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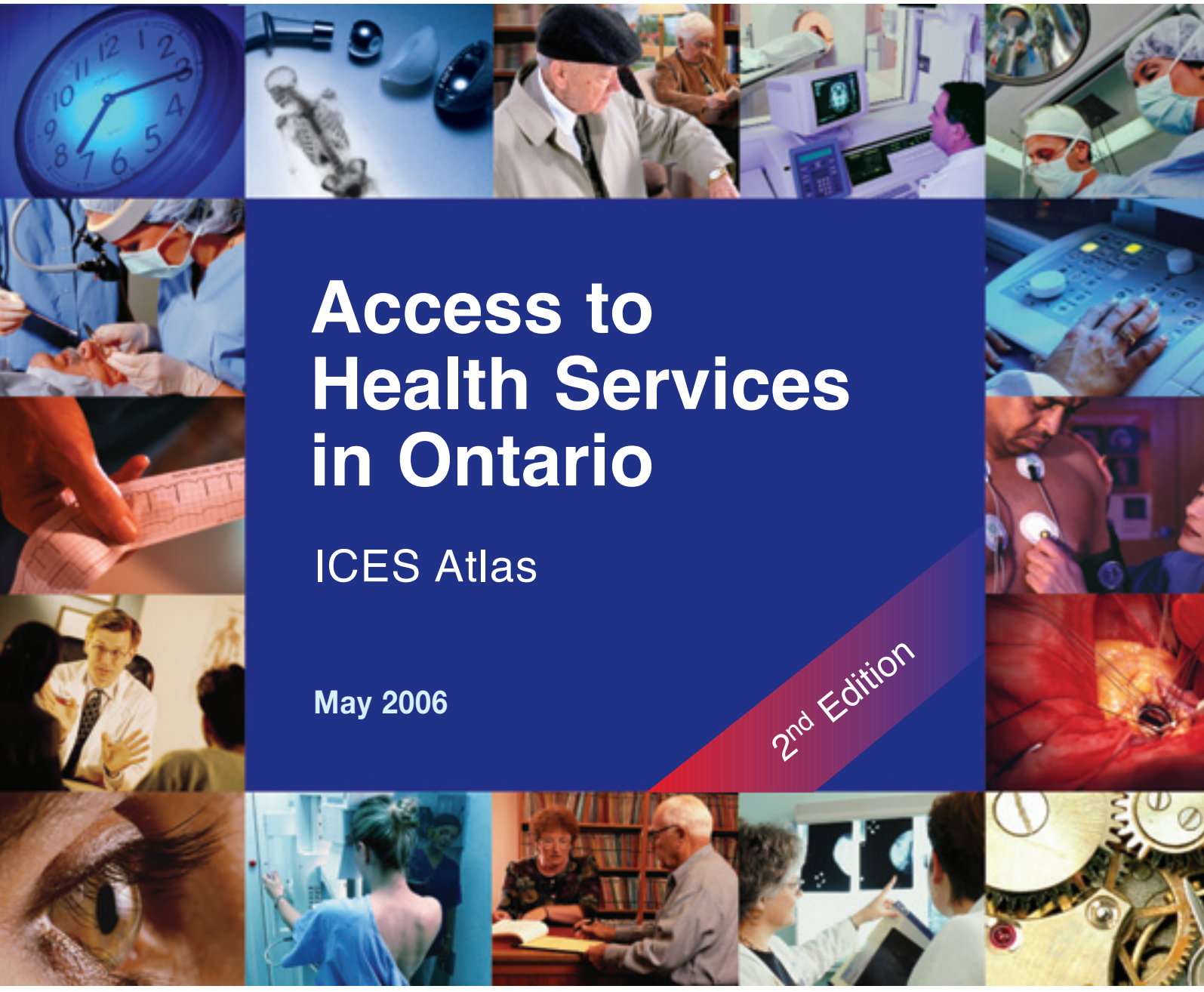

Access to Health Services in Ontario

ICES Atlas

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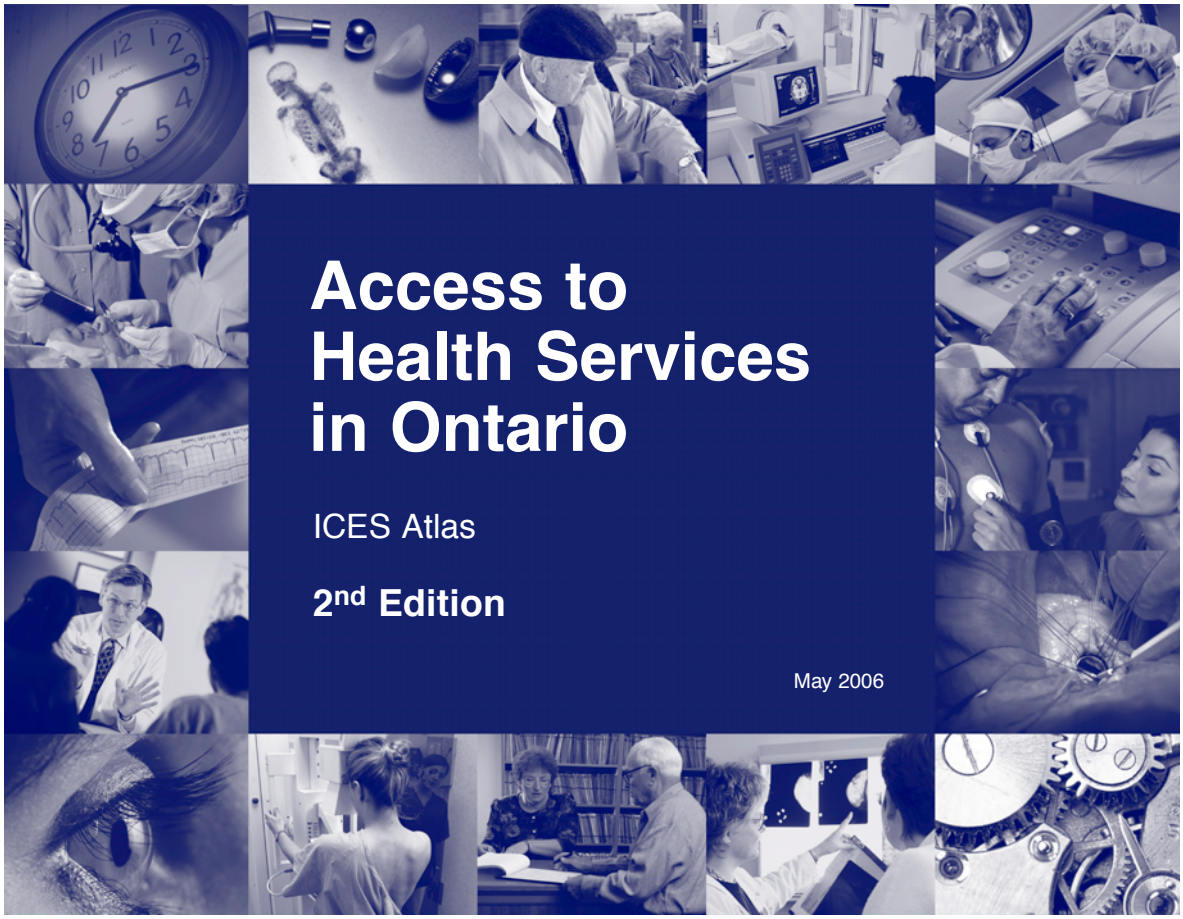
2nd Edition



Access to Health Services in Ontario

ICES Atlas

2nd Edition

May 2006

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About the Institute for Clinical Evaluative Sciences (ICES)

Ontario's resource for informed health care decision-making

ICES is an independent, non-profit organization that conducts research on a broad range of topical issues to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES knowledge provides evidence to support health policy development and changes to the organization and delivery of health care services.

Unbiased ICES evidence provides fact-based measures of health system performance; a clearer understanding of the shifting health care needs of Ontarians; and a stimulus for discussion of practical solutions to optimize scarce resources.

Key to ICES' research is our ability to link anonymous population-based health information on an individual patient basis, using unique encrypted identifiers that ensure privacy and confidentiality. This allows scientists to obtain a more comprehensive view of specific health care issues than would otherwise be possible. Linked databases reflecting 12 million of 30 million Canadians allow researchers to follow patient populations through diagnosis and treatment, and to evaluate outcomes.

ICES brings together the best and the brightest talent under one roof. Many of our faculty are not only internationally recognized leaders in their fields, but are also practising clinicians who understand the grassroots of health care delivery, making ICES knowledge clinically-focused and useful in changing practice. Other team members have statistical training, epidemiological backgrounds, project management or communications expertise. The variety of skill sets and educational backgrounds ensures a multi-disciplinary approach to issues management and creates a real-world mosaic of perspectives that is vital to shaping Ontario's future health care.

ICES collaborates with experts from a diverse network of institutions, government agencies, professional organizations and patient groups to ensure research and policy relevance.

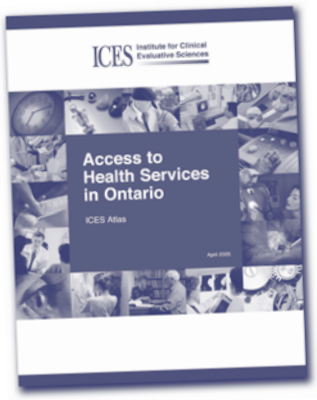
Executive Summary

Background

Timely access to high quality health care is of particular concern to Canadians. Indeed, access to care has become a **key priority** on Canada's health policy agenda.

In November 2004, the Ontario government launched its Wait Times Strategy which is focused on **improving access** to the following **five key health services:**

- **selected cancer surgeries** (large bowel resection, mastectomy, radical prostatectomy and hysterectomy)
- **selected cardiac procedures** (coronary angiography; percutaneous coronary intervention or PCI, also known as angioplasty; and coronary artery bypass graft surgery or CABG)
- **cataract surgery**
- **total joint replacement of the hip and knee**
- **Computerized Tomography (CT) scans** and **Magnetic Resonance Imaging (MRI) scans**



Following the launch of the strategy, the Institute for Clinical Evaluative Sciences (ICES) released the **first edition of *Access to Health Services in Ontario: ICES Atlas.*** This report provided important baseline information (up to 2003/04) on rates of service provision and wait times, with the exception of CT and MRI scans because these data were not available. In addition, a series of recommendations was made to improve access to care in Ontario through better management of waiting lists.

Just prior to and since the release of the 2005 ICES Atlas, the Ontario government made a number of funding announcements and undertook a variety of provincial initiatives to support the Wait Times Strategy.

This ICES Atlas

This 2nd edition of ***Access to Health Services in Ontario: ICES Atlas*** provides an **update to last year's findings** on rates of service provision and wait times by incorporating the most current province-wide data available on the five key services mentioned here.

In addition to providing updated information on rates and waits, this Atlas includes **new information** on:

- **wait times for "90 per cent completed"** (i.e., the point at which 90 per cent of patients waiting for service have had their surgery);
- **wait times by patients' age, gender and socioeconomic status;**
- **rates and waits by fiscal quarter;** and
- **patient outcomes for joint replacement surgery, cardiac bypass surgery** and **cataract surgery.**

Limitations

While this ICES Atlas includes data from the period during which 2004/05 funding was announced, the data do not reflect funding for increased service volumes in the 2005/06 fiscal year.

Also, due to time delays related to the receipt of administrative databases at ICES (the most current year of data available is 2004/05), it is not possible, in this report, for ICES to evaluate the effectiveness of Ontario's efforts to reduce wait times.

Readers may note some variations in data from last year's Atlas. These are due to: refinements to geographic boundaries for Local Health Integration Networks (LHINs); new sources of population data; and minor additions to the Ontario Health Insurance Plan (OHIP) claims data.

It is recognized that the information on wait times in the current ICES Atlas is different than the information available on the Ontario Ministry of Health and Long-Term Care (MOHLTC) wait times website (www.ontariowaittimes.com). Reasons for these discrepancies are discussed in detail in Chapter 8 of this Atlas.

Key Findings

Trends in rates of service provision from 1994/95 to 2004/05

- Over the past decade, rates of service provision increased for all of the key services identified in the Ontario Wait Times Strategy.
- The greatest increases occurred in the number of MRI scans (619 per cent increase); coronary angioplasties (248 per cent increase); CT scans (199 per cent increase); and radical prostatectomies for prostate cancer (181 per cent increase).
- The smallest increases occurred in mastectomy for breast cancer (20 per cent increase); hysterectomy for uterine cancer (25 per cent increase); coronary bypass surgery (31 per cent increase); and large bowel resection for colon cancer (34 per cent increase).

Changes in rates of service provision from 2003/04 to 2004/05

- Population-based rates of service provision increased for most of the key services.
- Since 2003/04, the largest increases in rates occurred for MRI scanning (22 per cent); total knee replacement (14 per cent); CT scanning (12 per cent); and angioplasty (11 per cent).
- Since 2003/04, there was a decrease in the rate of bypass surgery (two per cent); mastectomy (one per cent); and large bowel resection (one per cent).
- There continue to be significant variations in rates of service for key procedures across Ontario, with some Local Health Integration Networks (LHINs) having rates that are more than twice as high as the rates in other LHINs.
- Since people living in low income neighbourhoods tend to have poorer health than those living in wealthier areas, one would expect rates of service provision to be at least as great or greater in low income neighbourhoods compared to high income neighbourhoods. This was found to be the case for coronary angiography, coronary angioplasty and CT scans.

Changes in wait times from 2003/04 to 2004/05

- Median wait times for the five key services varied considerably depending upon the procedure.
- Wait times for mastectomy, cataract surgery and knee replacements did not change.
- For the first time since 2001/02, median wait times for hip and knee replacements did not increase.
- There were decreases in median wait times for cardiac procedures, and a slight decrease in the wait time for total hip replacement surgery.
- There were small increases in wait times for large bowel resection and radical prostatectomy, although the increase in the median wait time for radical prostatectomy should be interpreted cautiously, since the interval studied may include the time required for biopsy results to confirm the diagnosis of cancer, and patients may take time considering non-surgical alternatives prior to surgery.
- There were no meaningful differences in median wait times by socioeconomic status.
- Wait times for key health services were similar for patients of different ages and gender.

Wait times in 2004/05 relative to Ontario's wait time targets

On December 16, 2005, the Ontario government announced priority classifications, with four priority levels and associated wait time targets, for the key services identified in its Wait Times Strategy. The following findings make reference to Ontario's wait time targets, where feasible.

- In 2004/05, just over half of patients undergoing total hip replacement and 41 per cent of patients undergoing total knee replacement received their surgery within the Ontario wait time target of 26 weeks.
- Nearly half of those having cataract surgery in Ontario waited longer than the Recommended Maximum Wait Time (RMWT) of 16 weeks (used in producing last year's ICES Atlas).
- In 2004/05, as in 2003/04, 35 per cent of women having mastectomy and 87 per cent of men having radical prostatectomy in Ontario waited longer than the RMWT of six weeks for patients categorized as Priority III.
- Just over half of hysterectomy patients and 33 per cent of patients receiving large bowel resection waited longer than the RMWT of six weeks.
- Nearly three quarters of urgent coronary bypass surgeries were completed within the Ontario wait time target of two weeks.
- Seventy-one per cent of urgent coronary angiographies were completed within the RMWT of seven days, as defined by the Cardiac Care Network of Ontario. Wait time targets for coronary angioplasty have not been adopted in Ontario, or nationally.

Reflections

Significant investments and notable progress have been made toward implementing the recommendations set out in the 2005 edition of ***Access to Health Services in Ontario: ICES Atlas*** (see Chapter 8, Table 8.1 on p.154).

For example, last year's Atlas recommended "targeted one-time queue-clearing funding infusions to shorten prolonged and/or rapidly expanding waiting lists." Since then, the Ministry of Health and Long-Term Care has announced funding for 6,680 additional hip and knee joint replacements; 16,000 additional cataract surgeries; 78,000 additional MRI scans; 4,600 additional cancer surgeries; and 7,805 additional cardiac procedures.

