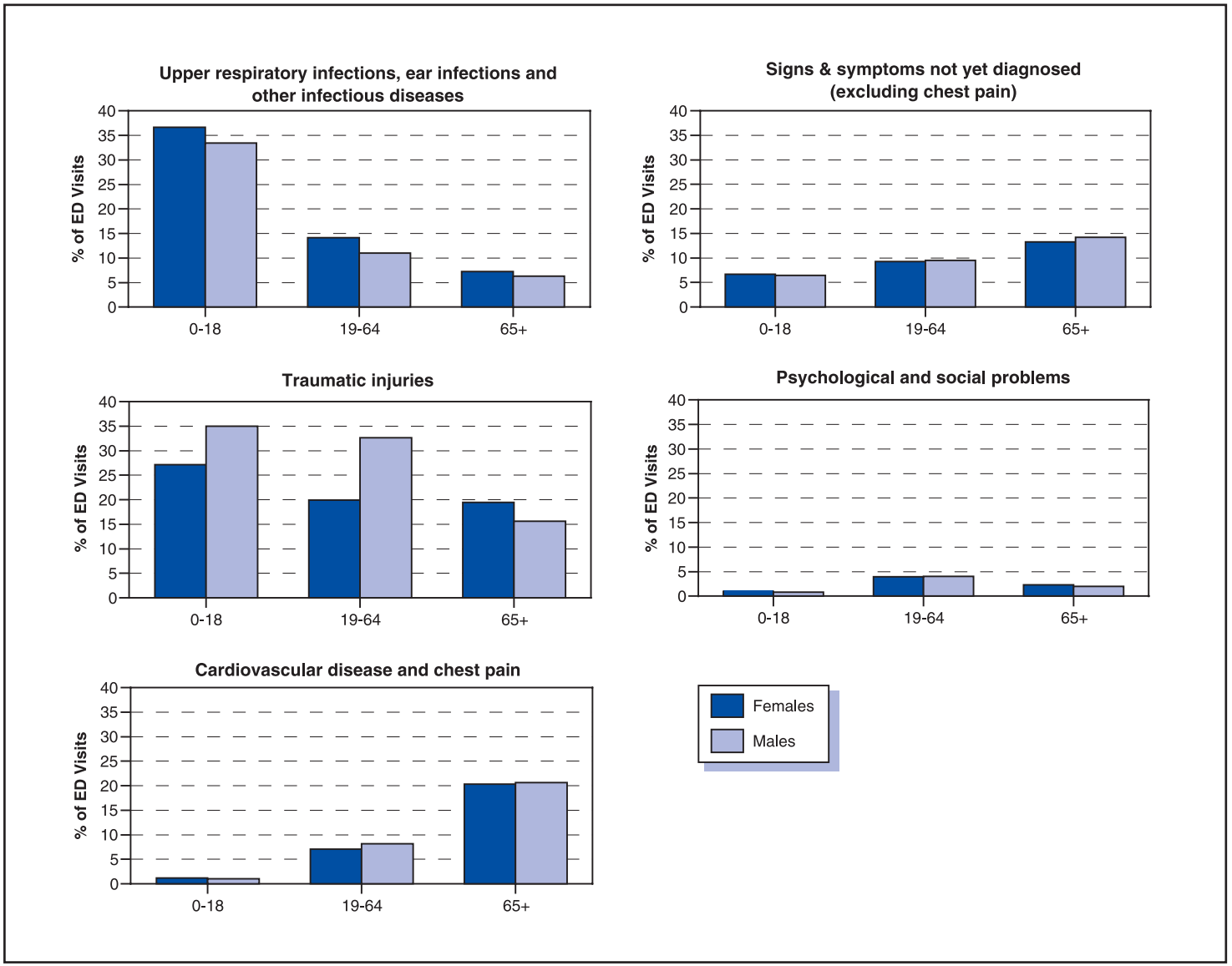
[1] Refers to cases where a specific diagnosis was not made, (eg. weakness, dizziness, chest pain)

Exhibit Highlights

- ✔ The most common reasons to visit an ED are trauma, signs/symptoms and respiratory diseases.
- ✔ These are also the top three diagnoses in American EDs.

Data Sources: Ontario Health Insurance Plan (OHIP), USA – National Hospital Ambulatory Medical Care Survey: 1999 Emergency Department Summary

Exhibit 9: Emergency Department Diagnoses by Patient Age and Sex Group, 1993 to 2000

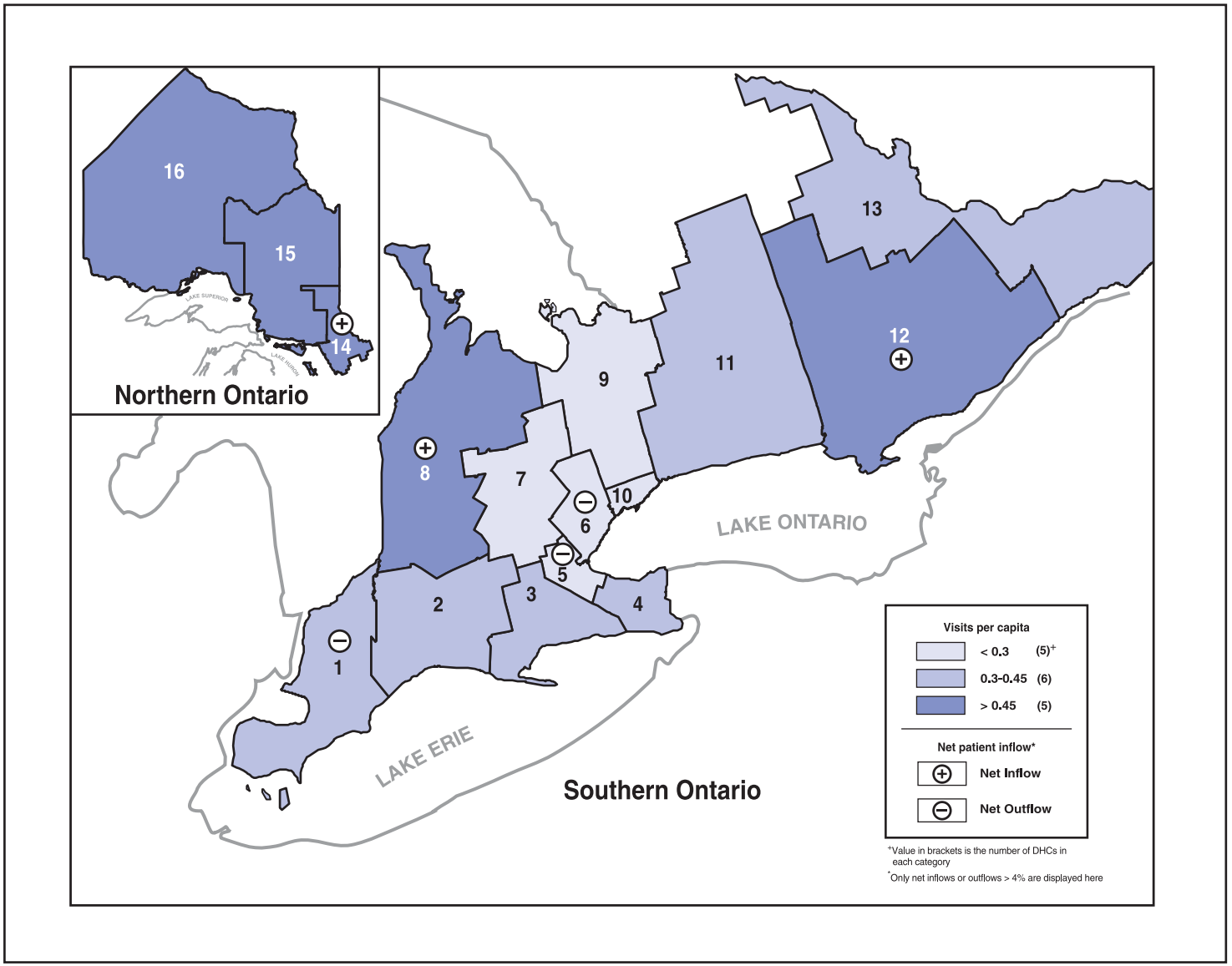


Data Source: Ontario Health Insurance Plan (OHIP)

Exhibit Highlights

- ✔ Children are more likely to be diagnosed with minor conditions such as colds, ear infections and other infectious diseases.
- ✔ The elderly are more likely to be diagnosed with more complex conditions such as heart disease and chest pain. They are also more likely to be given a nonspecific diagnosis, which may require further follow-up.
- ✔ Male patients are more likely than females to be seen in the ED for traumatic injuries.
- ✔ Adults aged 19 to 64 are more likely than children or the elderly to be diagnosed with a psychiatric or social problem.

Exhibit 10: Emergency Department Utilization by District Health Council (DHC) Planning Area, 2000



Data Source: Ontario Health Insurance Plan (OHIP)