New funding was also allocated for four more MRI scanners, 16 more CT scanners and five more cardiac catheterization imaging units; other initiatives aimed at reducing wait times for the five key services were also announced.

Though there is an expectation that wait times will decrease with an increase in rates of service provision, several factors are identified in the current report which may help explain why this was not the case in 2004/05. These include:

- the absence of a provincial wait times strategy prior to November 2004;
- rates of service increases which were sufficient to meet the current demand for services, but not sufficient to deal with the backlog of cases in the queue;
- increases in service rates in 2004/05 were not allocated preferentially to those areas of the province with the greatest need; and
- the absence of a "real-time" clinical information system to guide waiting list management.

Socioeconomic differences in rates of service provision and waiting times

In 2003/04, CT scans and cardiac procedures were performed with greater frequency in patients from poorer neighbourhoods, which is not surprising, since lower socioeconomic status is often associated with poorer health. However, in 2004/05, the frequency of such services was similar across all individuals, regardless of their socioeconomic status. These findings suggest that while the rate of key health services has increased, the services are being disproportionately accessed by wealthier people.

More encouragingly, the findings show that, in general, the wait times for those receiving services in 2004/05 were similar across socioeconomic groups in Ontario. This suggests that once patients are put on a waiting list, they are treated similarly, regardless of socioeconomic status.

Recommendations

- In the future, particular attention should be focused on expanding the services for which valid data are collected. This should include measuring indicators of appropriateness; monitoring inequities in access by socioeconomic status, gender and region; and tracking the impact of resource allocation decisions based on waits and rates. These issues are given added urgency in light of recent legal decisions concerning reasonable access to medical services.
- As Ontario devolves funding, planning and decision-making authority to Local Health Integration Networks (LHINs), it will be important to monitor access to health services across regions of the province to help ensure that all Ontarians receive similar levels of access. The information contained in this Atlas should assist LHINs in determining which services require additional funding in their region and which services might be sought from neighbouring LHINs, where feasible.

Conclusions

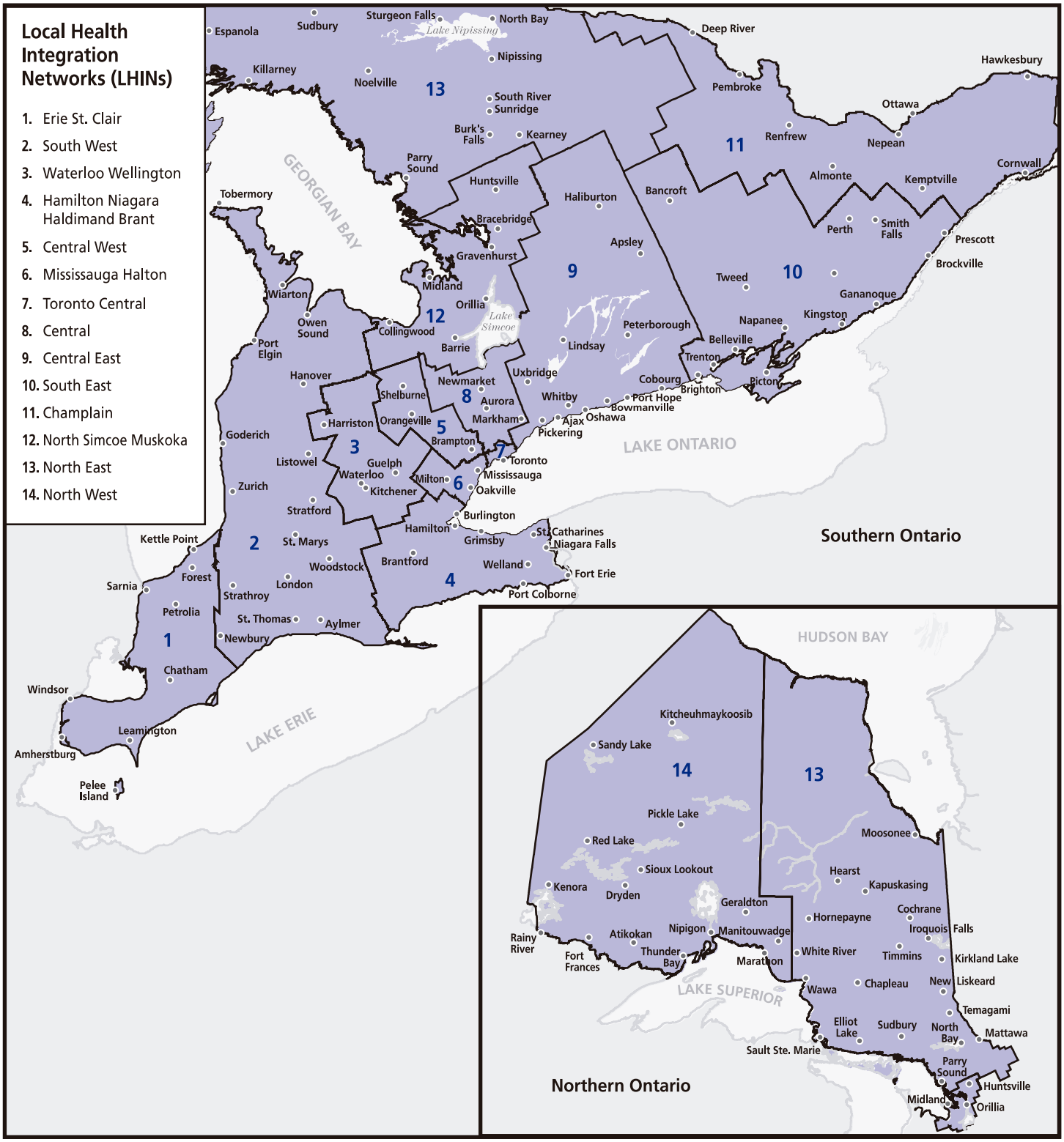
From 2002/03 to 2004/05, there was a steady increase in the rates of service provision for the five key services identified in Ontario's Wait Times Strategy.

Increased service rates cannot yet be associated with a reduction in wait times, with the exception of wait times for cardiac procedures which dropped substantially. However, it should be noted that for the first time since 2001/02, median wait times for hip and knee replacements did not increase.

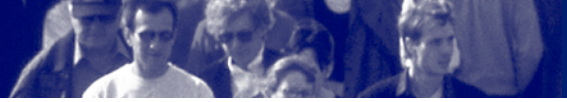
Due to the fact that province-wide administrative data are not yet available for the time period during which many of the investments were made through the Wait Times Strategy (i.e., fiscal 2005/06), it is premature for ICES to draw conclusions regarding the effectiveness of the provincial strategy.

However, the information contained within this report should be useful to policy makers and providers as they continue in their efforts to create a more equitable and responsive health care system in Ontario.

Local Health Integration Networks (LHINs) in Ontario, 2005/06



Source: Ministry of Health and Long-Term Care (Version 11)



INSIDE

1

Chapter

Introduction

Paula McColgan, MHA, CHE, and
Jack V. Tu, MD, PhD, FRCPC

Background

Timely access to high quality health care is of particular concern to Canadians. Indeed, access to care has become a key priority on Canada's health policy agenda.

In September 2004, the First Ministers issued a *10-year Plan to Strengthen Health Care*. The plan includes a commitment to better management of the health care system in general, and to a measurable reduction in how long patients must wait to receive care.[1] In November 2004, the Ontario government launched its Wait Times Strategy which is focused on improving access to the following five key health services:

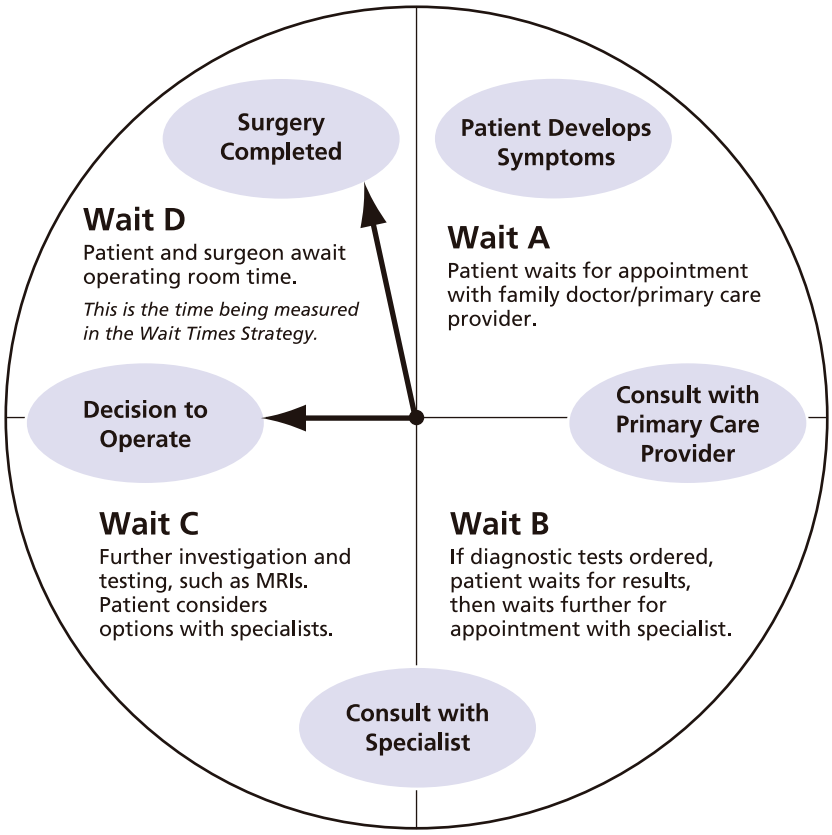
- selected cancer surgeries: large bowel resection; mastectomy; radical prostatectomy; hysterectomy
- selected cardiac procedures: coronary angiography; percutaneous coronary intervention (PCI, also known as angioplasty); coronary artery bypass graft (CABG) surgery
- cataract surgery
- total joint replacements of the hip and knee
- Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) scans

To support this provincial strategy, the Institute for Clinical Evaluative Sciences (ICES) produced the first edition of *Access to Health Services in Ontario: ICES Atlas* in April 2005. This report outlined a framework for discussing access to health services, which included the following six dimensions:[2] *rates of service provision; wait times; appropriateness; urgency; unmet need; and, patient outcomes.*

The 2005 ICES Atlas focused on the first two dimensions of access to health services—rates and waits. Baseline measures for rates of service provision and wait times, from fiscal 2001/02 to 2003/04, were calculated, with the exception of wait times for CT and MRI scans because these data were not available. Geographic regions of Ontario where rates of service were comparatively low and waits were comparatively long were seen to have reduced access.

Wait times are defined as the time between the decision to treat and the date the surgery was completed (Exhibit 1.1: The Wait Times Clock—Wait D).[3]

Exhibit 1.1 The Wait Times Clock



Source: Ontario Ministry of Health and Long-Term Care

Prior to and since the first report was released, the Ontario government announced targeted funding to increase service volumes and thus improve access to the five key health care services.

New funding was allocated in 2004/05 (November 2004–March 2005)[4] for:

- 1,680 more hip and knee joint replacements
- 2,000 more cataract surgeries
- 19,500 more MRI scans
- 1,700 more cancer surgeries
- 805 more cardiac procedures

New funding was allocated in 2005/06[5] for:

- 5,200 more hip and knee joint replacements
- 14,000 more cataract surgeries
- 58,500 more MRI scans
- 2,900 more cancer surgeries
- 7,000 more cardiac procedures

This 2nd edition of *Access to Health Services in Ontario: ICES Atlas* provides an update to last year's findings on rates of service provision and wait times, by incorporating the most current province-wide data available (from the fiscal year 2004/05). It is important to note that, while the current report includes data from the period during which 2004/05 funding was announced, **the data do not reflect funding for increased service volumes in 2005/06.**

Besides providing updated information on rates and waits, this edition of the ICES Atlas includes new information on:

- wait times for "90 per cent completed" (i.e., the point at which 90 per cent of patients waiting for service have had their surgery)
- wait times by patients' age and gender
- wait times by patients' socioeconomic status
- an analysis of rates and waits by fiscal quarter
- information on patient outcomes for joint replacement surgery, cardiac bypass surgery and cataract surgery

The baseline information in this new report will be vital when it comes to measuring the success of the Ontario Wait Times Strategy, both next year and in the longer-term. However, because the time period covered in this Atlas includes only the first phase (2004/05) of the strategy, it is not reasonable for ICES to draw conclusions on its overall effectiveness.

Instead, the report contains reflections on trends in the data observed over the most recent three-year time period (see Chapter 8). It also identifies the progress that has been made toward implementing the recommendations put forward in the 1st edition of *Access to Health Services in Ontario*.

Ontario Wait Time Targets

Pan-Canadian wait time benchmarks were announced on December 12, 2005 for cataract surgery, hip and knee replacement surgery and cardiac bypass surgery.[3]

On December 16, 2005, the Ontario government announced priority classifications, with four priority levels and associated wait time targets, for the key services identified in its Wait Times Strategy (Exhibit 1.2).[3] In the ensuing chapters, reference is made to Ontario's wait time targets, where feasible.

Exhibit 1.2 Ontario's Priority Classifications and Associated Wait Time Targets

Service	Priority Classification	Ontario Wait Time Target
Cataract Surgery	Priority I – Cataract is producing, or impairing ability to treat, another ocular disease	Immediate
	Priority II – Unable to function without assistance	6 weeks
	Priority III – Person cannot continue to work, drive, or care for others	12 weeks
	Priority IV – One good eye, functional vision, but possibly loss of speed and function on many tasks	26 weeks
Hip/Knee Replacement	Priority I – Maximum pain and disability	Immediate
	Priority II – Conditions or complications that negatively affect a person's independence. (e.g., bed-ridden)	6 weeks
	Priority III – Some bearable pain and disability that threatens a person's independence	12 weeks
	Priority IV – Minimal pain and disability with role and independence not threatened	26 weeks
Cardiac Bypass Surgery	Priority I – Immediately life threatening	Immediate
	Priority II – Person had one heart attack, is at risk of another; is admitted into the hospital	2 weeks
	Priority III – Person had one small heart attack and may or may not be at risk; can be in hospital or at home	6 weeks
	Priority IV – Person in stable condition, continues to work, but may benefit from cardiac surgery	26 weeks
Cancer Surgery	Priority I – Threatens life of person, such as airway obstruction or bleeding	Immediate
	Priority II – Very aggressive tumours such as central nervous system cancer	2 weeks
	Priority III – Person with known or suspected invasive cancer, who does not fall into Priority I, II or IV	4 weeks
	Priority IV – Patients with slow-growing tumours	12 weeks
CT/MRI Scan	Priority I – Emergency scan needed	Immediate
	Priority II – Potential for deterioration	48 hours
	Priority III – Cancer restaging	2–10 days
	Priority IV – Non-urgent scan	4 weeks

Source: Ontario Ministry of Health and Long-Term Care

Note to Readers

For trending purposes, information from the 2005 ICES Atlas is also contained in this year's edition. However, some readers may notice that the data for 2002/03 and 2003/04 which were published in last year's edition vary slightly in the current report. There are several reasons for these small variations in data:

Refinements to geographic boundaries for Local Health Integration Networks

The boundaries that define Local Health Integration Networks (LHINs) in Ontario have undergone a number of refinements since the 2005 edition of the ICES Atlas was published. This current edition relies on Version 11 of the LHIN boundaries, while the 2005 Atlas was based on Version 7.

New sources of population data

Statistics Canada has produced postcensal population estimate files at the LHIN level. These data have been used to produce calculations for this edition of the ICES Atlas. However, these files were not available for use in the 2005 edition; instead, interpolated estimates were used (i.e., predictions based on a range of observations). ICES' interpolated estimates under-counted the population by approximately 4.5 per cent, relative to Statistics Canada's postcensal population estimates. This explains why the adjusted rates in this edition of the Atlas are about 4.5 per cent smaller than those published last year.