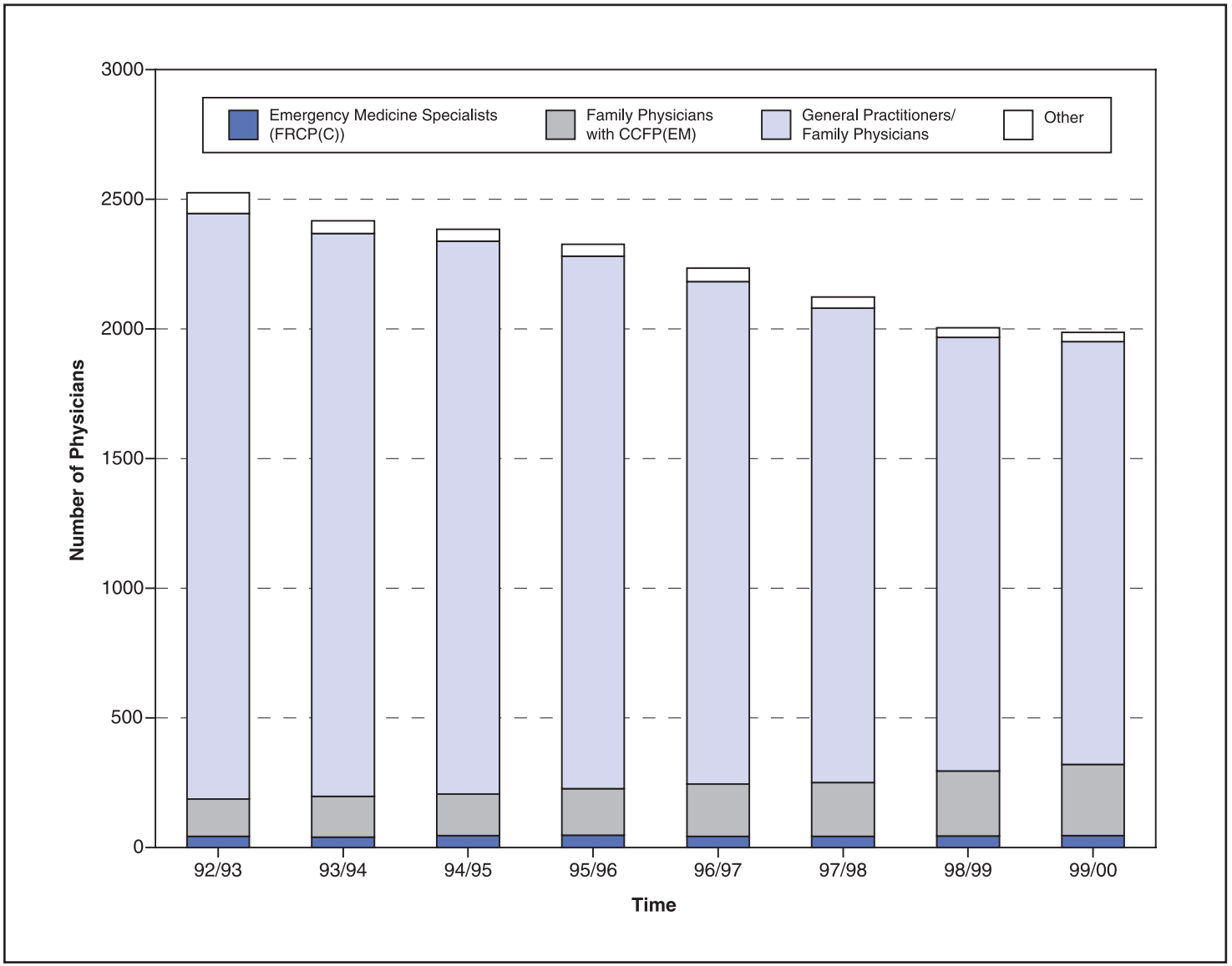
Exhibit Highlights

- ✔ Northern Ontario residents had relatively high rates of emergency department use.
- ✔ Some District Health Council planning areas in Southern Ontario have large net inflows of patients from outside their area.

Ontario District Health Councils:

1. Essex, Kent and Lambton
2. Thames Valley
3. Grand River
4. Niagara Region
5. Hamilton-Wentworth
6. Halton-Peel
7. Waterloo Region-Wellington-Dufferin
8. Grey Bruce Huron Perth
9. Simcoe-York
10. Toronto
11. Durham, Haliburton, Kawartha and Pine Ridge
12. Southeastern Ontario (Quinte, Kingston, Rideau)
13. Champlain
14. Northern Shores (Muskoka, Nipissing, Parry Sound and Timiskaming)
15. Algoma, Cochrane, Manitoulin and Sudbury
16. Northwestern Ontario

Exhibit 11: Number of Fee-for-service Physicians Working in Emergency Departments, 1993 to 2000



Data Sources: Ontario Health Insurance Plan (OHIP), Ontario Physician Human Resource Data Centre (OPHRDC)

Exhibit Highlights

- ✔ The number of doctors who work in EDs has declined dramatically over the past decade.
- ✔ This decline is due to mainly due to physicians without extra qualifications in emergency medicine choosing not to work in EDs.
- ✔ The number of family physicians with additional qualifications in emergency medicine has risen steadily.

Exhibit 12: Clinical Workload of Emergency Department Physicians, 1993 to 2000

	Average Days Worked in ED Per Physician Per Year		Average Number of ED Patients Seen Per Day Worked		Average Number of ED Patients Seen Per Physician Per Year	
Specialty	**1993**	**2000**	**1993**	**2000**	**1993**	**2000**
FRCP(C) *	141	127	24.8	23.2	3505	2945
CCFP(EM)	123	130	23.4	23.6	2874	3074
GP/FP	60	68	20.8	21.1	1250	1432
Other	26	36	19.0	22.9	486	813
Total	**64**	**76**	**21.2**	**21.7**	**1357**	**1672**

Notes:

ED = emergency department.

FRCP(C) = certified specialist in emergency medicine.

CCFP(EM) = family physician with special emergency medicine certification.

GP/FP = general practitioner or family physician without special emergency medicine certification.

Other = physicians in other specialties.

All figures are based on physicians who saw at least 100 ED patients per year in an ED which was on fee-for-service or shadow billing throughout the study period. Physicians had to see at least four patients in a day to count as having worked that day.

* *Results reported for FRCP(C) physicians should be interpreted with caution.* Many FRCP(C) physicians have been excluded from calculations because they work in major teaching hospitals which are in non-fee-for-service, non-shadow-billing settings. The apparent decline in clinical workload for FRCP(C) physicians could be due to these physicians taking on more administrative duties, or due to a shift from fee-for-service to non-fee-for-service practice among those physicians who spend part of their time in both settings.

Exhibit Highlights

- ✔ The total clinical workload for ED physicians has increased from 1993 to 2000. ED physicians now spend more days working the ED and see more patients during the year.
- ✔ This increase in workload is related to the fact that there are fewer doctors working in EDs (see Exhibit 11).

Data Sources: Ontario Health Insurance Plan (OHIP), Ontario Physician Human Resource Data Centre (OPHRDC)

Exhibit 13: Age and Sex Composition of Emergency Department Physician Workforce, 1993 to 2000

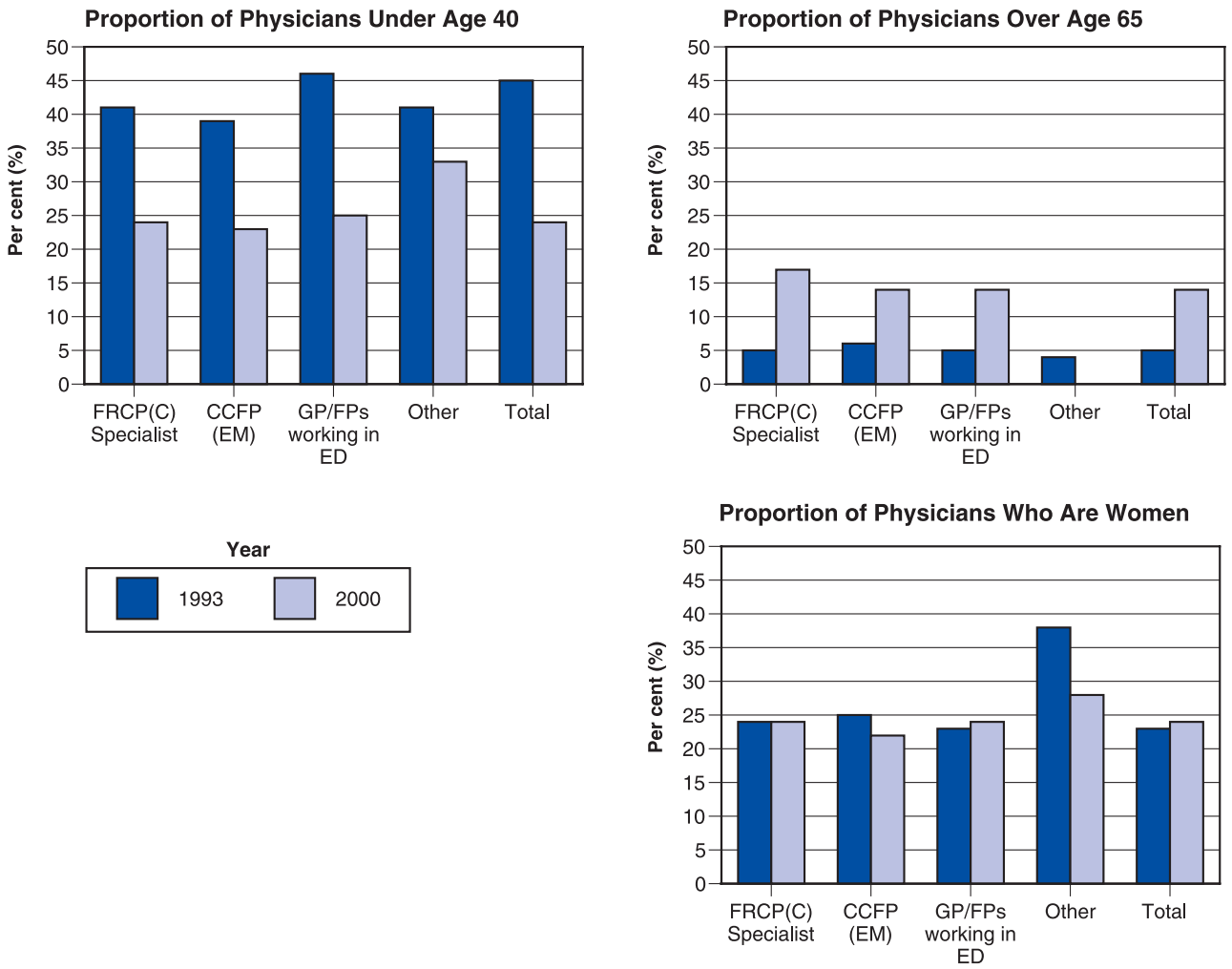


Exhibit Highlights

- ✔ EDs have traditionally been staffed by relatively young physicians.
- ✔ Over the past decade, there has been an increased reliance on older physicians to work in EDs.
- ✔ There has been little change in the proportion of female ED physicians over the past decade.

Note: See Exhibit 12 for an explanation of FRCP(C), CCFP(EM), GP/FP and Other

Data Sources: Ontario Health Insurance Plan (OHIP), Ontario Physician Human Resource Data Centre (OPHRDC)

Exhibit 14: Summary of Findings and Policy Implications

Key Facts	Related Policy Issues or Questions
• About one in five people in Ontario visit an ED at least once a year, making it a common portal through which Ontarians contact their health care system.	How can ED volumes be more effectively managed to ensure that access is not impeded?
• The per capita use of EDs by Ontarians has declined over the past decade. Part of this decline may be related to fewer low-acuity cases being seen in the ED.	Is this due to a shift in care to walk-in clinics or family physician offices, hospital restructuring, or changes to how doctors are paid?
• The peak periods in ED volume are predictable and occur during public holidays, weekends and the summer.	What can be done to manage these peaks better and avoid congestion in the ED?
• The elderly use more ED services per capita than younger individuals and their rate of use is rising.	If this trend continues, what will the impact be on EDs in ten years as the general population ages? What policy options exist to reduce the future workload on EDs generated by the elderly population, such as improved access to primary care or chronic disease management?
• The number of doctors working in EDs has declined dramatically over the past decade. Those who still work in EDs have heavier workloads than before and have more specialized training.	Does having more highly trained physicians working in EDs improve quality of care? Will we have enough physicians to provide the services we need, and to allow for sustainable call schedules in smaller communities? The ED setting exposes physicians to a challenging range of acute illnesses and provides them with the opportunity for peer contact and support. If family physicians continue to withdraw from ED work, what impact will this have on their ability to recognize and manage these diseases?

Appendix A: Emergency Departments in Ontario, 1993 to 2000

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Algoma & Cochrane DHC Planning Area			
St. Joseph's Health Centre (Blind River)	St. Joseph's General Hospital (Blind River)	Blind River	full service
Chapleau Health Services	Chapleau General Hospital	Chapleau	full service
Lady Minto Hospital	Lady Minto Hospital	Cochrane	full service
St. Joseph's General Hospital (Elliot Lake)	St. Joseph's General Hospital (Elliot Lake)	Elliot Lake	full service
Espanola General Hospital	Espanola General Hospital	Espanola	full service
Notre-Dame Hospital	Notre-Dame Hospital	Hearst	full service
Hornepayne Community Hospital	Hornepayne Community Hospital	Hornepayne	full service
Anson General Hospital	Anson General Hospital	Iroquois Falls	full service
Sensenbrenner Hospital	Sensenbrenner Hospital	Kapuskasing	full service
Manitoulin Health Centre – Little Current	Manitoulin Health Centre	Little Current	full service
Bingham Memorial Hospital	Bingham Memorial Hospital	Matheson	full service
Manitoulin Health Centre – Mindemoya Unit	Mindemoya Hospital	Mindemoya	full service
Weeneebayko General Hospital	Moose Factory General Hospital	Moose Factory	full service
Sault Area Hospitals – Richard's Landing Unit	Mathews Memorial Hospital	Richard's Landing	full service
Sault Area Hospitals – Plummer Site	Plummer Memorial Public Hospital	Sault Ste. Marie	*closed*
Sault Area Hospitals – General Site	General Hospital	Sault Ste. Marie	full service
Smooth Rock Falls Hospital	Smooth Rock Falls Hospital	Smooth Rock Falls	full service
---	Porcupine General Hospital	South Porcupine	*closed*
Sudbury Regional Hospital – Memorial Site	Sudbury Memorial Hospital	Sudbury	*closed*
Sudbury Regional Hospital – St. Joseph's Health Centre	Sudbury General Hospital of Immaculate Heart of Mary	Sudbury	full service
Sault Area Hospitals – Thessalon Division	Thessalon Hospital	Thessalon	full service
Timmins & District Hospital	St. Mary's General Hospital	Timmins	full service
North Algoma Health Organization	The Lady Dunn Memorial Hospital	Wawa	full service
Champlain DHC Planning Area			
Glengarry Memorial Hospital	Glengarry Memorial Hospital	Alexandria	full service
Arnprior & District Memorial Hospital	Arnprior & District Memorial Hospital	Arnprior	full service
St. Francis Memorial Hospital	St. Francis Memorial Hospital	Barry's Bay	full service
Cornwall General Hospital	Hotel Dieu Hospital (Cornwall)	Cornwall	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Champlain DHC Planning Area *(Continued)*			
Hotel Dieu Hospital (Cornwall)	Hotel Dieu Hospital (Cornwall)	Cornwall	full service
Deep River & District Hospital	Deep River & District Hospital	Deep River	full service
Hawkesbury & District General Hospital	Hawkesbury & District General Hospital	Hawkesbury	full service
Queensway-Carleton Hospital	Queensway-Carleton Hospital	Nepean	full service
The Ottawa Hospital – Civic Campus	Ottawa Civic Hospital	Ottawa	full service
The Ottawa Hospital – General Campus	The Ottawa General Hospital	Ottawa	full service
The Ottawa Hospital – Riverside Campus	Riverside Hospital of Ottawa	Ottawa	limited service
Childrens Hospital of Eastern Ontario	Childrens Hospital of Eastern Ontario	Ottawa	full service
Montfort Hospital	Montfort Hospital	Ottawa	full service
---	Pembroke Civic Hospital	Pembroke	*closed*
Pembroke General Hospital	Pembroke General Hospital	Pembroke	full service
Renfrew Victoria Hospital	Renfrew Victoria Hospital	Renfrew	full service
Winchester District Memorial Hospital	Winchester District Memorial Hospital	Winchester	full service
Durham, Haliburton, Kawartha and Pine Ridge DHC Planning Area			
Rouge Valley Health System – Ajax & Pickering Health Centre Site	Ajax & Pickering General Hospital	Ajax	full service
Lakeridge Health Corporation – Bowmanville Site	Memorial Hospital	Bowmanville	full service
Campbellford Memorial Hospital	Campbellford Memorial Hospital	Campbellford	full service
Northumberland Health Care Corporation – Cobourg Site	Cobourg District General Hospital	Cobourg	full service
Haliburton Highlands Health Services Corporation – Haliburton Site	Haliburton Hospital	Haliburton	full service
Ross Memorial Hospital	Ross Memorial Hospital	Lindsay	full service
Haliburton Highlands Health Services Corporation – Minden Site	Minden Hospital	Minden	full service
Lakeridge Health Corporation – Oshawa Site	Oshawa General Hospital	Oshawa	full service
Peterborough Regional Health Centre – Rogers St. Site	St. Joseph's General Hospital	Peterborough	*closed*
Peterborough Regional Health Centre – Hospital Drive Site	Peterborough Civic Hospital	Peterborough	full service
Northumberland Health Care Corporation – Port Hope Site	Port Hope & District Hospital	Port Hope	*closed*
Lakeridge Health Corporation – Port Perry Site	Community Memorial Hospital	Port Perry	full service
Lakeridge Health Corporation – Uxbridge Site	Cottage Hospital (Uxbridge)	Uxbridge	full service
Lakeridge Health Corporation – Whitby Site	Whitby General Hospital	Whitby	*closed*