Variations in Ontario Health Insurance Plan (OHIP) claims data

There is a variable "lag time" between when physicians provide a particular service and when the physician's claim for that service is paid through OHIP. It also takes time for the data from the claim record to be sent to ICES. ICES does not consider the claims data for a given year to be closed until one year after the end of that given year. This means some OHIP claims data were added to the 2003/04 physician claims dataset since this data was analyzed for the 2005 edition of the ICES Atlas. However, the resulting discrepancies are very small.

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INSIDE

2

Chapter

Cancer Surgery

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Executive Summary

Issue

There is concern that Ontarians diagnosed with cancer experience unacceptable delays waiting for surgery.

Study

Data from the Ontario Health Insurance Plan (OHIP) and the Canadian Institute for Health Information (CIHI) were used to analyze the following cancer-related surgeries in Ontario: large bowel resection, mastectomy, radical prostatectomy and hysterectomy. The number of surgeries, surgery rate and the interval between consultation with a surgeon and the procedure (wait time) were analyzed. Variations in surgery rates and wait times are described according to age, sex, socioeconomic status and geographic location.

Key findings

- Among the procedures studied, the number of surgeries performed in Ontario increased by 44 per cent over the last decade. Between 2003/04 and 2004/05, the number increased by three per cent, in keeping with the expected increase in the number of new cancer cases diagnosed annually in Ontario.
- In Ontario as a whole, the 2004/05 age- and sex-adjusted rates of surgeries generally reflected the expected incidence of the relevant cancers.
- In 2004/05 there were substantial differences among Local Health Integration Networks (LHINs) in their rates of large bowel resection, mastectomy, radical prostatectomy and hysterectomy.
- In 2004/05 the median wait times for surgeries were: 29 days for large bowel resection; 29 days for mastectomy; 93 days for radical prostatectomy; and 43 days for hysterectomy.
- There was no significant association between the wait time for any of these procedures and patients' neighbourhood socioeconomic status.

Implications

As the number of patients diagnosed with cancer in Ontario increases each year, the demand for cancer surgery will continue to grow.

There is significant variation in the procedure rates and wait times among LHINs for the four surgical procedures studied. There is no evidence that these wait times have decreased since 2002/03. To effectively reduce these wait times, it is necessary to better elucidate the factors contributing to the wait intervals studied here. It is apparent that no single wait time benchmark is appropriate for all cancer operations, since the impact of waits on outcome will depend on the type of cancer.

Introduction

This chapter provides information regarding the most common operations performed for cancer in Ontario. Procedure rates and wait times between surgical consultation and cancer surgery are described for large bowel resection, mastectomy, radical prostatectomy and hysterectomy. The results show how these procedures are being utilized and how long patients are waiting for these operations across Ontario and among Local Health Integration Networks (LHINs).

Background

Over the next decade, the number of people who will develop cancer in Ontario is expected to increase three per cent each year—from approximately 58,000 in 2005 to 78,000 in 2014.[1] For most solid tumours, surgery is a necessary component of curative treatment, and reducing wait times for cancer treatment is one of the priorities of the Ontario Wait Times Strategy. As waits for medical services have received greater public attention, investigators in several regions of Canada have undertaken projects to monitor surgical wait times.

An Ontario study found that between 1993 and 2000, the interval between pre-operative surgical consultation and the surgery itself increased for prostate, lung, breast and colorectal cancer surgery.[2] It is recognized that long waits for cancer surgery involve more than a shortage of surgeons or operating room availability; they may also reflect delays in obtaining the services required to diagnose or evaluate cancer patients. Further, there is significant variation in waiting times depending on the type of cancer studied, reflecting the variation in the number of tests required to evaluate newly diagnosed patients, the utilization of other cancer treatments, and the clinical urgency of operating on different tumour types.

Studies examining whether delays in cancer surgery reduce cure rates have produced conflicting results.[3] Some research has found that patients who experience longer delays have worse outcomes; but other studies suggest that a shorter interval between surgical consultation and surgery is associated with poor outcomes. It is possible that surgeons prioritize patients with more aggressive tumours so they have their surgery sooner, which creates a paradoxical association between short wait times and lower cure rates.

Chapter 2 – List of Exhibits

Exhibit 2.9c Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks among men aged 40 years and older with radical prostatectomy for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

Exhibit 2.9d Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks among women aged 40 years and older with hysterectomy for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

Exhibit 2.10a Quarterly rates, median waits and 90 per cent of surgeries completed among patients aged 40 years and older with large bowel resection for cancer, for the province of Ontario, 2002/03–2004/05

Exhibit 2.10b Quarterly rates, median waits and 90 per cent of surgeries completed among women aged 40 years and older with mastectomy for cancer, for the province of Ontario, 2002/03–2004/05

Exhibit 2.10c Quarterly rates, median waits and 90 per cent of surgeries completed among men aged 40 years and older with radical prostatectomy for cancer, for the province of Ontario, 2002/03–2004/05

Exhibit 2.10d Quarterly rates, median waits and 90 per cent of surgeries completed among women aged 40 years and older with hysterectomy for cancer, for the province of Ontario, 2002/03–2004/05

Exhibit 2.11a Relationship between age- and sex-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for large bowel resection, by Local Health Integration Network, in Ontario, 2004/05

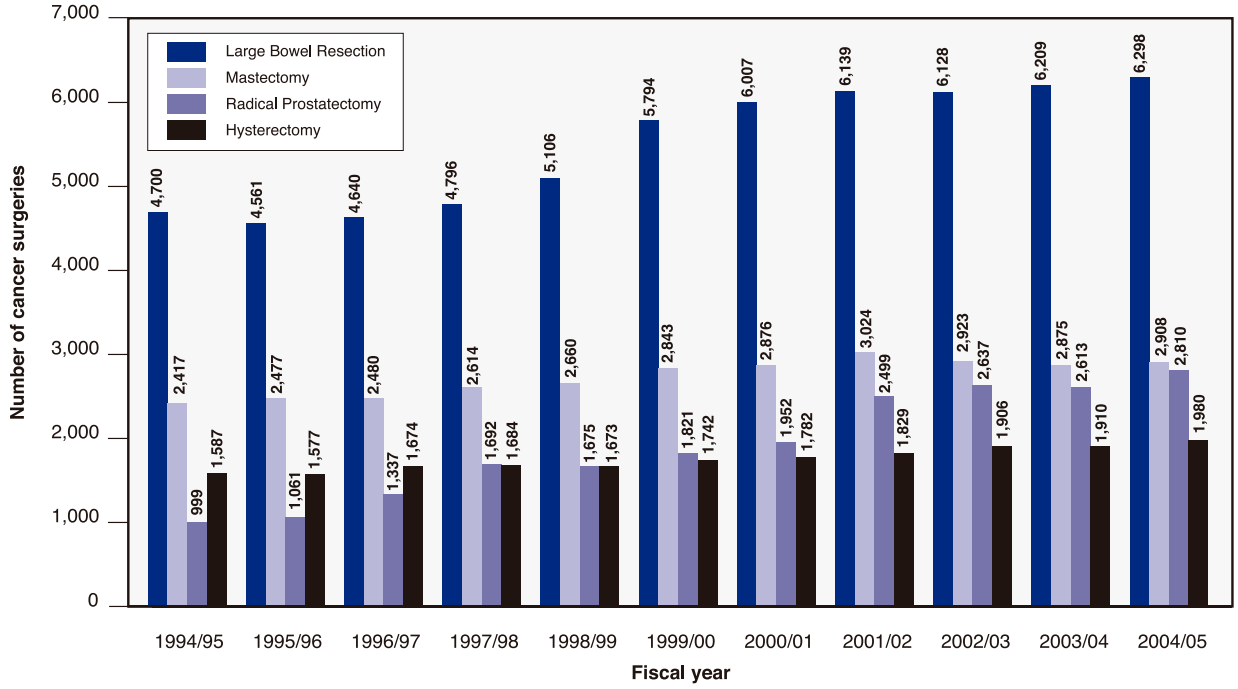
Exhibit 2.11b Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for mastectomy, by Local Health Integration Network, in Ontario, 2004/05

Exhibit 2.11c Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for radical prostatectomy, by Local Health Integration Network, in Ontario, 2004/05

Exhibit 2.11d Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for hysterectomy, by Local Health Integration Network, in Ontario, 2004/05

Exhibits and Findings

2.1 Annual number of four frequently performed cancer surgeries in Ontario, 1994/95–2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS)

For Exhibit 2.1

- The total number of cancer procedures increased nearly three per cent—from 13,607 surgeries in 2003/04 to 13,996 surgeries in 2004/05.
- This increase corresponds to the projected three per cent annual increase in the number of new cancer cases diagnosed in Ontario.

2.2a Number and age- and sex-adjusted rate of large bowel resection for cancer per 100,000 population aged 40 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Large Bowel Resections	Rate per 100,000 Population	Number of Large Bowel Resections	Rate per 100,000 Population	Number of Large Bowel Resections	Rate per 100,000 Population
1. Erie St. Clair	342	114	357	117	351	113
2. South West	569	126	550	120	529	114
3. Waterloo Wellington	281	100	320	112	297	100
4. Hamilton Niagara Haldimand Brant	782	117	768	113	837	120
5. Central West	217	89	206	79	244	91
6. Mississauga Oakville	390	110	407	109	452	115
7. Toronto Central	486	92	507	95	480	90
8. Central	633	107	687	110	675	104
9. Central East	729	112	709	107	695	102
10. South East	269	107	276	108	287	110
11. Champlain	571	111	534	101	569	106
12. North Simcoe Muskoka	217	113	243	123	234	114
13. North East	383	131	412	138	410	134
14. North West	121	107	133	115	125	108
Invalid*	28	–	25	–	25	–
All Ontario	**6,018**	**111**	**6,134**	**110**	**6,210**	**109**

* Includes: out of province, missing age and postal code information

SARV summary statistics (2004/05)	Value	P-value
Extremal Quotient [EQ]	1.5	
Coefficient of Variation (%) [CV]	10.0	
Systematic Component of Variation [SCV]	7.8	
Adjusted Chi-square (likelihood ratio)	63.4	<0.001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.2a

- Over the three-year period under review, the North East Local Health Integration Network (LHIN) consistently had one of the highest rates of large bowel resection. In 2004/05 this rate was approximately 1.5 times greater than the rate for the Toronto Central LHIN, which consistently had one of the lowest rates of bowel resection.

2.2b Number and age-adjusted rate of mastectomy for cancer per 100,000 women aged 40 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Mastectomies	Rate per 100,000 Population	Number of Mastectomies	Rate per 100,000 Population	Number of Mastectomies	Rate per 100,000 Population
1. Erie St. Clair	172	112	189	121	181	115
2. South West	314	137	292	126	297	125
3. Waterloo Wellington	160	109	135	89	132	85
4. Hamilton Niagara Haldimand Brant	255	76	277	80	309	89
5. Central West	74	54	77	54	70	46
6. Mississauga Oakville	126	63	125	60	150	68
7. Toronto Central	228	84	207	76	192	70
8. Central	303	94	255	75	258	73
9. Central East	307	91	266	77	315	89
10. South East	118	95	118	92	103	79
11. Champlain	293	107	344	123	312	109
12. North Simcoe Muskoka	106	110	118	118	95	92
13. North East	189	127	172	114	202	132
14. North West	68	119	70	120	47	80
Invalid*	8	–	6	–	9	–
All Ontario	**2,721**	**96**	**2,651**	**91**	**2,672**	**90**

* Includes: out of province, missing age and postal code information

SARV summary statistics (2004/05)	Value	P-value
Extremal Quotient [EQ]	2.9	
Coefficient of Variation (%) [CV]	24.5	
Systematic Component of Variation [SCV]	58.3	
Adjusted Chi-square (likelihood ratio)	155.2	<0.0001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.2b

- Over the three-year period under review, the North East and South West Local Health Integration Networks (LHINs) had the highest rates of mastectomy. In 2004/05 the rate in the North East LHIN was nearly three times higher than the rate in the Central West LHIN, which had the lowest rate of mastectomy.

2.2c Number and age-adjusted rate of radical prostatectomy for cancer per 100,000 men aged 40 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Radical Prostatectomies	Rate per 100,000 Population	Number of Radical Prostatectomies	Rate per 100,000 Population	Number of Radical Prostatectomies	Rate per 100,000 Population
1. Erie St. Clair	118	83	99	69	160	110
2. South West	291	143	294	141	313	148
3. Waterloo Wellington	139	103	147	106	188	131
4. Hamilton Niagara Haldimand Brant	278	93	238	78	284	92
5. Central West	159	120	171	124	161	112
6. Mississauga Oakville	164	84	191	95	194	92
7. Toronto Central	172	73	190	80	186	78
8. Central	315	104	330	106	306	94
9. Central East	401	130	357	114	413	129
10. South East	100	87	93	80	77	65
11. Champlain	206	82	203	79	211	80
12. North Simcoe Muskoka	109	118	105	108	119	119
13. North East	128	89	147	101	134	92
14. North West	50	91	42	75	52	92
Invalid*	6	–	5	–	11	–
All Ontario	**2,636**	**101**	**2,612**	**98**	**2,809**	**103**

* Includes: out of province, missing age and postal code information

SARV summary statistics (2004/05)	Value	P-value
Extremal Quotient [EQ]	2.3	
Coefficient of Variation (%) [CV]	21.9	
Systematic Component of Variation [SCV]	42.5	
Adjusted Chi-square (likelihood ratio)	133.3	<0.0001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.2c

- The South West and Central East Local Health Integration Networks (LHINs) had the highest rates of prostatectomy. In 2004/05 the rate in the South West LHIN was 2.3 times greater than the rate in the South East LHIN, which had the lowest rate of prostatectomy.

2.2d Number and age-adjusted rate of hysterectomy for cancer per 100,000 women aged 40 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Hysterectomies	Rate per 100,000 Population	Number of Hysterectomies	Rate per 100,000 Population	Number of Hysterectomies	Rate per 100,000 Population
1. Erie St. Clair	106	69	103	67	91	57
2. South West	132	58	134	58	160	69
3. Waterloo Wellington	93	63	91	60	107	69
4. Hamilton Niagara Haldimand Brant	240	72	221	65	268	77
5. Central West	79	57	73	53	78	52
6. Mississauga Oakville	141	69	128	58	142	63
7. Toronto Central	186	69	157	57	161	58
8. Central	176	54	217	64	207	59
9. Central East	207	62	209	61	196	55
10. South East	70	57	97	77	61	47
11. Champlain	176	64	159	57	193	68
12. North Simcoe Muskoka	67	69	69	68	73	70
13. North East	87	59	101	67	102	67
14. North West	25	44	24	42	19	33
Invalid*	7	–	10	–	7	–
All Ontario	**1,792**	**63**	**1,793**	**62**	**1,865**	**63**

* Includes: out of province, missing age and postal code information

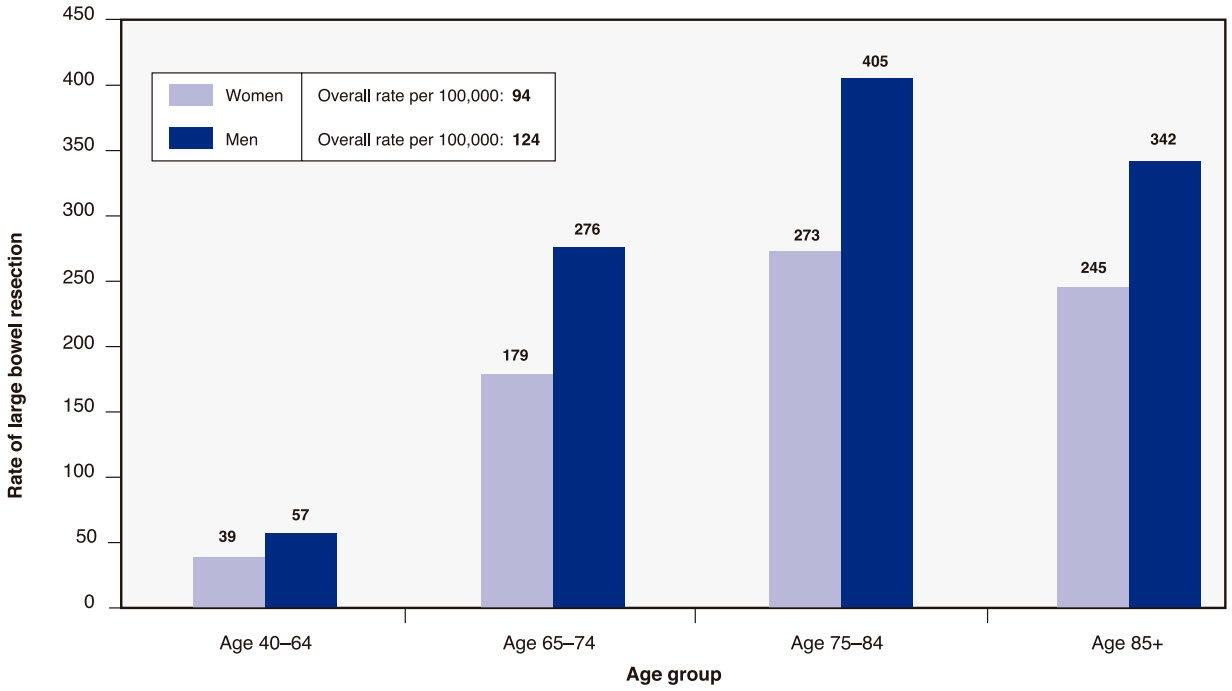
SARV summary statistics (2004/05)	Value	P-value
Extremal Quotient [EQ]	2.4	
Coefficient of Variation (%) [CV]	14.4	
Systematic Component of Variation [SCV]	22.2	
Adjusted Chi-square (likelihood ratio)	39.7	0.0002

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.2d

- The Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) and the North Simcoe Muskoka LHIN typically had high rates of hysterectomy. Other LHINs showed substantial year-to-year variation in hysterectomy rate (e.g., the South East LHIN). In 2004/05 the hysterectomy rate in the Hamilton Niagara Haldimand Brant LHIN was 2.4 times the rate in the North West LHIN, which typically had low rates of hysterectomy.

2.3a Age- and sex-specific rate of large bowel resection for cancer per 100,000 population aged 40 years and older, in Ontario, 2004/05

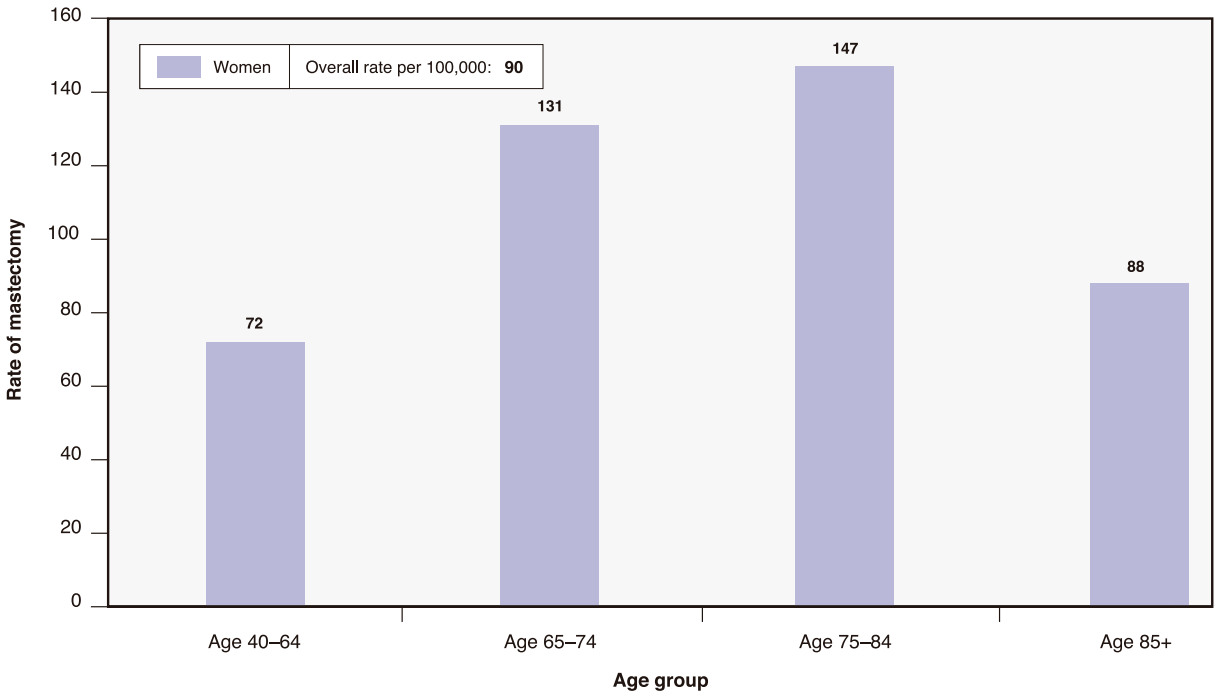


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.3a

- The sex-stratified rates of large bowel resection reflect the higher incidence of colorectal cancer among men.
- The age-stratified rates of large bowel resection reflect the age-related incidence of colorectal cancer and also the greater risk associated with operating on the very elderly (aged 85 years and older).

2.3b Age-specific rate of mastectomy for cancer per 100,000 women aged 40 years and older, in Ontario, 2004/05

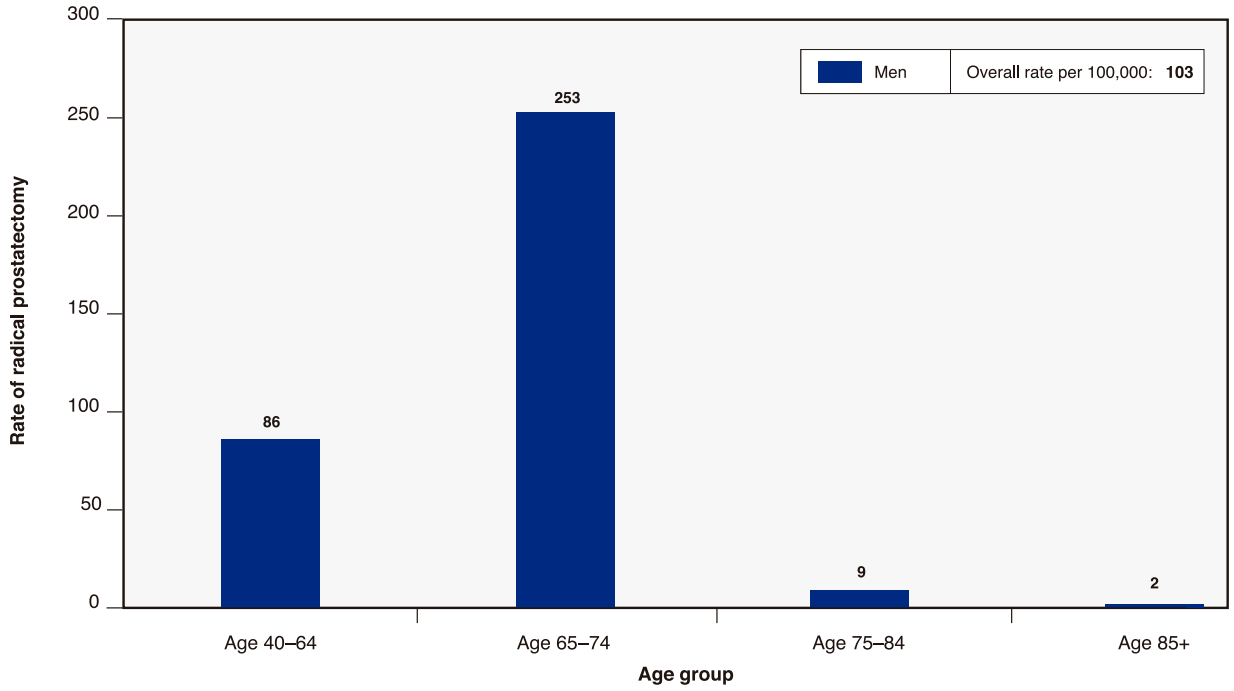


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.3b

- The rate of mastectomy increased with age which is consistent with the age-related incidence of breast cancer. The decline after age 85 may reflect fewer breast cancer diagnoses in this age group and also the use of alternatives to mastectomy.

2.3c Age-specific rate of radical prostatectomy for cancer per 100,000 men aged 40 years and older, in Ontario, 2004/05

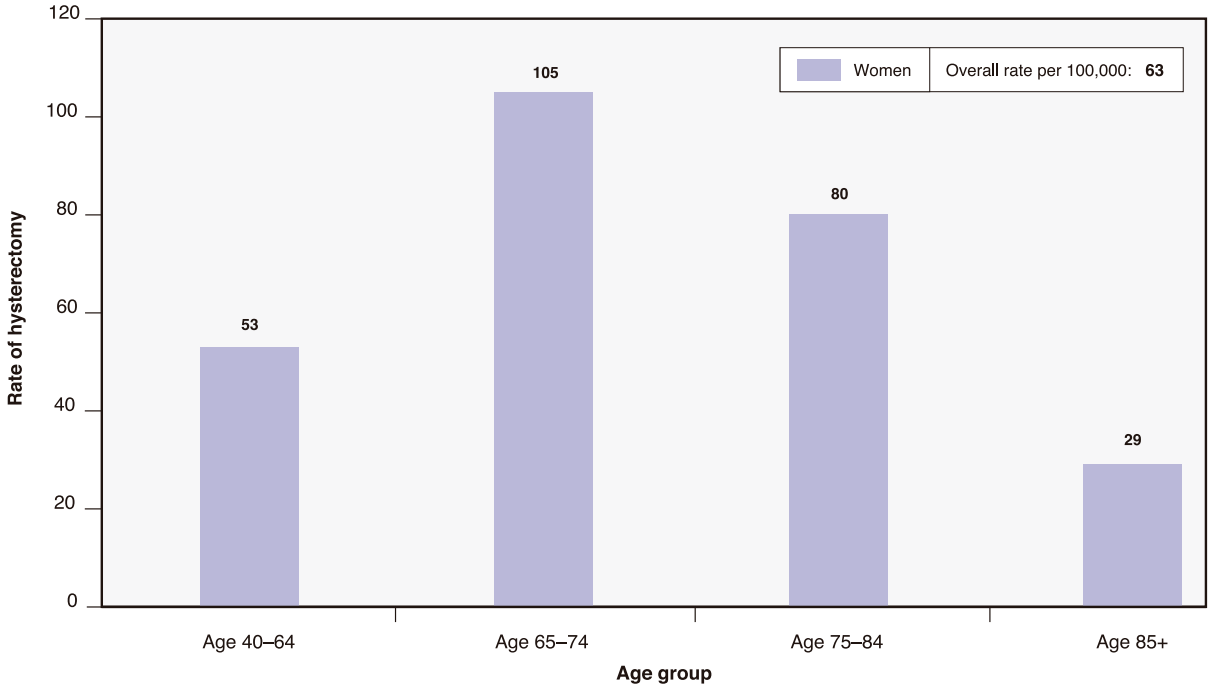


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.3c

- The reason for the decline in prostatectomy rate after age 74 may be related to the use of alternative treatments (e.g., radiation therapy) among older patients.

2.3d Age-specific rate of hysterectomy for cancer per 100,000 women aged 40 years and older, in Ontario, 2004/05

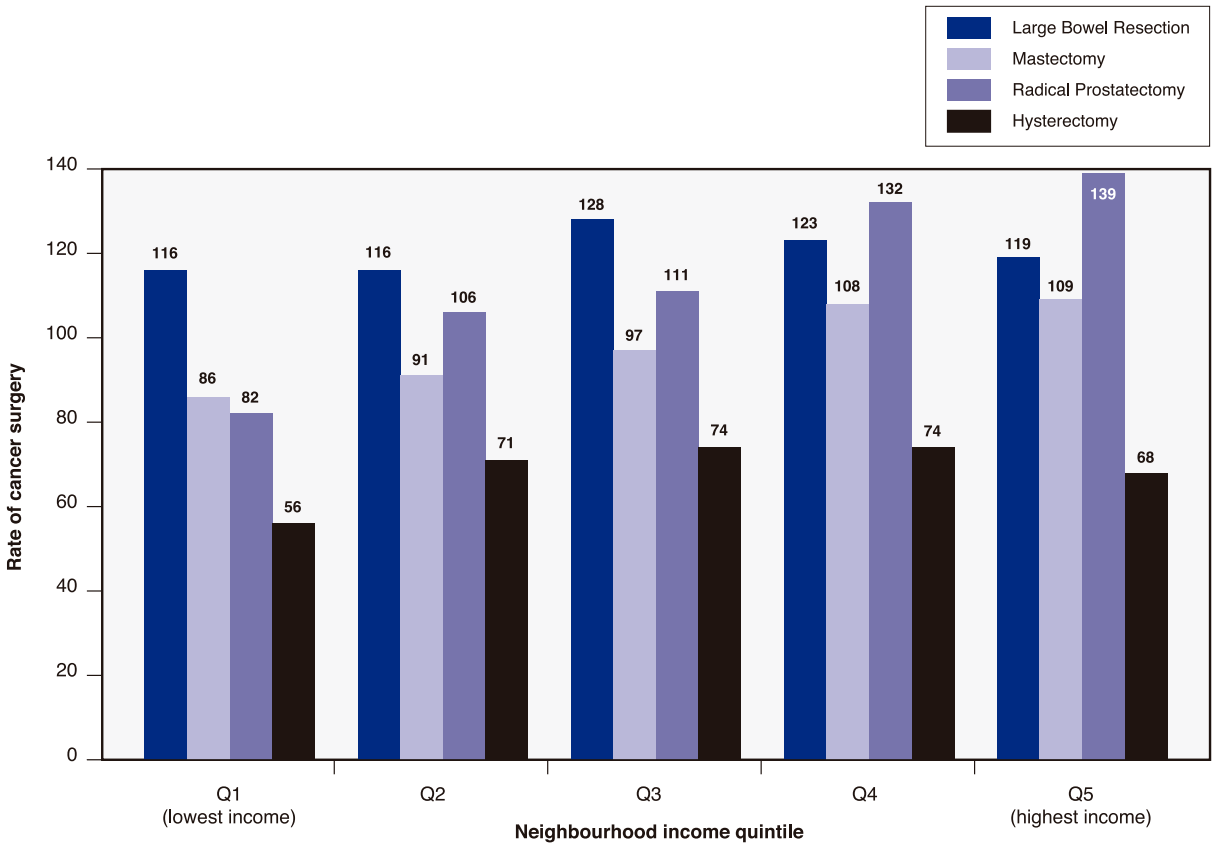


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.3d

- The rate of hysterectomy is consistent with the age-related incidence of gynecologic cancer, as well as the use of non-surgical treatment (e.g., radiation therapy) among older women with cancer of the cervix.

2.4 Age- and sex-adjusted rate of cancer surgery per 100,000 population aged 40 years and older, by type of surgery and neighbourhood income quintile, in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.4

- There was a significant increase in the rate of prostatectomy with increasing neighbourhood socioeconomic status. This may reflect the greater use of Prostate-Specific Antigen (PSA) screening (not covered by the Ontario Health Insurance Plan) among more affluent Ontarians.
- There was no significant association between socioeconomic status and the rates of large bowel resection, mastectomy or hysterectomy.