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Essex, Kent, Lambton DHC Planning Area			
Chatham Kent Health Alliance – St. Joseph's	St. Joseph's Hospital (Chatham)	Chatham	*closed*
Chatham Kent Health Alliance – Public General Hospital Campus	Public General Hospital	Chatham	full service
Leamington District Memorial Hospital	Leamington District Memorial Hospital	Leamington	full service
Lambton Hospitals Group – Charlotte Eleanor Englehart Hospital	Charlotte Eleanor Englehart Hospital	Petrolia	full service
Lambton Hospitals Group – St. Joseph's Health Centre Of Sarnia	St. Joseph's Health Centre of Sarnia	Sarnia	*closed*
Lambton Hospitals Group – Sarnia General Hospital	Sarnia General Hospital	Sarnia	full service
Chatham Kent Health Alliance – Sydenham District Campus	Sydenham District Hospital	Wallaceberg	full service
Hotel Dieu Grace Hospital – Grace Site	The Salvation Army Grace Hospital (Windsor)	Windsor	*closed*
Windsor Regional Hospital – Western Campus	Windsor Western Hospital Centre Inc.	Windsor	*closed*
Windsor Regional Hospital – Metropolitan Campus	The Metropolitan General Hospital	Windsor	full service
Hotel Dieu Grace Hospital – Hotel Dieu Site	Hotel Dieu of St. Joseph	Windsor	full service
Grand River DHC Planning Area			
Brant Community Health Care System – Brantford General Site	The Brantford General Hospital	Brantford	full service
Haldimand War Memorial Hospital	Haldimand War Memorial Hospital	Dunnville	full service
West Haldimand General Hospital	West Haldimand General Hospital	Hagersville	full service
Brant Community Health Care System – Willett Site	The Willett Hospital	Paris	limited service
Norfolk General Hospital	Norfolk General Hospital	Simcoe	full service
Grey Bruce Huron Perth DHC Planning Area			
South Bruce Grey Health Centre – Chesley Site	Chesley & District Memorial Hospital	Chesley	full service
Clinton Public Hospital	Clinton Public Hospital	Clinton	full service
South Bruce Grey Health Centre – Durham Site	Durham Memorial Hospital	Durham	limited service
South Huron Hospital	South Huron Hospital	Exeter	full service
Alexandra Marine & General Hospital	Alexandra Marine & General Hospital	Goderich	full service
Hanover & District Hospital	Hanover & District Hospital	Hanover	full service
South Bruce Grey Health Centre – Kincardine Site	Kincardine & District General Hospital	Kincardine	full service
Grey-Bruce Health Services – Lion's Head Site	Bruce Peninsula Health Services – Lion's Head	Lion's Head	full service
Listowel Memorial Hospital	The Listowel Memorial Hospital	Listowel	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Grey Bruce Huron Perth DHC Planning Area *(Continued)*			
Grey-Bruce Health Services – Markdale Site	Centre Grey General Hospital	Markdale	full service
Grey-Bruce Health Services – Meaford Site	Meaford General Hospital	Meaford	full service
Grey-Bruce Health Services – Owen Sound Site	The Grey Bruce Regional Health Centre	Owen Sound	full service
Seaforth Community Hospital	Seaforth Community Hospital	Seaforth	full service
Grey-Bruce Health Services – Southampton Site	Saugeen Memorial Hospital	Southampton	full service
St. Marys Memorial Hospital	St. Marys Memorial Hospital	St. Marys	full service
Stratford General Hospital	Stratford General Hospital	Stratford	full service
South Bruce Grey Health Centre – Walkerton Site	County Of Bruce General Hospital	Walkerton	full service
Grey-Bruce Health Services – Wiarton Site	Bruce Peninsula Health Services – Wiarton	Wiarton	full service
Wingham & District Hospital	Wingham & District Hospital	Wingham	full service
Halton-Peel DHC Planning Area			
William Osler Health Centre – Brampton Memorial Campus	Peel Memorial Hospital	Brampton	full service
Joseph Brant Memorial Hospital	Joseph Brant Memorial Hospital	Burlington	full service
William Osler Health Centre – Georgetown Campus	Georgetown & District Memorial Hospital	Georgetown	full service
Halton Healthcare Services Corporation – Milton Site	Milton District Hospital	Milton	full service
Trillium Health Centre – Mississauga Site	The Mississauga Hospital	Mississauga	full service
The Credit Valley Hospital	The Credit Valley Hospital	Mississauga	full service
Halton Healthcare Services Corporation – Oakville Site	Oakville-Trafalgar Memorial Hospital	Oakville	full service
Hamilton-Wentworth DHC Planning Area			
Hamilton Health Sciences Corporation – General Campus	Hamilton General Hospital (Division of Hamilton Civic Hospital)	Hamilton	full service
Hamilton Health Sciences Corporation – Henderson Campus	Henderson General Hosp (Unit of Hamilton Civic Hospital)	Hamilton	full service
Hamilton Health Sciences Corporation – Chedoke McMaster Campus	Chedoke-McMaster Hospital – McMaster University Medical Centre Site	Hamilton	full service
Hamilton Health Sciences Corporation – Chedoke Hospital Campus	Chedoke-McMaster Hospital – Chedoke Hospital Site	Hamilton	*closed*
St. Joseph's Hospital (Hamilton)	St. Joseph's Hospital (Hamilton)	Hamilton	full service
St. Joseph's Community Health Centre (Hamilton)	St. Joseph's Community Health Centre (Hamilton)	Hamilton	limited service
Northern Shores DHC Planning Area (formerly Muskoka, Nipissing, Parry Sound and Timiskaming)			
South Muskoka Memorial Hospital	South Muskoka Memorial Hospital	Bracebridge	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Northern Shores DHC Planning Area (formerly Muskoka, Nipissing, Parry Sound and Timiskaming) *(Continued)*			
Algonquin Health Services – Burks Falls Division	Burks Falls & District Hospital	Burks Falls	limited service
Englehart & District Hospital	Englehart & District Hospital	Englehart	full service
Algonquin Health Services – Huntsville District Memorial Hospital	Huntsville District Memorial Hospital	Huntsville	full service
Kirkland & District Hospital	Kirkland & District Hospital	Kirkland Lake	full service
Mattawa General Hospital	Mattawa General Hospital	Mattawa	full service
Temiskaming Hospital	Temiskaming Hospital	New Liskeard	full service
North Bay General Hospital – Scollard Site	North Bay Civic Hospital	North Bay	full service
North Bay General Hospital – McLaren Site	St. Joseph's General Hospital of North Bay Inc.	North Bay	*closed*
West Parry Sound Health Centre	Parry Sound District General Hospital	Parry Sound	full service
West Nipissing General Hospital	West Nipissing General Hospital	Sturgeon Falls	full service
Niagara DHC Planning Area			
Douglas Memorial Hospital	Douglas Memorial Hospital	Fort Erie	full service
West Lincoln Memorial Hospital	West Lincoln Memorial Hospital	Grimsby	full service
Greater Niagara General Hospital	The Greater Niagara General Hospital	Niagara Falls	full service
Niagara-On-The-Lake General Hospital	Niagara-On-The-Lake General Hospital	Niagara-on-the-Lake	*closed*
Port Colborne General Hospital	Port Colborne General Hospital	Port Colborne	full service
Hotel Dieu Health Sciences Hospital (St. Catharines)	Hotel Dieu Hospital (St. Catharines)	St. Catharines	full service
St. Catharines General Hospital	St. Catharines General Hospital	St. Catharines	full service
Welland County General Hospital	Welland County General Hospital	Welland	full service
Northwestern Ontario DHC Planning Area			
Atikokan General Hospital	Atikokan General Hospital	Atikokan	full service
Dryden Regional Health Centre	Dryden District General Hospital	Dryden	full service
Riverside Health Care Facilities – Emo Health Centre	Emo Hospital	Emo	limited service
Riverside Health Care Facilities – La Verendrye Health Centre	La Verendrye General Hospital	Fort Frances	full service
Geraldton District Hospital	Geraldton District Hospital	Geraldton	full service
Lake Of The Woods District Hospital	Lake Of The Woods District Hospital	Kenora	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Northwestern Ontario DHC Planning Area *(Continued)*			
Manitouwadge General Hospital	Manitouwadge General Hospital	Manitouwadge	full service
Wilson Memorial General Hospital	Wilson Memorial General Hospital	Marathon	full service
Nipigon District Memorial Hospital	Nipigon District Memorial Hospital	Nipigon	full service
Riverside Health Care Facilities – Rainy River Health Centre	Rainy River Hospital	Rainy River	full service
Red Lake Margaret Cochenour Memorial Hospital	Red Lake Margaret Cochenour Memorial Hospital	Red Lake	full service
Sioux Lookout District Health Centre	District Health Centre	Sioux Lookout	full service
Sioux Lookout Zone Hospital	Sioux Lookout Zone Hospital	Sioux Lookout	temporarily closed
The McCausland Hospital	The McCausland Hospital	Terrace Bay	full service
St. Joseph's General Hospital (Thunder Bay)	St. Joseph's General Hospital (Thunder Bay)	Thunder Bay	*closed*
Thunder Bay Regional Hospital – Port Arthur Site	The General Hospital Of Port Arthur	Thunder Bay	full service
Thunder Bay Regional Hospital – McKellar Site	McKellar General Hospital	Thunder Bay	full service
Southeastern Ontario DHC Planning Areas (formerly Quinte, Kingston, Rideau)			
Almonte General Hospital	Almonte General Hospital	Almonte	full service
Quinte Healthcare Corporation – North Hastings District Site	North Hastings District Hospital	Bancroft	full service
Quinte Healthcare Corporation – Belleville Site	Belleville General Hospital	Belleville	full service
St. Vincent De Paul Hospital	St. Vincent De Paul Hospital	Brockville	*closed*
Brockville General Hospital	Brockville General Hospital	Brockville	full service
Carleton Place & District Memorial Hospital	Carleton Place & District Memorial Hospital	Carleton Place	full service
Kemptville District Hospital	Kemptville District Hospital	Kemptville	full service
Hotel Dieu Hospital (Kingston)	Hotel Dieu Hospital (Kingston)	Kingston	limited service
Kingston General Hospital	Kingston General Hospital	Kingston	full service
Lennox & Addington County General Hospital	Lennox & Addington County General Hospital	Napanee	full service
Perth & Smiths Falls District Hospital – Perth Site	The Great War Memorial Hospital of Perth District	Perth	full service
Quinte Healthcare Corporation – Prince Edward County Site	Prince Edward County Memorial Hospital	Picton	full service
Perth & Smiths Falls District Hospital – Smiths Falls Site	Smiths Falls Community Hospital	Smiths Falls	full service
Quinte Healthcare Corporation – Trenton Site	Trenton Memorial Hospital	Trenton	full service
Simcoe-York DHC Planning Area			
Stevenson Memorial Hospital	Stevenson Memorial Hospital	Alliston	full service
Royal Victoria Hospital	Royal Victoria Hospital	Barrie	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Simcoe-York DHC Planning Area *(Continued)*			
Collingwood General & Marine Hospital	Collingwood General & Marine Hospital	Collingwood	full service
Markham Stouffville Hospital	Markham Stouffville Hospital	Markham	full service
Huronia District Hospital	Huronia District Hospital	Midland	full service
Southlake Regional Health Centre	York County Hospital	Newmarket	full service
Orillia Soldiers' Memorial Hospital	Orillia Soldiers' Memorial Hospital	Orillia	full service
Penetanguishene General Hospital	Penetanguishene General Hospital	Penetanguishine	*closed*
York Central Hospital	York Central Hospital	Richmond Hill	full service
Thames Valley DHC Planning Area			
Alexandra Hospital	Alexandra Hospital	Ingersoll	full service
London Health Sciences Centre – University Campus	University Hospital	London	full service
London Health Sciences Centre – Children's Hospital of Western Ontario Site	Childrens Hospital Of Western Ontario	London	full service
St. Joseph's Health Care London	St. Joseph's Health Centre (London)	London	full service
London Health Sciences Centre – Victoria Campus	Victoria Hospital Corporation	London	full service
Four Counties Health Services	Four Counties General Hospital	Newbury	full service
St. Thomas-Elgin General Hospital	St. Thomas-Elgin General Hospital	St. Thomas	full service
Strathroy Middlesex General Hospital	Strathroy Middlesex General Hospital	Strathroy	full service
Tillsonburg District Memorial Hospital	Tillsonburg District Memorial Hospital	Tillsonburg	full service
Woodstock General Hospital	Woodstock General Hospital	Woodstock	full service
Toronto DHC Planning Area			
---	Doctors Hospital	Toronto	*closed*
Humber River Regional Hospital – Keele Site	Northwestern General Hospital	Toronto – York	*closed*
St. Michaels Hospital – Wellesley Central Site	The Wellesley Hospital	Toronto	full service
Humber River Regional Hospital – Finch Site	York-Finch General Hospital	Toronto – North York	full service
University Health Network – General Campus	The Toronto Hospital – General Division	Toronto	full service
University Health Network – Western Campus	The Toronto Hospital – Western Division	Toronto	full service
Sunnybrook & Women's College Health Sciences Centre – Women's College Site	Women's College Hospital	Toronto	full service

Appendix A: Emergency Departments in Ontario, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	ED Status in 2000
Toronto DHC Planning Area *(Continued)*			
Humber River Regional Hospital – Church St. Site	Humber Memorial Hospital	Toronto – York	full service
Toronto East General & Orthopaedic Hospital Inc.	Toronto East General & Orthopaedic Hospital Inc.	Toronto – East York	full service
Mount Sinai Hospital	Mount Sinai Hospital	Toronto	full service
St. Joseph's Health Centre (Toronto)	St. Joseph's Health Centre (Toronto)	Toronto	full service
St. Michaels Hospital – Bond St. Site	St. Michael's Hospital	Toronto	full service
The Hospital for Sick Children	The Hospital for Sick Children	Toronto	full service
Trillium Health Centre – Queensway Site	Queensway General Hospital	Toronto – Etobicoke	limited service
William Osler Health Centre – Etobicoke Campus	The Etobicoke General Hospital	Toronto – Etobicoke	full service
Sunnybrook & Women's College Health Sciences Centre – Sunnybrook Site	Sunnybrook Health Sciences Centre	Toronto – North York	full service
North York General Hospital – Branson Site	North York Branson Hospital	Toronto – North York	limited service
North York General Hospital – General Site	North York General Hospital	Toronto – North York	full service
Rouge Valley Health System – Centenary Health Centre Site	Centenary Health Centre	Toronto – Scarborough	full service
The Scarborough Hospital – General Division	Scarborough General Hospital	Toronto – Scarborough	full service
The Scarborough Hospital – Grace Division	Salvation Army Scarborough Grace General Hospital	Toronto – Scarborough	full service
Waterloo Region-Wellington, Dufferin DHC Planning Area			
Cambridge Memorial Hospital	Cambridge Memorial Hospital	Cambridge	full service
Groves Memorial Community Hospital	Groves Memorial Community Hospital	Fergus	full service
Guelph General Hospital	Guelph General Hospital	Guelph	full service
Grand River Hospital – K-W Health Centre	Kitchener-Waterloo Hospital	Kitchener	full service
St. Mary's General Hospital	St. Mary's General Hospital	Kitchener	full service
Louise Marshall Hospital	Louise Marshall Hospital	Mount Forest	full service
Dufferin-Caledon Health Care Corporation – Headwaters Site	Dufferin Area Hospital	Orangeville	full service
Palmerston & District Hospital	Palmerston & District Hospital	Palmerston	full service
Dufferin-Caledon Health Care Corporation – Shelburne Site	Shelburne District Hospital	Shelburne	*closed*

Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Algoma & Cochrane DHC Planning Area						
St. Joseph's Health Centre (Blind River)	St. Joseph's General Hospital (Blind River)	Blind River	FFS	---	No	Yes
Chapleau Health Services	Chapleau General Hospital	Chapleau	FFS	---	Yes	Yes
The Lady Minto Hospital	The Lady Minto Hospital	Cochrane	FFS	---	Yes	Yes
St. Joseph's General Hospital (Elliot Lake)	St. Joseph's General Hospital (Elliot Lake)	Elliot Lake	FFS	---	Yes	Yes
Espanola General Hospital	Espanola General Hospital	Espanola	FFS	---	Yes	Yes
Notre-Dame Hospital	Hôpital Notre-Dame Hospital	Hearst	FFS	---	Yes	Yes
Hornepayne Community Hospital	Hornepayne Community Hospital	Hornepayne	FFS to CSC 95/96	Yes	Yes	No
Anson General Hospital	Anson General Hospital	Iroquois Falls	FFS	---	Yes	No
Sensenbrenner Hospital	Sensenbrenner Hospital	Kapuskasing	FFS	---	Yes	No
Manitoulin Health Centre – Little Current	Manitoulin Health Centre	Little Current	FFS to NGFP 98/99	Yes	Yes	No
Bingham Memorial Hospital	Bingham Memorial Hospital	Matheson	FFS to NGFP 97/98	Yes	Yes	Yes
Manitoulin Health Centre – Mindemoya Unit	Mindemoya Hospital	Mindemoya	FFS to CSC 98/99	Yes	Yes	No
Weeneebayko General Hospital	Moose Factory General Hospital	Moose Factory	Federally funded	Only until 31/12/92	No	
Sault Area Hospitals – Richard's Landing Unit	Mathews Memorial Hospital	Richard's Landing	FFS to CSC 96/97	Yes	Yes	No
Sault Area Hospitals – General Site	General Hospital	Sault Ste. Marie	FFS	---	No	Yes
Sault Area Hospitals – Plummer Unit	Plummer Memorial Public Hospital	Sault Ste. Marie	FFS	---	No	*closed*
Smooth Rock Falls Hospital	Smooth Rock Falls Hospital	Smooth Rock Falls	FFS	---	Yes	Yes
---	Porcupine General Hospital	South Porcupine	FFS	---	No	*closed*
Sudbury Regional Hospital – Memorial Site	Sudbury Memorial Hospital	Sudbury	FFS	---	No	*closed*
Sudbury Regional Hospital – St. Joseph's Health Centre	Sudbury General Hospital of Immaculate Heart of Mary	Sudbury	FFS	---	No	No
Sault Area Hospitals – Thessalon Unit	Thessalon Hospital	Thessalon	FFS to CSC 97/98	Yes	Yes	No
Timmins & District Hospital	St. Mary's General Hospital	Timmins	FFS	---	No	Yes
North Algoma Health Organization	The Lady Dunn Memorial Hospital	Wawa	FFS to NGFP 99/00	Yes	Yes	No

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Champlain DHC Planning Area						
Glengarry Memorial Hospital	Glengarry Memorial Hospital	Alexandria	FFS	---	Yes	Yes
Arnprior & District Memorial Hospital	Arnprior & District Memorial Hospital	Arnprior	FFS	---	Yes	Yes
St. Francis Memorial Hospital	St. Francis Memorial Hospital	Barry's Bay	FFS	---	Yes	Yes
Cornwall General Hospital	Cornwall General Hospital	Cornwall	AFP to FFS 95/96	No	No	Yes
Hotel Dieu Hospital (Cornwall)	Hotel Dieu Hospital (Cornwall)	Cornwall	AFP	No	No	Yes
Deep River & District Hospital	Deep River & District Hospital	Deep River	FFS	---	Yes	No
Hawkesbury & District General Hospital	Hawkesbury & District General Hospital	Hawkesbury	FFS	---	No	Yes
Queensway-Carleton Hospital	Queensway-Carleton Hospital	Nepean	AFP	No	No	No
Childrens Hospital of Eastern Ontario	Childrens Hospital of Eastern Ontario	Ottawa	AFP to FFS 95/96	No	No	Yes
Montfort Hospital	Montfort Hospital	Ottawa	FFS	---	No	Yes
The Ottawa Hospital – Civic Campus	Ottawa Civic Hospital	Ottawa	AFP to FFS 94/95	No	No	Yes
The Ottawa Hospital – General Campus	The Ottawa General Hospital	Ottawa	AFP to FFS 94/95	No	No	Yes
The Ottawa Hospital – Riverside Campus	Riverside Hospital of Ottawa	Ottawa	AFP	Began 98/99	No	No
---	Pembroke Civic Hospital	Pembroke	FFS	---	No	*closed*
Pembroke General Hospital	Pembroke General Hospital	Pembroke	FFS	---	No	No
Renfrew Victoria Hospital	Renfrew Victoria Hospital	Renfrew	FFS	---	Yes	No
Winchester District Memorial Hospital	Winchester District Memorial Hospital	Winchester	FFS	---	Yes	Yes
Durham, Haliburton, Kawartha and Pine Ridge DHC Planning Area						
Rouge Valley Health System – Ajax & Pickering Health Centre Site	Ajax & Pickering General Hospital	Ajax	FFS	---	No	No
Lakeridge Health Corporation – Bowmanville Site	Memorial Hospital	Bowmanville	FFS	---	No	No
Campbellford Memorial Hospital	Campbellford Memorial Hospital	Campbellford	FFS	---	Yes	Yes
Northumberland Health Care Corporation – Cobourg Site	Cobourg District General Hospital	Cobourg	FFS	---	No	No
Haliburton Highlands Health Services Corporation – Haliburton Site	Haliburton Hospital	Haliburton	FFS	---	Yes	Yes

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Durham, Haliburton, Kawartha and Pine Ridge DHC Planning Area *(Continued)*						
Ross Memorial Hospital	Ross Memorial Hospital	Lindsay	FFS	---	No	Yes
Haliburton Highlands Health Services Corporation – Minden Site	Minden Hospital	Minden	FFS	---	Yes	Yes
Lakeridge Health Corporation – Oshawa Site	Oshawa General Hospital	Oshawa	FFS	---	No	No
Peterborough Regional Health Centre – Hospital Drive Site	Peterborough Civic Hospital	Peterborough	FFS	---	No	No
Peterborough Regional Health Centre – Rogers St. Site	St. Joseph's General Hospital	Peterborough	FFS	---	No	*closed*
Northumberland Health Care Corporation – Port Hope Site	Port Hope & District Hospital	Port Hope	FFS	---	No	*closed*
Lakeridge Health Corporation – Port Perry Site	Community Memorial Hospital	Port Perry	FFS	---	Yes	Yes
Lakeridge Health Corporation – Uxbridge Site	Cottage Hospital (Uxbridge)	Uxbridge	FFS	---	Yes	Yes
Lakeridge Health Corporation – Whitby Site	Whitby General Hospital	Whitby	FFS	---	No	*closed*
Essex, Kent, Lambton DHC Planning Area						
Chatham Kent Health Alliance – Public General Hospital Campus	Public General Hospital	Chatham	FFS	---	No	Yes
Chatham Kent Health Alliance – St. Joseph's	St. Joseph's Hospital (Chatham)	Chatham	FFS	---	No	*closed*
Leamington District Memorial Hospital	Leamington District Memorial Hospital	Leamington	AFP	Began 1/97	No	Yes
Charlotte Eleanor Englehart Hospital	Charlotte Eleanor Englehart Hospital	Petrolia	FFS	---	Yes	Yes
Lambton Hospitals Group – Sarnia General Hospital	Sarnia General Hospital	Sarnia	FFS	---	No	No
Lambton Hospitals Group – St. Joseph's Health Centre Of Sarnia	St. Joseph's Health Centre of Sarnia	Sarnia	FFS	---	No	*closed*
Chatham Kent Health Alliance – Sydenham District Campus	Sydenham District Hospital	Wallaceberg	FFS	---	No	Yes
Hotel Dieu Grace Hospital – Grace Site	The Salvation Army Grace Hospital (Windsor)	Windsor	FFS	---	No	*closed*

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Essex, Kent, Lambton DHC Planning Area *(Continued)*						
Hotel Dieu Grace Hospital – Hotel Dieu Site	Hotel Dieu of St. Joseph	Windsor	FFS	---	No	No
Windsor Regional Hospital – Metropolitan Campus	The Metropolitan General Hospital	Windsor	FFS	---	No	No
Windsor Regional Hospital – Western Campus	Windsor Western Hospital Centre Inc.	Windsor	FFS	---	No	*closed*
Grand River DHC Planning Area						
Brant Community Health Care System – Brantford General Site	The Brantford General Hospital	Brantford	FFS	---	No	No
Haldimand War Memorial Hospital	Haldimand War Memorial Hospital	Dunnville	FFS	---	Yes	Yes
West Haldimand General Hospital	West Haldimand General Hospital	Hagersville	FFS	---	Yes	Yes
Brant Community Health Care System – Willett Site	The Willett Hospital	Paris	FFS	---	No	No
Norfolk General Hospital	Norfolk General Hospital	Simcoe	FFS	---	No	Yes
Grey Bruce Huron Perth DHC Planning Area						
South Bruce Grey Health Centre – Chesley Site	Chesley & District Memorial Hospital	Chesley	FFS	---	Yes	Yes
Clinton Public Hospital	Clinton Public Hospital	Clinton	FFS	---	Yes	Yes
South Bruce Grey Health Centre – Durham Site	Durham Memorial Hospital	Durham	FFS	---	No	No
South Huron Hospital	South Huron Hospital	Exeter	FFS	---	Yes	Yes
Alexandra Marine & General Hospital	Alexandra Marine & General Hospital	Goderich	FFS	---	Yes	Yes
Hanover & District Hospital	Hanover & District Hospital	Hanover	FFS	---	Yes	Yes
South Bruce Grey Health Centre – Kincardine Site	Kincardine & District General Hospital	Kincardine	FFS	---	Yes	Yes
Grey-Bruce Health Services – Lion's Head	Bruce Peninsula Health Services – Lion's Head	Lion's Head	FFS	---	Yes	Yes
Listowel Memorial Hospital	The Listowel Memorial Hospital	Listowel	FFS	---	Yes	Yes
Grey-Bruce Health Services – Markdale Site	Centre Grey General Hospital	Markdale	FFS	---	Yes	Yes
Grey-Bruce Health Services – Meaford Site	Meaford General Hospital	Meaford	FFS	---	Yes	Yes
Grey-Bruce Health Services – Owen Sound Site	The Grey Bruce Regional Health Centre	Owen Sound	FFS	---	No	Yes

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Grey Bruce Huron Perth DHC Planning Area *(Continued)*						
Seaforth Community Hospital	Seaforth Community Hospital	Seaforth	FFS	---	Yes	Yes
Grey-Bruce Health Services – Southampton Site	Saugeen Memorial Hospital	Southampton	FFS	---	Yes	Yes
St. Marys Memorial Hospital	St. Marys Memorial Hospital	St. Marys	FFS	---	No	Yes
Stratford General Hospital	Stratford General Hospital	Stratford	FFS to AFP 95/96	Yes	No	Yes
South Bruce Grey Health Centre – Walkerton Site	County Of Bruce General Hospital	Walkerton	FFS	---	Yes	Yes
Grey-Bruce Health Services – Wiarton Site	Bruce Peninsula Health Services – Wiarton	Wiarton	FFS	---	Yes	Yes
Wingham & District Hospital	Wingham & District Hospital	Wingham	FFS	---	Yes	Yes
Halton-Peel DHC Planning Area						
William Osler Health Centre – Brampton Memorial Campus	Peel Memorial Hospital	Brampton	FFS	---	No	No
Joseph Brant Memorial Hospital	Joseph Brant Memorial Hospital	Burlington	FFS	---	No	No
William Osler Health Centre – Georgetown Campus	Georgetown & District Memorial Hospital	Georgetown	FFS	---	No	Yes
Halton Healthcare Services Corporation – Milton Site	Milton District Hospital	Milton	FFS	---	No	Yes
The Credit Valley Hospital	The Credit Valley Hospital	Mississauga	FFS	---	No	No
Trillium Health Centre – Mississauga Site	The Mississauga Hospital	Mississauga	FFS	---	No	No
Halton Healthcare Services Corporation – Oakville Site	Oakville-Trafalgar Memorial Hospital	Oakville	FFS	---	No	No
Hamilton-Wentworth DHC Planning Area						
Hamilton Health Sciences Corporation – General Campus	Hamilton General Hospital (Division of Hamilton Civic Hospital)	Hamilton	AFP to FFS 95/96	No	No	Yes
Hamilton Health Sciences Corporation – Henderson Campus	Henderson General Hosp (Unit of Hamilton Civic Hospital)	Hamilton	AFP to FFS 95/96	No	No	Yes