2.5 Number of procedures for cancer among patients aged 40 years and older, by hospital corporation and type of surgery, in Ontario, 2004/05

Hospital Corporation	City	Number of Large Bowel Resections	Number of Mastectomies	Number of Radical Prostatectomies	Number of Hysterectomies
Academic					
Hamilton Health Sciences Corporation	Hamilton	268	106	25	169
Hôpital Régional de Sudbury Regional Hospital Corporation	Sudbury	148	80	62	34
Hotel Dieu Hospital, Kingston	Kingston	–	16	–	–
Kingston General Hospital	Kingston	119	28	33	47
London Health Sciences Centre	London	212	92	234	156
Mount Sinai Hospital	Toronto	174	70	*	16
St. Joseph's Health Care London	London	83	44	67	10
St. Joseph's Healthcare Hamilton	Hamilton	89	41	66	24
St. Michael's Hospital	Toronto	95	26	25	34
Sunnybrook & Women's College Health Sciences Centre	Toronto	150	97	98	155
The Ottawa Hospital	Ottawa	286	168	138	166
Thunder Bay Regional Health Sciences Centre	Thunder Bay	89	39	50	17
University Health Network	Toronto	163	99	206	183
Community					
Alexandra Marine & General Hospital	Goderich	11	*	–	*
Algonquin Health Services	Huntsville	21	*	–	–
Bluewater Health	Sarnia	69	38	49	*
Brant Community Healthcare System	Brantford	74	21	31	22
Brockville General Hospital	Brockville	28	17	*	9
Cambridge Memorial Hospital	Cambridge	54	11	24	6
Chatham–Kent Health Alliance	Chatham	70	28	–	15
Collingwood General and Marine Hospital	Collingwood	30	*	–	*
Cornwall Community Hospital	Cornwall	50	16	10	7
Credit Valley Hospital, The	Mississauga	86	32	37	20
Grand River Hospital Corporation	Kitchener	115	30	28	33
Grey Bruce Health Services	Owen Sound	74	30	37	8
Groves Memorial Community Hospital	Fergus	*	*	–	*
Guelph General Hospital	Guelph	70	33	57	29
Halton Healthcare Services Corporation	Oakville	93	33	44	11
Hawkesbury & District General Hospital	Hawkesbury	10	*	–	*
Headwaters Health Care Centre	Orangeville	27	*	–	*
Hôpital Notre–Dame Hospital (Hearst)	Hearst	–	–	–	–
Hotel Dieu Grace Hospital, Windsor	Windsor	94	57	*	–
Hotel Dieu Health Sciences Hospital, Niagara	St. Catharines	–	–	19	–
Humber River Regional Hospital	Toronto	177	29	71	41
Huron Perth Healthcare Alliance (Clinton)	Clinton	*	*	–	–
Huron Perth Healthcare Alliance	Stratford	49	46	64	10
Joseph Brant Memorial Hospital	Burlington	117	42	67	27
Kirkland and District Hospital	Kirkland Lake	–	–	–	*
Lake of the Woods District Hospital	Lake of the Woods	15	*	–	–
Lakeridge Health Corporation	Oshawa	147	66	124	24
Leamington District Memorial Hospital	Leamington	29	7	–	9
Listowel–Wingham Hospital Alliance (Listowel)	Listowel	*	*	–	–
Listowel–Wingham Hospital Alliance (Wingham)	Wingham	6	*	–	–
Markham Stouffville Hospital	Markham	86	30	45	19
Montfort Hospital	Ottawa	85	19	16	*
Niagara Health System	Niagara Falls	220	72	49	44
Norfolk General Hospital	Simcoe	39	8	–	*
North Bay General Hospital	North Bay	84	18	22	15
North Simcoe Health Alliance	Midland	25	13	–	6
North York General Hospital	Toronto	168	71	44	61
Northumberland Hills Hospital	Cobourg	31	18	–	*
Orillia Soldiers' Memorial Hospital	Orillia	48	25	22	19
Pembroke Regional Hospital	Pembroke	39	9	*	10
Perth & Smiths Falls District Hospital	Smiths Falls	24	–	–	*
Peterborough Regional Health Centre	Peterborough	116	38	82	11
Queensway–Carleton Hospital	Ottawa	58	64	49	*
Quinte Healthcare Corporation	Belleville	98	31	33	15
Red Lake Margaret Cochenour Memorial Hospital	Red Lake	–	–	–	–
Renfrew Victoria Hospital	Renfrew	22	6	–	*
Riverside Health Care Facilities	Fort Frances	11	–	–	–
Ross Memorial Hospital	Lindsay	39	16	*	13

Hospital Corporation	City	Number of Large Bowel Resections	Number of Mastectomies	Number of Radical Prostatectomies	Number of Hysterectomies
Rouge Valley Health System	Toronto	147	40	42	22
Royal Victoria Hospital of Barrie, The	Barrie	78	38	73	21
Sault Area Hospitals	Sault Ste. Marie	62	50	–	15
South Bruce Grey Health Centre	Kincardine	*	6	–	–
South Muskoka Memorial Hospital	Bracebridge	24	*	–	–
Southlake Regional Health Centre	Newmarket	61	47	46	12
St. Joseph's General Hospital (Elliot Lake)	Elliot Lake	8	12	–	*
St. Joseph's Health Centre (Toronto)	Toronto	112	23	41	20
St. Mary's General Hospital	Kitchener	41	45	71	–
St. Thomas–Elgin General Hospital	St. Thomas	40	36	2	17
Strathroy Middlesex General Hospital	Strathroy	18	15	–	*
Temiskaming Hospital	Temiskaming	29	*	–	*
The Scarborough Hospital	Toronto	144	103	111	39
Tillsonburg District Memorial Hospital	Tillsonburg	6	10	–	*
Timmins & District Hospital	Timmins	42	21	2	15
Toronto East General Hospital	Toronto	98	23	41	20
Trillium Health Centre	Mississauga	223	63	64	39
West Lincoln Memorial Hospital	Grimsby	17	6	–	*
West Parry Sound Health Centre	Parry Sound	16	8	–	*
William Osler Health Centre	Brampton	203	54	191	44
Winchester District Memorial Hospital	Winchester	20	7	–	7
Windsor Regional Hospital	Windsor	56	32	33	32
Woodstock General Hospital	Woodstock	42	31	15	10
York Central Hospital	Richmond Hill	70	43	38	9
Small					
Alexandra Hospital	Ingersoll	–	–	–	–
Almonte General Hospital	Almonte	–	–	–	–
Arnprior and District Memorial Hospital	Arnprior	18	*	–	–
Carleton Place & District Memorial Hospital	Carleton Place	–	21	–	–
Dryden Regional Health Centre	Dryden	6	*	–	*
Haldimand War Memorial Hospital	Dunnville	6	*	–	–
Hanover and District Hospital	Hanover	9	*	–	–
Lennox and Addington County General Hospital	Napanee	11	*	–	–
North Wellington Health Care Corporation	Mount Forest	*	*	–	–
Sensenbrenner Hospital	Kapuskasing	*	*	–	–
Sioux Lookout Meno–Ya–Win Health Centre	Sioux Lookout	*	–	–	–
Stevenson Memorial Hospital	Alliston	–	–	–	–
Weeneebayko Health Ahtuskaywin/ Weeneebayko General Hospital	Moose Factory	*	–	–	–
TOTAL		**6,210**	**2,672**	**2,809**	**1,865**

* Cell sizes with fewer than six (6) procedures performed were suppressed to ensure confidentiality.

Academic hospitals: University-affiliated facilities; members of the Council of Academic Hospitals of Ontario (CAHO)

Small hospitals: Facilities that generally provide fewer than 3,500 weighted cases, which have a referral population of fewer than 20,000 people, and that are the only hospitals in their communities, as defined by the Joint Policy and Planning Committee (JPPC)

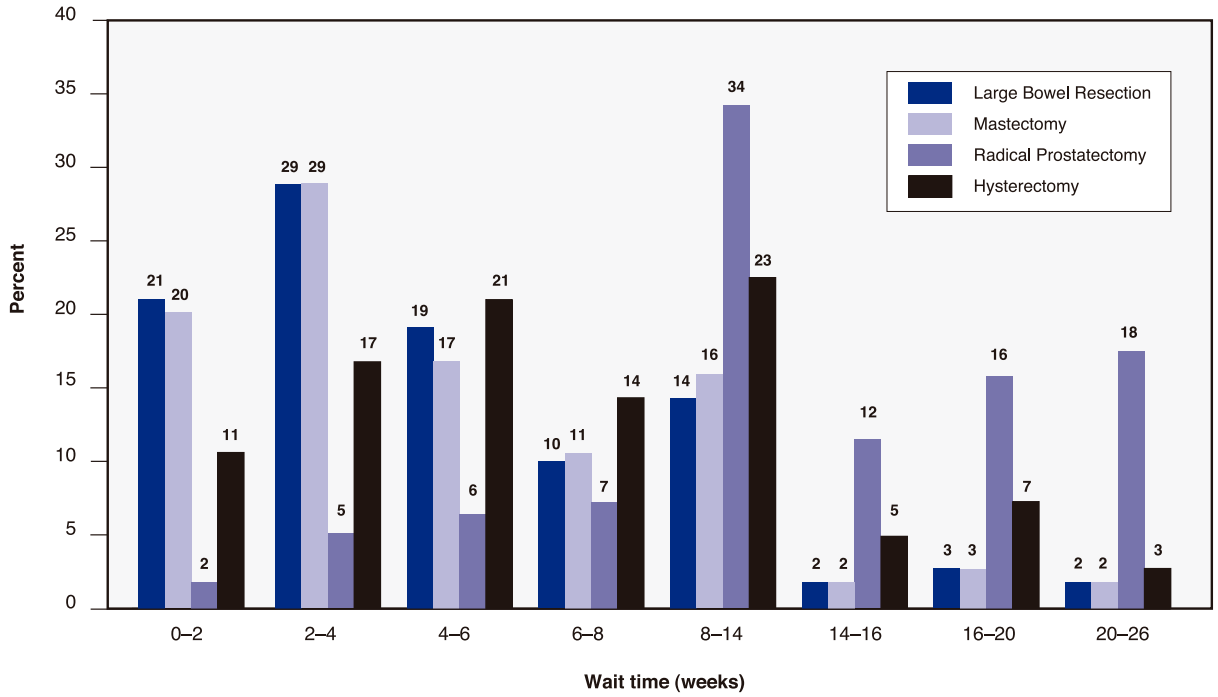
Community hospitals: All other hospitals

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Registered Persons Database

For Exhibit 2.5

- Sixty-eight per cent of large bowel resections, mastectomies, radical prostatectomies and hysterectomies combined were performed in community hospitals, while 32 per cent of these procedures were performed in teaching hospitals.

2.6 Proportion of cancer surgeries performed among patients aged 40 years and older, within specified wait time ranges, by type of surgery, in Ontario, 2004/05



* Consultations on the same day or one day prior to surgery were not considered.
** We limited our analyses to patients who had a consultation up to six months before their surgery; thus the maximum waiting time is 26 weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.6

- Approximately half of the mastectomies and large bowel resections were done within four weeks of consultation with a surgeon; nearly 70 per cent of these procedures were done within six weeks of surgical consultation.
- Approximately 13 per cent of radical prostatectomies were done within six weeks of consultation.
- Approximately 50 per cent of hysterectomies were done within six weeks of consultation.
- It is likely that differences in wait times for various types of cancer surgery are due primarily to differences in clinical urgency, to the kinds and number of tests ordered during the interval, and to consideration of non-surgical alternatives.

2.7a Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among patients aged 40 years and older with large bowel resection for cancer, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	Wait Times for Large Bowel Resection								
	2002/03			2003/04			2004/05		
	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
1. Erie St. Clair	26	80	68	25	81	68	27	84	67
2. South West	26	74	75	25	71	72	31	85	63
3. Waterloo Wellington	27	79	72	31	87	65	36	123	63
4. Hamilton Niagara Haldimand Brant	26	75	71	29	89	68	28	79	66
5. Central West	26	83	74	22	58	76	31	95	61
6. Mississauga Oakville	23	86	72	29	85	68	30	95	66
7. Toronto Central	24	65	76	22	62	81	22	72	75
8. Central	26	80	70	27	79	73	26	72	74
9. Central East	24	85	73	23	80	73	29	83	69
10. South East	27	70	73	31	84	68	36	87	63
11. Champlain	23	73	80	25	76	74	23	73	74
12. North Simcoe Muskoka	29	85	62	34	90	59	32	81	64
13. North East	30	85	64	28	69	72	33	86	64
14. North West	35	121	56	33	114	59	37	130	53
All Ontario	**26**	**79**	**72**	**26**	**80**	**71**	**29**	**85**	**67**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.7a

- Between 2003/04 and 2004/05, there was a small increase (three days) in median wait time for large bowel resection.
- Among Local Health Integration Networks (LHINs), changes in median wait times for bowel resection ranged from an increase of nine days (in the Central West LHIN) to a decrease of two days (in the North Simcoe Muskoka and Champlain LHINs).
- The median wait in Ontario for large bowel resection in 2001/02 was 23 days.[3]

2.7b Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with mastectomy for cancer, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

	Wait Times for Mastectomy								
	2002/03			2003/04			2004/05		
Local Health Integration Network	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
1. Erie St. Clair	22	84	72	19	75	71	25	92	75
2. South West	25	81	72	22	70	75	23	74	75
3. Waterloo Wellington	34	83	64	30	102	63	38	97	54
4. Hamilton Niagara Haldimand Brant	29	85	64	29	80	69	29	92	65
5. Central West	25	69	67	33	81	58	39	86	51
6. Mississauga Oakville	27	91	72	37	86	57	30	99	60
7. Toronto Central	35	114	56	33	106	58	35	84	55
8. Central	37	89	57	41	110	53	39	92	55
9. Central East	29	83	64	31	76	65	27	79	67
10. South East	30	86	72	34	90	61	27	61	75
11. Champlain	27	73	69	29	79	68	27	78	70
12. North Simcoe Muskoka	30	97	67	27	87	66	29	78	61
13. North East	29	74	72	27	65	69	34	72	63
14. North West	33	85	63	36	102	55	41	101	53
All Ontario	**29**	**86**	**66**	**29**	**84**	**65**	**29**	**86**	**65**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.7b

- There was no change in the median wait time for mastectomy over the last three years in Ontario as a whole.
- Between 2003/04 and 2004/05, some individual Local Health Integration Networks (LHINs) showed substantial changes in median wait times (e.g., a seven- or eight-day increase in the Waterloo Wellington and North East LHINs; a seven-day decrease in the South East LHIN).

2.7c Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among men aged 40 years and older with radical prostatectomy for cancer, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	Wait Times for Radical Prostatectomy								
	2002/03			2003/04			2004/05		
	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
1. Erie St. Clair	88	142	22	72	144	21	102	164	16
2. South West	89	136	14	89	142	11	98	159	10
3. Waterloo Wellington	84	150	18	101	146	11	90	155	11
4. Hamilton Niagara Haldimand Brant	89	147	18	78	153	22	88	134	17
5. Central West	88	146	13	92	147	11	99	152	11
6. Mississauga Oakville	87	142	16	80	161	12	95	153	13
7. Toronto Central	85	138	18	78	138	17	85	156	16
8. Central	83	144	14	85	155	15	95	155	15
9. Central East	91	155	13	81	142	12	89	151	10
10. South East	105	166	6	98	161	6	113	164	4
11. Champlain	114	158	6	123	160	7	114	170	2
12. North Simcoe Muskoka	81	134	15	81	149	14	76	138	23
13. North East	85	152	20	89	151	17	90	133	23
14. North West	87	128	8	82	157	3	93	169	5
All Ontario	**90**	**148**	**14**	**87**	**151**	**13**	**93**	**155**	**13**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.7c

- After a decline in the median wait from 90 days (in 2002/03) to 87 days (in 2003/04), the median wait for radical prostatectomy increased to 93 days (in 2004/05).
- Changes in median wait times for prostatectomy should be interpreted cautiously, as the interval studied may include the time required for biopsy results to confirm the diagnosis of cancer. Also, as radical prostatectomy is rarely considered urgent, patients may take time considering non-surgical alternatives prior to surgery. Prostate cancer is a relatively slow-growing tumor.

2.7d Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with hysterectomy for cancer, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

	Wait Times for Hysterectomy								
	2002/03			2003/04			2004/05		
Local Health Integration Network	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
1. Erie St. Clair	50	103	32	59	103	36	47	111	47
2. South West	44	95	45	44	101	47	49	113	43
3. Waterloo Wellington	39	97	54	59	126	35	47	112	45
4. Hamilton Niagara Haldimand Brant	42	107	48	41	109	52	42	111	49
5. Central West	43	102	47	56	147	29	62	115	27
6. Mississauga Oakville	40	92	52	55	114	41	36	105	56
7. Toronto Central	44	107	45	50	97	38	48	126	45
8. Central	45	108	47	57	124	36	48	116	41
9. Central East	51	116	43	51	125	36	48	120	41
10. South East	34	83	65	46	91	42	46	87	45
11. Champlain	37	90	59	34	83	67	35	103	64
12. North Simcoe Muskoka	45	102	45	41	118	50	46	115	48
13. North East	36	134	57	49	134	42	42	120	50
14. North West	25	38	95	22	48	86	29	57	86
All Ontario	**42**	**104**	**49**	**46**	**116**	**45**	**43**	**113**	**48**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.7d

- The median wait time for hysterectomy decreased by three days between 2003/04 and 2004/05.
- Between 2003/04 and 2004/05, median wait times for hysterectomy decreased by at least seven days in five Local Health Integration Networks (LHINs).

2.8a Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among patients aged 40 years and older with large bowel resection for cancer, by age and gender, and for the province of Ontario, 2002/03–2004/05

		2002/03			2003/04			2004/05		
Age Group		Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
WOMEN by age group	Age 40–64	25	85	73	25	75	73	27	85	68
	Age 65–74	26	85	71	24	71	71	27	96	66
	Age 75–84	26	83	69	24	74	73	30	82	66
	Age 85+	33	85	66	30	102	63	30	82	66
	Women Overall	**26**	**85**	**71**	**25**	**76**	**72**	**28**	**85**	**67**
MEN by age group	Age 40–64	23	72	74	26	80	72	29	81	71
	Age 65–74	26	75	74	27	78	70	29	93	66
	Age 75–84	28	80	68	28	101	67	28	77	69
	Age 85+	24	78	82	32	103	66	33	78	63
	Men Overall	**26**	**76**	**73**	**27**	**85**	**70**	**29**	**84**	**68**
All Ontario		**26**	**79**	**72**	**26**	**80**	**71**	**29**	**85**	**68**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database, Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.8a

- Median wait times for older patients undergoing large bowel resection were typically slightly longer than wait times for younger patients.

2.8b Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with mastectomy for cancer, by age, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Women by Age Group	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**
Age 40–64	29	88	67	29	85	66	30	88	63
Age 65–74	29	81	65	31	87	62	30	83	65
Age 75–84	29	87	67	29	80	68	27	82	69
Age 85+	36	85	59	36	79	57	29	99	65
Women Overall	**29**	**86**	**66**	**29**	**84**	**65**	**29**	**86**	**65**
All Ontario	**29**	**86**	**66**	**29**	**84**	**65**	**29**	**86**	**65**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.8b

- In 2004/05, women aged 85 years and older did not have a substantially longer median wait time to mastectomy than younger women.

2.8c Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among men aged 40 years and older with radical prostatectomy for cancer, by age, and for the province of Ontario, 2002/03–2004/05

Men by Age Group	2002/03 Median Wait Time (Days)	2002/03 90% Completed Within (Days)	2002/03 % Completed Within 6 Weeks	2003/04 Median Wait Time (Days)	2003/04 90% Completed Within (Days)	2003/04 % Completed Within 6 Weeks	2004/05 Median Wait Time (Days)	2004/05 90% Completed Within (Days)	2004/05 % Completed Within 6 Weeks
Age 40–64	91	148	15	89	151	12	93	156	13
Age 65–74	88	147	14	85	152	14	93	155	13
Age 75–84	86	127	0	56	138	33	72	153	20
Age 85+	–	–	–	–	–	–	–	–	–
Men Overall	90	148	14	87	151	13	93	155	13
All Ontario	**90**	**148**	**14**	**87**	**151**	**13**	**93**	**155**	**13**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.8c

- Younger men experienced longer median wait times for radical prostatectomy than older men. The reasons for this difference are not known.

2.8d Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with hysterectomy for cancer, by age, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Women by Age Group	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**
Age 40–64	42	108	50	45	121	46	43	115	48
Age 65–74	44	107	48	45	106	44	42	100	50
Age 75–84	43	92	48	50	108	40	50	111	42
Age 85+	39	89	52	55	113	26	44	126	42
Women Overall	**42**	**104**	**49**	**46**	**116**	**44**	**43**	**113**	**48**
All Ontario	**42**	**104**	**49**	**46**	**116**	**44**	**43**	**113**	**48**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.8d

- There was no clear association between patient age and the median wait time for hysterectomy.

2.9a Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among patients aged 40 years and older with large bowel resection for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

Neighbourhood Income Quintile	2002/03			2003/04			2004/05		
	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	% Completed Within 6 Weeks
Q1 (lowest income)	24	72	74	26	78	71	29	90	68
Q2	29	80	68	27	83	69	28	83	66
Q3	27	86	69	24	81	71	29	81	66
Q4	25	72	76	28	83	70	27	83	68
Q5 (highest income)	24	81	73	25	75	74	28	88	71
All Ontario	**26**	**79**	**72**	**26**	**80**	**71**	**29**	**85**	**67**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.9a

- There was no significant association between patients' neighbourhood socioeconomic status and wait times for large bowel resection.

2.9b Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with mastectomy for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**
Q1 (lowest income)	31	87	62	29	92	65	29	91	65
Q2	29	80	67	25	76	68	30	83	65
Q3	30	86	65	32	88	62	29	83	67
Q4	27	76	71	32	81	62	29	90	62
Q5 (highest income)	30	88	66	29	83	69	29	82	65
All Ontario	**29**	**86**	**66**	**29**	**84**	**65**	**29**	**86**	**65**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.9b

- There was no significant association between patients' neighbourhood socioeconomic status and wait times for mastectomy.

2.9c Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among men aged 40 years and older with radical prostatectomy for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**
Q1 (lowest income)	90	148	13	86	148	14	96	157	10
Q2	92	148	12	89	156	13	92	157	13
Q3	90	146	15	86	154	14	94	150	14
Q4	92	147	13	90	150	12	95	157	13
Q5 (highest income)	89	147	17	85	148	14	92	156	14
All Ontario	**90**	**148**	**14**	**87**	**151**	**13**	**93**	**156**	**13**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.9c

- There was no significant association between patients' neighbourhood socioeconomic status and wait times for radical prostatectomy.

2.9d Median wait times, 90 per cent of surgeries completed and percentage performed within six weeks* among women aged 40 years and older with hysterectomy for cancer, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**% Completed Within 6 Weeks**
Q1 (lowest income)	43	113	46	47	115	44	44	111	46
Q2	45	116	46	46	119	44	45	113	45
Q3	41	105	51	47	126	44	43	112	49
Q4	41	92	50	50	116	41	44	117	47
Q5 (highest income)	41	102	51	42	106	49	41	111	51
All Ontario	**42**	**104**	**49**	**46**	**116**	**45**	**43**	**113**	**48**

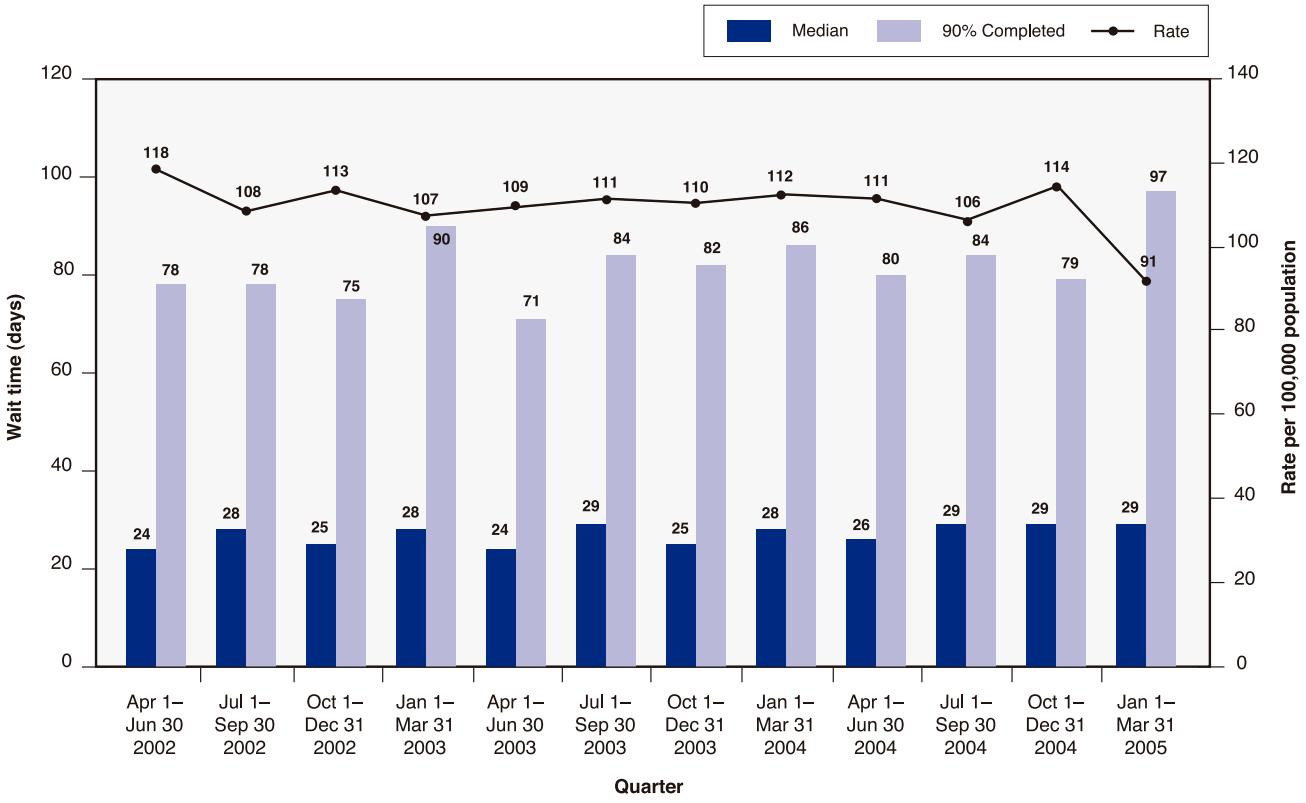
* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.9d

- There was no significant association between patients' neighbourhood socioeconomic status and wait times for hysterectomy.

2.10a Quarterly rates, median waits and 90 per cent of surgeries completed among patients aged 40 years and older with large bowel resection for cancer, for the province of Ontario, 2002/03–2004/05

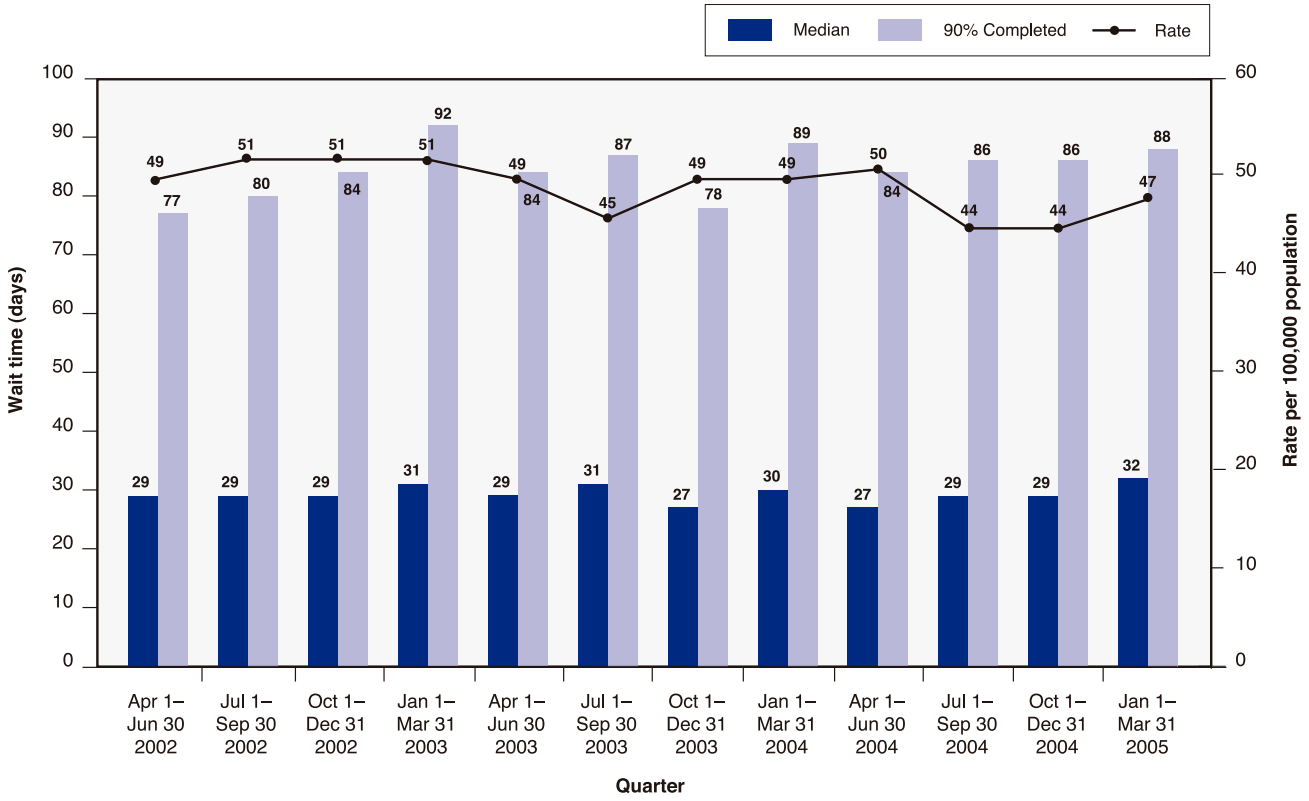


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.10a

- When data were analyzed by quarter, there was no clear trend towards increasing or decreasing median wait times for large bowel resection from 2002/03 through 2004/05.