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Hamilton-Wentworth DHC Planning Area *(Continued)*						
Hamilton Health Sciences Corporation – Chedoke McMaster Campus	Chedoke-McMaster Hospital – McMaster University Medical Centre Site	Hamilton	AFP	No	No	Yes
Hamilton Health Sciences Corporation – Chedoke Hospital Campus	Chedoke-McMaster Hospital – Chedoke Hospital site	Hamilton	AFP	No	No	*closed*
St. Joseph's Community Health Centre (Hamilton)	St. Joseph's Community Health Centre (Hamilton)	Hamilton	FFS	---	No	No
St. Joseph's Hospital (Hamilton)	St. Joseph's Hospital (Hamilton)	Hamilton	FFS	---	No	No
Niagara DHC Planning Area						
Douglas Memorial Hospital	Douglas Memorial Hospital	Fort Erie	FFS	---	Yes	Yes
West Lincoln Memorial Hospital	West Lincoln Memorial Hospital	Grimsby	FFS	---	No	Yes
Greater Niagara General Hospital	The Greater Niagara General Hospital	Niagara Falls	FFS	---	No	No
Niagara-On-The-Lake General Hospital	Niagara-On-The-Lake General Hospital	Niagara-on-the-Lake	FFS	---	No	*closed*
Port Colborne General Hospital	Port Colborne General Hospital	Port Colborne	FFS	---	No	Yes
Hotel Dieu Health Sciences Hospital (St. Catharines)	Hotel Dieu Hospital (St. Catharines)	St. Catharines	FFS	---	No	No
St. Catharines General Hospital	St. Catharines General Hospital	St. Catharines	FFS	---	No	No
Welland County General Hospital	Welland County General Hospital	Welland	FFS	---	No	No
Northern Shores DHC Planning Area (formerly Muskoka, Nipissing, Parry Sound and Timiskaming)						
South Muskoka Memorial Hospital	South Muskoka Memorial Hospital	Bracebridge	FFS	---	No	No
Huntsville District Memorial Hospital – Burks Falls Unit	Burks Falls & District Hospital	Burks Falls	FFS	---	No	No
Englehart & District Hospital	Englehart & District Hospital	Englehart	FFS to NGFP 98/99	Yes	Yes	No
Huntsville District Memorial Hospital	Huntsville District Memorial Hospital	Huntsville	FFS	---	Yes	No
Kirkland & District Hospital	Kirkland & District Hospital	Kirkland Lake	FFS	---	Yes	Yes
Mattawa General Hospital	Mattawa General Hospital	Mattawa	FFS	---	Yes	Yes

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Northern Shores DHC Planning Area (formerly Muskoka, Nipissing, Parry Sound and Timiskaming) *(Continued)*						
Temiskaming Hospital	Temiskaming Hospital	New Liskeard	FFS	---	Yes	Yes
North Bay General Hospital – McLaren Site	St. Joseph's General Hospital of North Bay Inc.	North Bay	FFS	---	No	*closed*
North Bay General Hospital – Scollard Site	North Bay Civic Hospital	North Bay	FFS	---	No	No
West Parry Sound Health Centre	Parry Sound District General Hospital	Parry Sound	FFS	---	Yes	Yes
West Nipissing General Hospital	West Nipissing General Hospital	Sturgeon Falls	FFS	---	Yes	Yes
Northwestern Ontario DHC Planning Area						
Atikokan General Hospital	Atikokan General Hospital	Atikokan	FFS to NGFP 99/00	Yes	Yes	No
Dryden Regional Health Centre	Dryden District General Hospital	Dryden	FFS	---	Yes	Yes
Riverside Health Care Facilities – Emo Health Centre	Emo Hospital	Emo	FFS to CSC 98/99	Yes	No	No
Riverside Health Care Facilities – La Verendrye Health Centre	La Verendrye General Hospital	Fort Frances	FFS	---	Yes	Yes
Geraldton District Hospital	Geraldton District Hospital	Geraldton	FFS to NGFP 99/00	Yes	Yes	No
Lake Of The Woods District Hospital	Lake Of The Woods District Hospital	Kenora	FFS	---	Yes	Yes
Manitouwadge General Hospital	Manitouwadge General Hospital	Manitouwadge	FFS to CSC 97/98	Yes	Yes	No
Wilson Memorial General Hospital	Wilson Memorial General Hospital	Marathon	FFS to NGFP 99/00	Yes	Yes	No
Nipigon District Memorial Hospital	Nipigon District Memorial Hospital	Nipigon	FFS to NGFP 99/00	Yes	Yes	No
Riverside Health Care Facilities – Rainy River Health Centre	Rainy River Hospital	Rainy River	FFS to CSC 96/97	Yes	Yes	No
Red Lake Margaret Cochenour Memorial Hospital	Red Lake Margaret Cochenour Memorial Hospital	Red Lake	FFS to AFP 94/95	Began 1/2/95	Yes	No
Sioux Lookout District Health Centre	District Health Centre	Sioux Lookout	FFS	---	Yes	Yes
Sioux Lookout Zone Hospital	Sioux Lookout Zone Hospital	Sioux Lookout	---	---	No	temp. closed
The McCausland Hospital	The McCausland Hospital	Terrace Bay	FFS to CSC 97/98	Yes	Yes	No

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Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Northwestern Ontario DHC Planning Area *(Continued)*						
St. Joseph's General Hospital (Thunder Bay)	St. Joseph's General Hospital (Thunder Bay)	Thunder Bay	FFS	---	No	*closed*
Thunder Bay Regional Hospital – McKellar Site	McKellar General Hospital	Thunder Bay	FFS	---	No	No
Thunder Bay Regional Hospital – Port Arthur Site	The General Hospital Of Port Arthur	Thunder Bay	FFS	---	No	No
Simcoe-York DHC Planning Area						
Stevenson Memorial Hospital	Stevenson Memorial Hospital	Alliston	FFS	---	No	No
Royal Victoria Hospital	Royal Victoria Hospital	Barrie	FFS	---	No	No
Collingwood General & Marine Hospital	Collingwood General & Marine Hospital	Collingwood	FFS	---	No	No
Markham Stouffville Hospital	Markham Stouffville Hospital	Markham	FFS	---	No	No
Huronia District Hospital	Huronia District Hospital	Midland	FFS	---	No	No
York County Hospital	York County Hospital	Newmarket	FFS	---	No	No
Orillia Soldiers' Memorial Hospital	Orillia Soldiers' Memorial Hospital	Orillia	FFS	---	No	No
Penetanguishene General Hospital	The Penetanguishene General Hospital	Penetanguishine	FFS	---	No	*closed*
York Central Hospital	York Central Hospital	Richmond Hill	FFS	---	No	No
Southeastern Ontario DHC Planning Area (formerly Quinte, Kingston, Rideau)						
Almonte General Hospital	Almonte General Hospital	Almonte	FFS	---	Yes	No
Quinte Healthcare Corporation – North Hastings District Site	North Hastings District Hospital	Bancroft	FFS	---	No	Yes
Quinte Healthcare Corporation – Belleville Site	Belleville General Hospital	Belleville	FFS	---	Yes	Yes
Brockville General Hospital	Brockville General Hospital	Brockville	FFS	---	No	Yes
St. Vincent De Paul Hospital	St. Vincent De Paul Hospital	Brockville	FFS	---	No	*closed*
Carleton Place & District Memorial Hospital	Carleton Place & District Memorial Hospital	Carleton Place	FFS	---	Yes	No
Kemptville District Hospital	Kemptville District Hospital	Kemptville	FFS	---	Yes	Yes
Hotel Dieu Hospital (Kingston)	Hotel Dieu Hospital (Kingston)	Kingston	FFS to AFP 94/95	No	No	No
Kingston General Hospital	Kingston General Hospital	Kingston	FFS to AFP 94/96	No	No	No

[1]**AFP =** Alternate Funding Plan; **AFA =** Alternate Funding Arrangement; **FFS =** Fee-For-Service; **CSC =** Community Sponsored Contract; **NGFP =** Northern Group Funding Plan.

Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Southeastern Ontario DHC Planning Area (formerly Quinte, Kingston, Rideau) *(Continued)*						
Kingston General Hospital	Kingston General Hospital	Kingston	FFS to AFP 94/96	No	No	No
Lennox & Addington County General Hospital	Lennox & Addington County General Hospital	Napanee	FFS	---	No	Yes
Perth & Smiths Falls District Hospital – Perth Site	The Great War Memorial Hospital of Perth District	Perth	FFS	---	Yes	No
Quinte Healthcare Corporation – Prince Edward County Site	Prince Edward County Memorial Hospital	Picton	FFS	---	No	Yes
Perth & Smiths Falls District Hospital – Smiths Falls Site	Smiths Falls Community Hospital	Smiths Falls	FFS	---	Yes	Yes
Quinte Healthcare Corporation – Trenton Site	Trenton Memorial Hospital	Trenton	FFS	---	No	Yes
Thames Valley DHC Planning Area						
Alexandra Hospital	Alexandra Hospital	Ingersoll	FFS	---	No	Yes
London Health Sciences Centre – Children's Hospital of Western Ontario Site	Childrens Hospital Of Western Ontario	London	FFS	---	No	Yes
London Health Sciences Centre – University Campus	University Hospital	London	AFP to FFS 98/99	No	No	Yes
London Health Sciences Centre – Victoria Campus	Victoria Hospital Corporation	London	AFP to FFS 95/96	No	No	Yes
St. Joseph's Health Centre (London)	St. Joseph's Health Centre (London)	London	AFP	No	No	Yes
Four Counties Health Services	Four Counties General Hospital	Newbury	FFS	---	Yes	Yes
St. Thomas-Elgin General Hospital	St. Thomas-Elgin General Hospital	St. Thomas	FFS	---	No	Yes
Strathroy Middlesex General Hospital	Strathroy Middlesex General Hospital	Strathroy	FFS	---	No	Yes
Tillsonburg District Memorial Hospital	Tillsonburg District Memorial Hospital	Tillsonburg	FFS	---	Yes	Yes
Woodstock General Hospital	Woodstock General Hospital	Woodstock	FFS	---	No	Yes

[1]**AFP =** Alternate Funding Plan; **AFA =** Alternate Funding Arrangement; **FFS =** Fee-For-Service; **CSC =** Community Sponsored Contract; **NGFP =** Northern Group Funding Plan.

Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Toronto DHC Planning Area						
---	Doctors Hospital	Toronto	FFS	---	No	*closed*
Mount Sinai Hospital	Mount Sinai Hospital	Toronto	FFS	---	No	No
St. Joseph's Health Centre (Toronto)	St. Joseph's Health Centre (Toronto)	Toronto	FFS	---	No	No
St. Michaels Hospital – Bond St. Site	St. Michael's Hospital	Toronto	AFP	No	No	Yes
St. Michaels Hospital – Wellesley Central Site	The Wellesley Hospital	Toronto	AFP	No	No	No
Sunnybrook & Women's College Health Sciences Centre – Women's College Site	Women's College Hospital	Toronto	AFP	No	No	No
The Hospital for Sick Children	The Hospital for Sick Children	Toronto	AFP	After 1/7/98	No	No
University Health Network – General Campus	The Toronto Hospital – Toronto General Division	Toronto	AFP	No	No	Yes
University Health Network – Western Campus	The Toronto Hospital – Toronto Western Division	Toronto	AFP	No	No	Yes
Toronto East General & Orthopaedic Hospital Inc.	Toronto East General & Orthopaedic Hospital Inc.	Toronto – East York	AFP to FFS 95/96	No	No	No
Trillium Health Centre – Queensway Site	Queensway General Hospital	Toronto – Etobicoke	FFS	---	No	No
William Osler Health Centre – Etobicoke Campus	The Etobicoke General Hospital	Toronto – Etobicoke	FFS	---	No	No
Humber River Regional Hospital – Finch Site	York-Finch General Hospital	Toronto – North York	FFS	---	No	No
North York General Hospital – Branson Site	North York Branson Hospital	Toronto – North York	FFS	---	No	limited
North York General Hospital – General Site	North York General Hospital	Toronto – North York	FFS	---	No	No
Sunnybrook & Women's College Health Sciences Centre – Sunnybrook Site	Sunnybrook Health Sciences Centre	Toronto – North York	FFS	---	No	Yes
Rouge Valley Health System – Centenary Health Centre Site	Centenary Health Centre	Toronto – Scarborough	FFS	---	No	No
The Scarborough Hospital – General Division	Scarborough General Hospital	Toronto – Scarborough	FFS	---	No	No
The Scarborough Hospital – Grace Division	Salvation Army Scarborough Grace General Hospital	Toronto – Scarborough	FFS	---	No	No
Humber River Regional Hospital – Church St. Site	Humber Memorial Hospital	Toronto – York	FFS	---	No	No

[1]**AFP =** Alternate Funding Plan; **AFA =** Alternate Funding Arrangement; **FFS =** Fee-For-Service; **CSC =** Community Sponsored Contract; **NGFP =** Northern Group Funding Plan.

Appendix B: Ontario Emergency Department Physician Funding/Funding Changes, 1993 to 2000 *(Continued)*

2000 Institution Name	1993 Institution Name	Community	Funding (FFS vs AFP, CSC, NGFP)[1] or Funding Changes 1993 - 2000	Shadow billing while on AFP	Scott Sessional Fee Participant (all or part of time) 1996 - 2000	Participant in new AFA[1] (including those beginning after March 2000)
Toronto DHC Planning Area *(Continued)*						
Humber River Regional Hospital – Keele Site	Northwestern General Hospital	Toronto – York	FFS	---	No	*closed*
Waterloo Region-Wellington, Dufferin DHC Planning Area						
Cambridge Memorial Hospital	Cambridge Memorial Hospital	Cambridge	FFS	---	No	No
Groves Memorial Community Hospital	Groves Memorial Community Hospital	Fergus	FFS	---	No	Yes
Guelph General Hospital	Guelph General Hospital	Guelph	FFS	---	No	No
Grand River Hospital Corporation	Kitchener-Waterloo Hospital	Kitchener	FFS	---	No	No
St. Mary's General Hospital	St. Mary's General Hospital	Kitchener	FFS	---	No	No
Louise Marshall Hospital	Louise Marshall Hospital	Mount Forest	AFP	No	No	Yes
Dufferin-Caledon Health Care Corporation – Orangeville Site	Dufferin Area Hospital	Orangeville	FFS	---	No	Yes
Palmerston & District Hospital	Palmerston & District Hospital	Palmerston	FFS	---	Yes	Yes
Dufferin-Caledon Health Care Corporation – Shelburne Site	Shelburne District Hospital	Shelburne	FFS	---	No	*closed*

[1]**AFP =** Alternate Funding Plan; **AFA =** Alternate Funding Arrangement; **FFS =** Fee-For-Service; **CSC =** Community Sponsored Contract; **NGFP =** Northern Group Funding Plan.

Appendix C: Alternate Funding Arrangements (AFAs) in Ontario

	Date When Introduced	Eligibility Criteria	Number of EDs Offered the AFA	Number of EDs Accepting the AFA
Phase 1	September 1999	Selected EDs with <35,000 ED visits/year	27	24
Phase 2	December 1999	Other EDs with <35,000 ED visits/year	61	48
Phase 3	November 2000	All EDs with 35,000+ ED visits/year, including teaching hospitals	63	23

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Atlas Report

Emergency Department Services in Ontario

1993 – 2000

Technical Appendix

General Data Issues

Data Sources

Most of Ontario's physicians work on a fee-for-service basis. They submit a bill to the Ontario Health Insurance Plan (OHIP) for each service they provide, following a schedule with a set fee for each type of service. Fees are determined through negotiations between the Ontario Medical Association and the Ministry of Health and Long-Term Care. OHIP maintains a database which records, for each service, numeric identifiers for the physician and patient, a fee code describing the service performed, the date of service and the number of services performed. In the case of patients seen in an ED, the diagnosis is recorded, as well as an institution number identifying the ED in which the visit took place. *For the purposes of our study, all patient and physician identifiers were scrambled to protect the confidentiality of individuals,* but institution numbers were not.

Population data from Statistics Canada were used in the calculation of rates of ED use. Statistics Canada provided actual counts of the Ontario population by age and sex category for Census years 1991 and 1996, and projected counts in intercensal years.

Time Frame

The time frame for the study was between fiscal years 1993 and 2000. In Ontario, fiscal years begin on April 1st and end on March 31st, and are referred to by the year in which the fiscal year ends. Thus, fiscal year 1993 began on April 1, 1992; fiscal year 2000 ended on March 31, 2000.

Emergency Department Fee Codes

There are two methods by which physicians can bill for services in EDs. First, they may bill 'H' fee codes, which are typically used by physicians who are required to be present in the ED continuously during their time on duty, either because of hospital policies, or because the volume of patients requires one or more physicians to be constantly on-site.

In smaller communities where patient volumes may be lower, the physician may be called in to the ED from elsewhere, as needed. In such cases, the physician makes a special visit to the ED when called in and can bill a special visit 'K' code in addition to a fee code for the actual assessment of those patients who are present when the physician arrives in the ED. If additional patients come to the ED while the physician is already present, then the physician must bill an H code for these assessments.

Hence, an ED visit is identified by either an H code or a K code, billed in conjunction with a patient assessment. Such patient assessments are usually billed using an A code; occasionally, physicians may bill for psychotherapy or counselling (K007 or K013) which takes place in an ED, or for a resuscitation (G521, G522, G523 or G391, G395).

For the purpose of this study, we excluded situations where a non-emergency specialist was called to the ED to assess a patient either at the request of the on-site emergency physician, or as a direct referral from a physician outside the hospital. In such cases, a K code would have been billed with an A code for a consultation.

The table on the following page summarizes the fee codes used by ED physicians.

Exhibit T1: Fee Codes Used by Emergency Department Physicians

Feecode	Description	Time during which fee code applies	Restrictions
H101	Minor assessment	Weekdays 0800-2400	Reserved exclusively for services performed in EDs
H102	Comprehensive assessment		
H103	Multiple systems assessment		
H104	Re-assessment		
H121	Minor assessment	Night-time 2400-0800	
H122	Comprehensive assessment		
H123	Multiple systems assessment		
H124	Re-assessment		
H151	Minor assessment	Weekends and statutory holidays 0800-2400	
H152	Comprehensive assessment		
H153	Multiple systems assessment		
H154	Re-assessment		
H055	Consultation by FRCP(C) physician	Anytime	
H065	Consultation by non-FRCP(C) physician		
K990	Special visit, first patient seen	Weekdays 0700-1700	Must be billed in conjunction with a patient assessment (A code), psychotherapy/ counselling or resuscitation
K991	Special visit, subsequent patients seen (max 9 on same special visit)		
K992	Special visit, first patient seen	Interruption of office hours 0700-1700	
K993	Special visit, subsequent patients seen (max 9 on same special visit)		
K994	Special visit, first patient seen	Weekdays 1700-2400 and weekend 0700-2400	
K995	Special visit, subsequent patients seen (max 9 on same special visit)		
K996	Special visit, first patient seen	Special visit, first patient seen Evenings 2400-0700	
K997	Special visit, subsequent patients seen (max 9 on same special visit)		

Shadow Billings

Shadow billings were available in the following circumstances:

a. Rural hospitals where physicians were entitled to bill Scott sessional fees;

b. Certain EDs participating in alternate funding plans, including Leamington, Stratford and Red Lake;

c. Northern Ontario EDs, where physicians were eligible for Community Sponsored Contracts or Northern Group Funding Plans;

d. All EDs recently converted to alternate funding arrangements (AFA's).

Manual inspection of data at the moment when EDs were converted from fee-for-service to non-fee-for-service revealed that patterns of ED use remained the same before and after conversion, suggesting that the completeness of shadow billing was good. Visit volumes also did not decline precipitiously at the moment of conversion, although over time, a number of EDs were noted to have lower utilization after conversion. This observation may be attributable to physicians responding to the change in financial incentives created by conversion.

It should be noted that under the recently introduced AFAs, funding to each hospital is determined in part by total ED volumes. Hence, there is a financial incentive to ensure that all ED visits are properly coded. Furthermore, a number of hospitals have taken over the function of submitting shadow billings, using trained staff. These factors may have a positive impact on the quality of shadow billing.

Shadow billing from the Hospital for Sick Children began in 1999 and appeared to be inconsistent, with large day-to-day fluctuations. There is some concern that shadow billings may have underestimated actual visit volumes in this institution.

Data Issues Related to Specific Exhibits

Exhibit 1: Identifying Emergency Departments

The 'institution number' field on fee-for-service claims identifies the institution where each ED visit took place. For those EDs which were reported to have closed or reduced services, this information was verified by examining their billings during the time period in which the change in service took place.