2.10b Quarterly rates, median waits and 90 per cent of surgeries completed among women aged 40 years and older with mastectomy for cancer, for the province of Ontario, 2002/03–2004/05

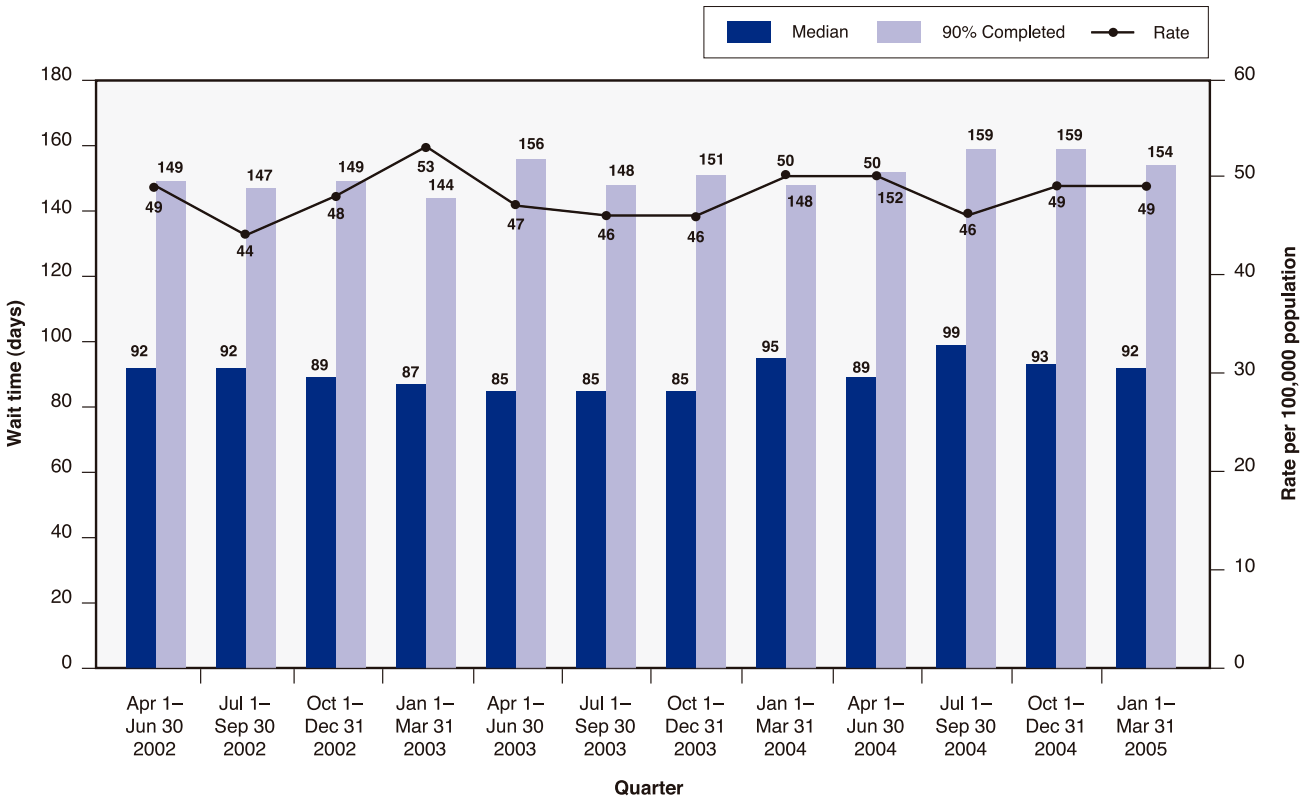


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.10b

- When data were analyzed by quarter, there was no clear trend towards increasing or decreasing median wait times for mastectomy from 2002/03 through 2004/05.

2.10c Quarterly rates, median waits and 90 per cent of surgeries completed among men aged 40 years and older with radical prostatectomy for cancer, for the province of Ontario, 2002/03–2004/05

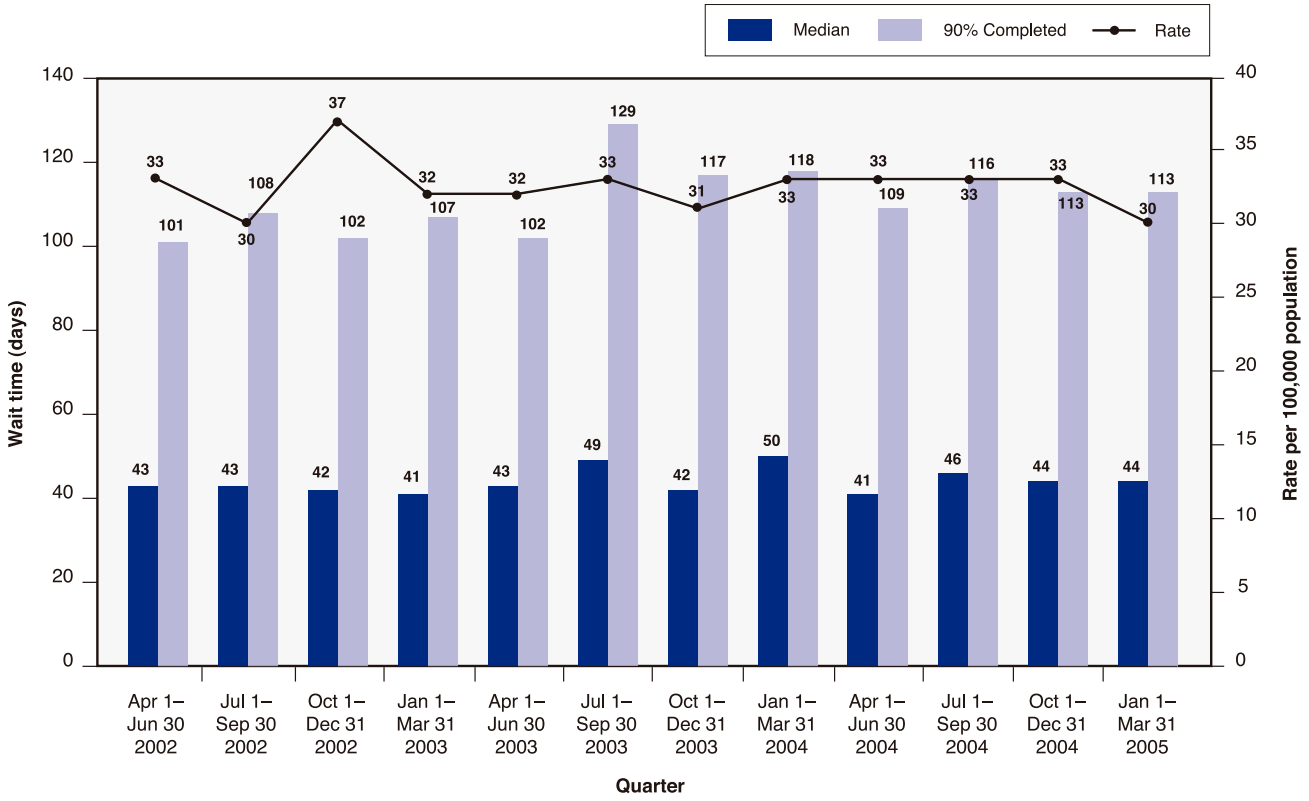


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.10c

- When data were analyzed by quarter, there was no clear trend towards increasing or decreasing median wait times for radical prostatectomy from 2002/03 through 2004/05.

2.10d Quarterly rates, median waits and 90 per cent of surgeries completed among women aged 40 years and older with hysterectomy for cancer, for the province of Ontario, 2002/03–2004/05

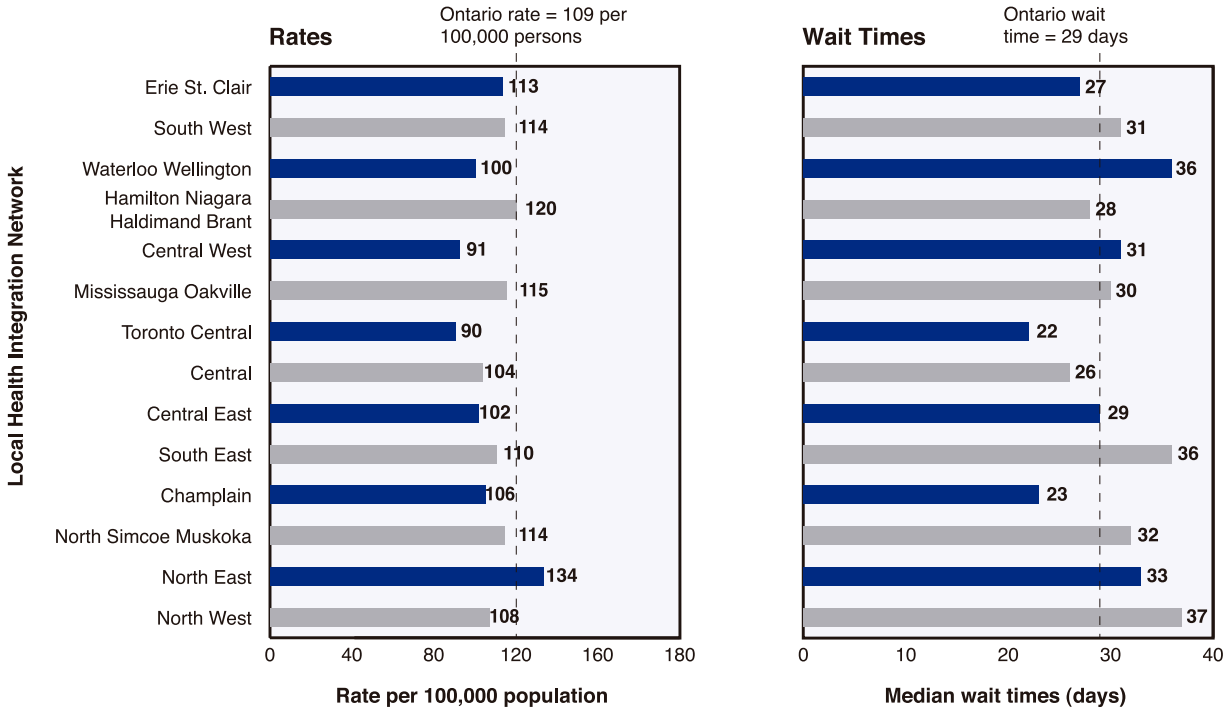


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.10d

- When data were analyzed by quarter, there was no clear trend towards increasing or decreasing median wait times for hysterectomy from 2002/03 through 2004/05.

2.11a Relationship between age- and sex-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for large bowel resection, by Local Health Integration Network, in Ontario, 2004/05

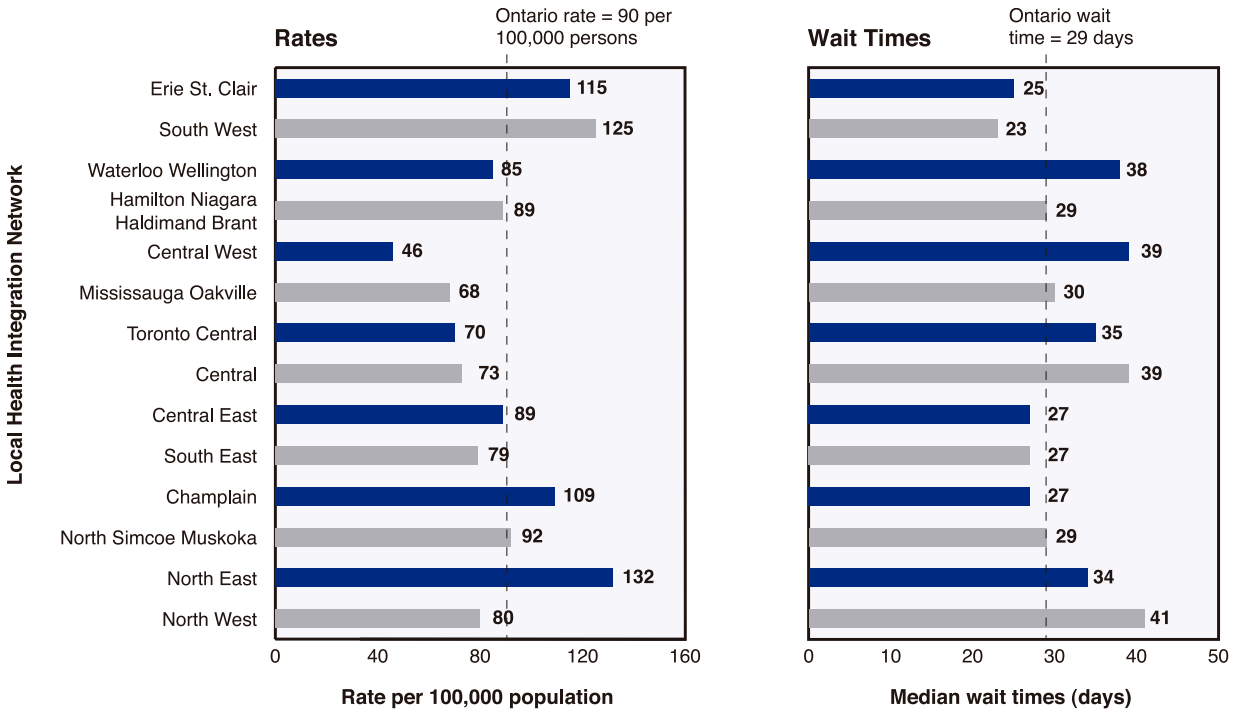


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.11a

- There was no clear correlation between rates of large bowel resection and the median wait times for this procedure among various Local Health Integration Networks (LHINs).

2.11b Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for mastectomy, by Local Health Integration Network, in Ontario, 2004/05

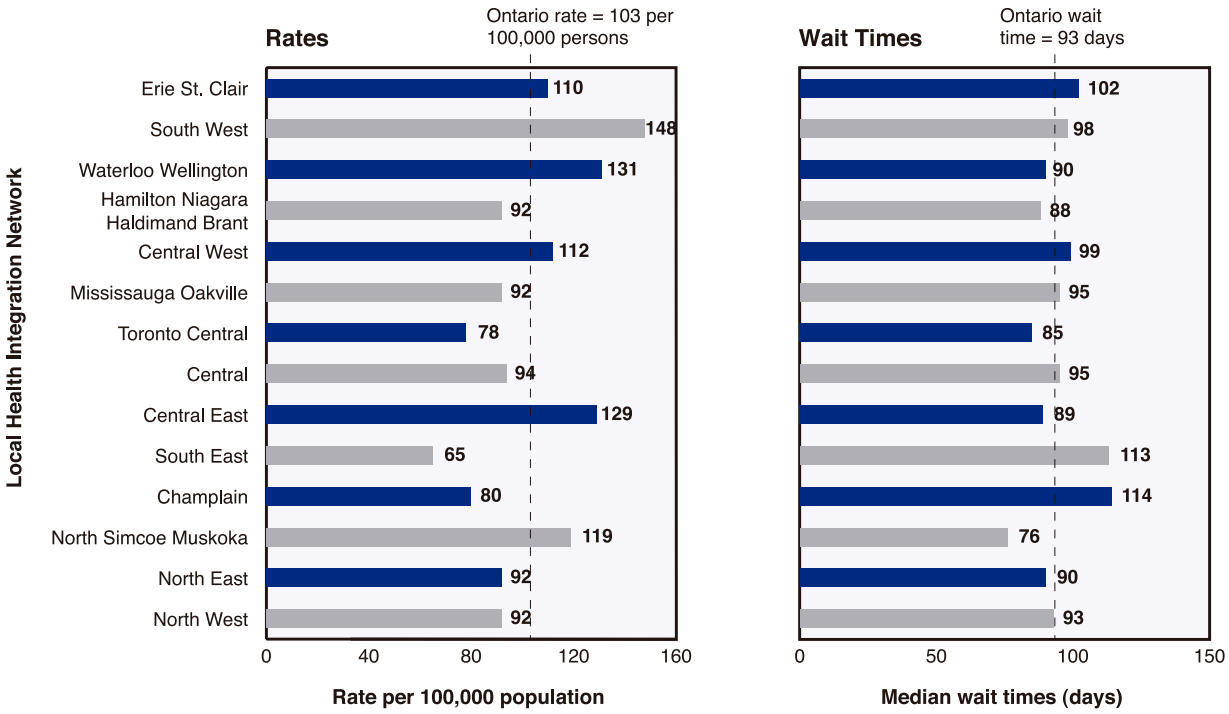


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.11b

- For mastectomy (more than for other cancer surgeries examined), there was a trend toward lower rates being associated with long waits.
- Mastectomy rates will depend not only on the underlying need for breast cancer surgery, but also on the utilization of alternative procedures (e.g., lumpectomy). Consequently, low mastectomy rates in a Local Health Integration Network (LHIN) do not necessarily indicate low rates of breast cancer surgery overall.
- While some LHINs with low rates appeared to have longer median waits, it is unknown whether this indicates suboptimal access to mastectomy in these regions. Low rates of total mastectomy may reflect preferential use of breast conserving surgery; they do not necessarily reflect low rates of appropriate breast cancer surgery overall within the LHIN.