During the study period hospital mergers resulted in many institutions being given new institution numbers. In some cases, physicians switched to the new institution number en masse; in other cases, some physicians used the new number while others continued to use the old. All the billings occurring under either the new or the old institution number were attributed to the same ED.

Exhibit 3: Age and Sex Adjustment of ED Use

Standardized rates of ED use were calculated using direct standardization techniques. The standard population for this analysis was the Ontario 1996 population.

Exhibits 4 and 7: Definition of Middle of the Night

After-midnight ED visits are identified by special premium fee codes. A quirk in the fee schedule, however, complicates the definition of morning hours. When physicians are billing H codes, the after midnight bonus ends at 8 am. For physicians billing K codes, the bonus ends at 7 am (see Exhibit T1).

Part of the apparent difference between rural and urban hospitals may be because in urban hospitals (which use mainly H codes) the after midnight period is one hour longer than in rural hospitals (which use mainly A plus K codes). However, it is unlikely that this one hour difference would fully account for this finding.

Exhibits 8 and 9: Diagnostic Groupings

The OHIP database uses a three-digit diagnostic coding system, which is very similar, but not identical, to the first three digits of the ICD-9 system. The diagnostic groupings used in Exhibits 8 and 9 are defined as follows:

Exhibit T2: Major Diagnostic Group Definitions

Diagnostic Group	Diagnostic Codes
Infectious diseases	001-139
Cancer/neoplasms	140-239
Endocrine disorders	240-279
Psychiatric/social problems	290-319
	897-909
Central nervous system & special senses	320-389
Cardiovascular diseases	390-459
Respiratory diseases	460-519
Gastrointestinal disorders	520-579
Genitourinary disorders	580-629
Skin/subcutaneous disorders	680-709
Musculoskeletal disorders	710-739
Other medical (hematologic, obstetric, congenital)	280-289
	630-675
	762-779
	740-759
Trauma	800-894
	910-939
	958-959
	960-989
Poisonings	960-989
Burns	940-949
Signs/symptoms	780-799
Supplemental class	895-896
	916-917

Exhibit T3: Selected Diagnostic Group Definitions

Diagnostic Group	Diagnostic Codes
Upper respiratory infections, ear infections & other infectious diseases	001-139
	381-382
	460-466
Traumatic injuries	800-894
	910-949
	958-989
Cardiovascular disease and chest pain	390-459
	785
Signs and symptoms not yet diagnosed (excluding chest pain)	780-784
	786-799
Psychiatric and social problems	290-319
	897-909

Exhibit 10: ED Utilization by DHC Planning Area – Adjustments for Missing Data

No data were available on EDs which were remunerated by alternate funding plans and which did not submit shadow billings. As a result, ED use was undercounted in those areas which have a high concentration of EDs with missing data. In the following paragraphs, three methods to estimate the magnitude of this missing data error are presented. The choice of method used varied according to what information was available for a given institution. These methods are reasonable for classifying DHC areas as being high, medium, or low ED use (<0.3, 0.3-0.45, >0.45 visits per capita, respectively) as depicted in Exhibit 10, but caution should be used when drawing any finer inferences about geographic variations from the data. Missing data may also bias the calculations of net inflow and outflow. For this reason, no inferences should be made beyond what is reported in Exhibit 10—that a particular region may have a positive, negative, or generally neutral inflow.

Method 1: Where Prior Data Exists

In the case of Kingston General Hospital, Hotel Dieu Hospital in Kingston, and Weeneebayko Hospital in Moose Factory, utilization data were available in previous time periods when these EDs submitted either fee-for-service or shadow billings. For each hospital, the ED volume in the last year that data were available was used to estimate ED volumes in 2000.

Method 2: Inferring ED Visits for Some Teaching Hospitals

The following nine teaching hospitals had no available utilization data in 2000:

- University Health Network – General Campus
- University Health Network – Western Campus
- St. Michael's Hospital – Bond St. Site
- St. Michael's Hospital – Wellesley Central Site
- Sunnybrook & Women's Health Sciences Centre – Women's College Site
- Hamilton Health Sciences Centre – Chedoke-McMaster Campus
- St. Joseph's Hospital – London
- The Ottawa Hospital – General Division
- The Ottawa Hospital – Riverside General Campus

The ED volume of each of these institutions was estimated to be equivalent to the average of all of the following EDs in teaching hospitals in Ontario where utilization data were available in 2000:

- Sunnybrook & Women's Health Sciences Centre – Sunnybrook Site
- Mount Sinai Hospital
- Hotel Dieu – Kingston
- Kingston General Hospital
- Hamilton Health Sciences Centre – General Campus
- Hamilton Health Sciences Centre – Henderson Campus
- St. Joseph's Hospital – Hamilton
- London Health Sciences Centre – Victoria Campus
- London Health Sciences Centre – University Campus
- London Health Sciences Centre – Children's Hospital of Western Ontario Site
- The Ottawa Hospital – Civic Campus

The average ED volume for these hospitals was 31,000, with a range of 21,000 to 43,000.

Method 3: Hospitals in Medium-Sized Communities

The third scenario involved Hotel Dieu Hospital in Cornwall. For this institution, the ED volumes in the neighbouring Cornwall General Hospital were used as an approximation.

Using these methods, an estimated 372,000 ED visits were missing. These visits represent about 10% of ED visits in the province. The approximate geographical distribution of these missing visits is shown in Exhibit T2. Also shown in this table is the number of visits per capita and per cent net inflow for each DHC area, which is mapped in Exhibit 10.

Exhibit T4: Undercounting of Emergency Department Visits by District Health Council Planning Areas, 2000

Region	District Health Council Planning Area	Number of Identifiable ED Visits by DHC Area Residents[1]	Total Number of Identifiable ED Visits (2000)[1]	Estimated Number of Missing ED Visits[1]	Estimated Total Number of ED Visits (missing included)[1]	DHC Area Population[1]	Estimated ED Visits per Capita[2]	Per Cent Net Inflow[3]
East	• Champlain	336,000	334,000	85,000	419,000	1,063,000	0.39	-0.5%
	• Southeastern Ont.	193,000	207,000	74,000	281,000	493,000	0.57	5.0%
Central East	• Durham, Haliburton, Kawartha, Pine Ridge	302,000	298,000	***	298,000	805,000	0.37	-1.3%
	• Simcoe-York	288,000	297,000	***	297,000	1,060,000	0.28	3.0%
Toronto	• Toronto	526,000	507,000	155,000	662,000	2,524,000	0.26	-2.9%
Central West	• Halton-Peel	286,000	272,000	***	272,000	1,345,000	0.20	-5.1%
	• Waterloo Region-Wellington-Dufferin	173,000	175,000	***	175,000	676,000	0.26	1.1%
Central South	• Hamilton-Wentworth	120,000	114,000	31,000	145,000	494,000	0.29	-4.1%
	• Niagara	179,000	183,000	***	183,000	421,000	0.43	2.2%
	• Grand River	79,000	80,000	***	80,000	234,000	0.34	1.3%
South West	• Essex, Kent, Lambton	212,000	203,000	***	203,000	621,000	0.33	-4.4%
	• Grey Bruce Huron Perth	180,000	195,000	***	195,000	294,000	0.66	7.7%
	• Thames Valley	180,000	184,000	31,000	215,000	596,000	0.36	1.9%
North	• Algoma, Cochrane, Manitoulin, Sudbury	245,000	242,000	2,000	244,000	423,000	0.58	-1.2%
	• Northern Shores	136,000	146,000	***	146,000	218,000	0.67	6.8%
	• Northwestern Ontario	125,000	124,000	***	124,000	251,000	0.49	-0.8%

Note: All figures in shaded cells are rough estimates and should not be used for planning purposes.

[1] All figures are rounded to the nearest thousand.

[2] ED vistis per capita = column 6/column 7

[3] Per cent net inflow = column 6 – (column 3 + column 5)/column 6 * 100

Exhibit 10: Geographic Coding of ED Visits

Rates of ED use among patients living in each DHC planning area were calculated using information about each patient's postal code of residence as registered in OHIP. The 1999 Statistics Canada postal code conversion file (PCCF) was then used to determine in which county, and ultimately in which DHC area, a patient lived. About five per cent of patients were found to have postal codes which did not exist, according to the PCCF. Such cases likely represent coding errors and were excluded.

One potential error of this analysis is that patients may not inform OHIP of when they change address, even though they are legally required to do so. As a data quality check, Table T3 was created for fiscal year 1993. In 1991, OHIP introduced a new patient health card number which was unique to each individual in the province. At that time of conversion to this new system, the entire population was required to register at once and postal code data close to this year may be considered to be highly accurate. The geographical variations and inter-area migration patterns identified in 1993 appear to be very similar to those reported for 2000.

Exhibits 11-14: Describing Emergency Department Physicians

The Ontario Physician Human Resource Data Centre (OPHRDC) provided detailed information on each physician's age, gender and level of specialty training. A prior research agreement allowed for the linkage of OPHRDC to the OHIP database. The linkage database can distinguish between general practitioners and family physicians (GP/FPs), family physicians with certification in emergency medicine (CCFP(EM)), and specialists who have successfully completed a residency in emergency medicine (FRCP(C)).

The OPHRDC data are based on a census of physicians working in the system at the end of each calendar year. Utilization data on individual physicians within a given fiscal year were linked to the appropriate OPHRDC file based on whether the census point fell within the given fiscal year. Hence, for OHIP analyses of fiscal year 2000, the OPHRDC file for December 31, 1999 was used for the linkage.

Exhibits 11-14: Counting Physicians

In Exhibits 11 to 14, physicians who were counted as actively practising in EDs had to have at least 100 patient assessments in the ED per year billed or shadow-billed to OHIP. As in all analyses which track measures over time, only EDs in which physicians billed or shadow-billed continuously throughout the study period were included. This definition excluded physicians who worked exclusively in EDs that were on an alternate funding plan (AFP) and that did not shadow bill. A sensitivity analysis was conducted, examining physicians who had a CCFP(EM) or FRCP(C) in emergency medicine, but no measurable fee-for-service billings. The trends from the sensitivity analysis was the same as those reported in the atlas – the number of CCFP(EM) physicians is increasing, the physician workforce is aging, and the proportion of women is stable.

Exhibit 12: Physician Workload Calculations

In the calculation of workload, a physician had to see at least four patients in a given day in order to be counted as having worked in the ED that day. In contrast with the methods for counting physicians above, an additional restriction was imposed: any emergency physician who belonged to an AFP was excluded, even if that physician also had some fee-for-service ED billings in the year from another ED that he or she may have been working in for part of the time. This restriction was added so that any observed changes in workload could not be due to shifts in the proportion of time that such physicians spent in fee-for-service and AFP settings.

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Phone (416) 480-4055
Fax (416) 480-6048
Web site: www.ices.on.ca
G1 06, 2075 Bayview Avenue
Toronto, Ontario M4N 3M5
CANADA

ISBN 0-9686318-9-4