2.11c Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for radical prostatectomy, by Local Health Integration Network, in Ontario, 2004/05

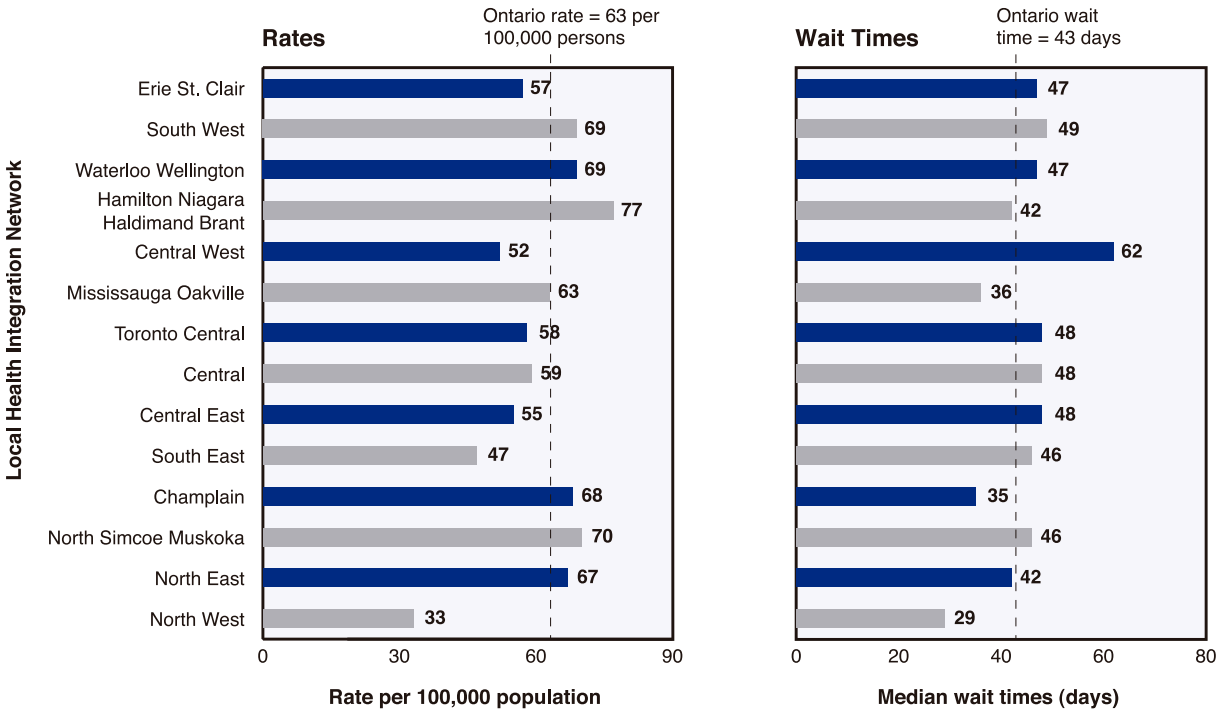


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.11c

- There was no clear correlation between rates of radical prostatectomy and the median wait times for this procedure among various Local Health Integration Networks (LHINs).

2.11d Relationship between age-adjusted rates per 100,000 population among patients aged 40 years and older and median wait times (days) for hysterectomy, by Local Health Integration Network, in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 2.11d

- There was no clear correlation between rates of hysterectomy and the median wait times for this procedure among various Local Health Integration Networks (LHINs).

Discussion

The increase in the number of cancer surgeries over the last year is in keeping with the increase in the number of new cancer cases diagnosed annually in Ontario.

The rates of the cancer surgeries studied have been generally stable over the last three years. There is statistically significant variation in these rates among Local Health Integration Networks (LHINs), and between 2003/04 and 2004/05, the magnitude of this variation increased slightly for mastectomy, prostatectomy and hysterectomy. Some LHINs had consistently high or low rates for specific procedures over the three-year period studied, suggesting that access to these procedures may be limited in some LHINs.

There is concern that long waits for cancer treatment in Ontario are reducing patients' chances for cure. However, a recent review of the literature commissioned by the Canadian Institutes for Health Research (CIHR) found no strong evidence that (within the wait times studied) waiting for surgery impacted negatively on clinical outcomes from the cancer.[4] It is notable, however, that the studies reviewed did not examine the psychological stress of waiting, nor the increased morbidity that may arise from treating more advanced tumours.

In Ontario as a whole, there was no consistent trend towards increasing or decreasing median waits for the cancer surgeries under discussion. Between 2003/04 and 2004/05, some individual LHINs (e.g., Central West) experienced an increase in the median wait for all four cancer surgeries. There was no association between the median wait time for any of these procedures and patients' socioeconomic status (measured by average household income in patients' neighbourhoods).

Wait times for surgery varied substantially, depending on the type of cancer (probably due to differences in clinical urgency), the tests performed during the waiting interval, and on other clinical factors. This indicates that no single benchmark interval between surgical consultation and surgery will be appropriate for all cancer types. Indeed, the CIHR literature review noted that the development of benchmarks did little to reduce cancer surgery wait times, although there was good evidence that waiting times can be reduced through system changes, such as reorganizing the process of referrals.[5]

Appendix 2.A

How the research was done

A. Identification of cancer surgeries

I. Cancer surgeries

We abstracted from the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD) and the National Ambulatory Care Reporting System (CIHI-NACRS) files for four major cancer surgeries performed between fiscal years 1994/95–2004/05 (April 1 to March 31). We looked for the following procedures (between 1 and 20) and corresponding cancer diagnostic codes (1 to 25, not only the one responsible for the longest stay in hospital) that occurred during the same hospital admission.

Table 2.1 Procedure and diagnostic classification codes—Hysterectomy

1994–2001		2002+	
CCP (2000–2001) prcode1–prcode10		**CCI (2002+) incode1–incode20**	
80.30	Total abdominal hysterectomy	1RM89	Excision total, uterus and surrounding structures
80.40	Vaginal hysterectomy (Subtotal) (Total)	1RM91	Excision radical, uterus and surrounding structures
80.50	Radical abdominal hysterectomy		**and**
80.60	Radical vaginal hysterectomy	**Diagnosis (ICD-10)**	
	and	C53	Malignant neoplasm of cervix uteri
Diagnosis (ICD-9)		C54	Malignant neoplasm of corpus uteri
180	Malignant neoplasm of cervix uteri	C55	Malignant neoplasm of uterus, part unspecified
182	Malignant neoplasm of body of uterus	C56	Malignant neoplasm of ovary
183	Malignant neoplasm of ovary and other uterine adnexa		

Table 2.2 Procedure and diagnostic classification codes—Large bowel resection

1994–2001		2002+	
CCP (2000–2001) prcode1–prcode10		**CCI (2002+) incode1–incode20**	
57.50	Partial excision of large intestine	1NM87	Excision partial, large intestine (except for endoscopic –1NM87BA)
57.51	Multiple segmental resection of large intestine	1NM89	Excision total, large intestine
57.52	Cecectomy	1NM91	Excision radical, large intestine
57.53	Right hemicolectomy	1NQ87	Excision partial, rectum (except for endoscopic –1NQ87BA)
57.54	Resection of transverse colon	1NQ89	Excision total, rectum
57.55	Left hemicolectomy	1NQ90	Excision total with reconstruction, rectum
57.56	Sigmoidectomy		**and**
57.59	Other partial excision of large intestine	**Diagnosis (ICD-10)**	
60.40	Abdominoperineal resection of rectum	C18	Malignant neoplasm of colon
60.50	Other resection of rectum	C19	Malignant neoplasm of rectosigmoid junction
60.51	Anterior resection with concomitant colostomy	C20	Malignant neoplasm of rectum
60.52	Other anterior resection	C21	Malignant neoplasm of anus and anal canal
60.53	Posterior resection		
60.54	Duhamel resection		
60.55	Hartmann resection		
60.59	Other resection of rectum nec		
	and		
Diagnosis (ICD-9)			
153	Malignant neoplasm of colon		
154	Malignant neoplasm of rectum, rectosigmoid junction and anus		

Table 2.3 Procedure and diagnostic classification codes—Mastectomy

1994–2001		2002+	
CCP (2000–2001) prcode1–prcode10		**CCI (2002+) incode1–incode20**	
97.12	(Unilateral) complete mastectomy	1YM89	Excision total, breast
97.13	Bilateral complete mastectomy	1YM90	Excision total with reconstruction, breast
97.14	(Unilateral) extended simple mastectomy	1YM91	Excision radical, breast
97.15	Bilateral extended simple mastectomy	1YM92	Excision radical with reconstruction, breast
97.16	(Unilateral) radical mastectomy		**and**
97.17	Bilateral radical mastectomy	**Diagnosis (ICD-10)**	
97.18	(Unilateral) extended radical mastectomy	C50	Malignant neoplasm of breast
97.19	Bilateral extended radical mastectomy		
	and		
Diagnosis (ICD-9)			
174	Malignant neoplasm of female breast		

Table 2.4 Procedure and diagnostic classification codes—Radical prostatectomy

1994–2001		2002+	
CCP (2000–2001) prcode1-prcode10		**CCI (2002+) incode1–incode20**	
72.40	Radical prostatectomy	1QT91	Excision radical, prostate
	and		**and**
Diagnosis (ICD-9)		**Diagnosis (ICD-10)**	
185	Malignant neoplasm of prostate	C61	Malignant neoplasm of prostate

We kept only patients with valid Ontario Health Insurance Plan (OHIP) numbers and counted all surgeries (including same day) even if they were abandoned (not fully completed). We recorded the date of each procedure. If that date was missing, we used the date of a first procedure, or the date of the patient's admission. All procedures were counted; some patients had more than one procedure (especially for large bowel resection). However, we limited our counts to one specific procedure per patient per day.

B. Age, sex, socioeconomic status and Local Health Integration Network

Patients' postal codes were obtained directly from CIHI files, while patients' age and sex at the time of surgery were obtained from the Registered Persons Database (RPDB). The RPDB contains contact and administrative data for all OHIP beneficiaries. We converted postal codes into Dissemination Areas (PRCDDA) using Statistics Canada conversion files, and then into Local Health Integration Networks (LHINs). We obtained income quintiles using patients' postal codes and Statistics Canada conversion files. We grouped patients into four age groups: 40–64, 65–74, 75–84, 85+ years. We presented surgeries for all patients in Ontario in our first exhibit only; further analyses were limited to patients 40 years of age and older.

II. Calculation of wait times

Wait time was defined as the interval between patients' last surgical consultation and a first surgery.

Only one (first) surgery per patient was considered in our analyses.

C. Exclusions

We excluded all patients who had an emergency visit as identified by CIHI (these patients were not placed on waiting lists).

Table 2.5 Exclusion of emergency visit patients with the following admission codes (emergency room) based on CIHI

2002–2004*
if admcat = "U" for fiscal year 2002

* Starting in 2002 there is only one code "U" which denotes Emergent/Urgent patients.

We then abstracted OHIP files from October 1, 2001 to March 31, 2005 and verified whether these patients had either chemotherapy and/or radiation therapy (RT). We excluded patients who had undergone RT and/or chemotherapy up to six months before their first surgery. These exclusions applied mostly to patients undergoing mastectomies or large bowel resections.

Table 2.6 Exclusion of patients with the following chemotherapy or RT codes based on OHIP

2002–2004
Chemotherapy before first surgery = G281, G345, G359, G381
Radiation therapy before first surgery (any of these codes) = X310, X311, X312, X313

D. Identification of surgical consultations

We matched patients' CIHI-based surgeries with surgeries found in OHIP files (since physicians can be identified only through OHIP files). For each match we kept a physician number(s) from OHIP. If there were two or more physicians involved in the surgery, we kept all their identifiers.

Table 2.7 List of OHIP-based surgery fee codes that correspond to CIHI surgeries

	2002–2004	
Hysterectomy	S710	Corpus Uteri – Exc – Hysterectomy – Total w/Omentectomy
	S757	Corpus Uteri – Inc/Exc – Hysterectomy – Total/subtotal Abd/Vag
	S758	Corpus Uteri Inc/Exc – Hysterectomy – Total/subtotal – A&P
	S759	Corpus Uteri Inc/Exc – Hysterectomy – Total – A&P Rep
	S762	Hysterectomy radical trachelectomy
	S763	Corpus Uteri Inc – Exc – Hysterect – Rad (Wertheims)
Large Bowel Resection	S166	Exc-Anasto-Sm & Lg Intest.-term ileum/caecum/asc colon-Rt Hemicolect'y
	S167	Exc – Anasto – Large Intestine – any portion
	S168	Ileostomy, subtotal colectomy
	S169	Total colectomy/ileo-rectal anastomosis
	S170	Exc. – Ileostomy & Tot Colectomy & Abd – Perin resect
	S171	Exc – Lt. hemicolectomy with ant. resect/anast
	S172	Total colectomy with loop ileostomy
	S173	Exc. – same as S170 – 2 surgeon team – abdominal
	S174	Same as S170 – 2 surgeon team – perineal
	S188	Exc – Bowel resect without Anastomosis
	S213	Exc – Proctectomy – Ant resect/proctosigmoidectomy
	S214	Exc – Proctectomy – Abdomino-perineal resect/pull thru
	S215	Exc – Proctectomy – 2 surg team – abdominal surgeon
	S216	Exc – Proctectomy – 2 surg team – perineal surgeon
	S217	Exc – Proctectomy – Hartmann procedure
	S218	Exc – Proctectomy – Colon reconstr foll Hartmann proc
	S222	Presacral/trans-sacral proctotomy & exc lesion
Mastectomy	R108	Mastectomy – female (with/out biopsy) – simple
	R109	Mastectomy, rad/modified rad (with/out biopsy)
	R117	Mastectomy – female (with/out) biopsy – subcut/nipple preserv.
Radical Prostatectomy	S641	Transp Tot prostatovesiculectomy, pelv lymph node dissect.
	S645	Prostate – Exc – Prostatectomy – perineal incl. vasectomy
	S646	Prostate – Exc – Prostatectomy – perineal w/vesiculectomy
	S647	Exc – Prostatectomy/vasectomy – suprapubic 1 stage
	S648	Exc – Prostatect/vasect – Suprapubic 2 stages – 1st stage
	S649	Exc – Prostatect/vasect – Suprapubic 2 stages – 2nd stage
	S650	Exc – Prostatectomy/vasectomy – retropubic simple
	S651	Exc – Prostatectomy/vasectomy – retropubic radical

We then determined new consultations up to six months before the surgery with a physician who later performed that surgery from OHIP files. All consultations on the same day or one day prior to the surgery were excluded. For patients for whom we did not find a consultation with the same surgeon, we selected a most recent surgery-specific consultation (from the table below). Patients without valid surgical consultations were excluded from analyses. As a last step we calculated waiting time between the last surgical consultation and a first surgery for patients with valid dates.

Table 2.8 OHIP-based consultation codes for each surgery

	2002–2004	
Hysterectomy	A205	Consult. – Obs. & Gyn.
	A206	Re-Consult. – Obs. & Gyn.
Large Bowel Resection	A035	Consult. – Gen. Surg.
	A036	Re-Consult. – Gen. Surg.
Mastectomy	A035	Consult. – Gen. Surg.
	A036	Re-Consult. – Gen. Surg.
Radical Prostatectomy	A355	Consult. – Urol.
	A356	Re-Consult. – Urol.

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1. Cancer Care Ontario. Cancer System Quality Index. Accessed January 2006 at http://www.cancercare.on.ca/qualityindex/outcomes/newcases/

2. Simunovic M, Theriault ME, Paszat LF et al. Using administrative databases to measure waiting times for patients undergoing major cancer surgery in Ontario, 1993–2000. *Can J Surg*. 2005; 48(2): 137–42.

3. Cancer Quality Council of Ontario. Literature review summary: Epidemiological evidence on the relationship between cancer assessment & treatment delay and prognosis (4 major sites); 2004.

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5. Taylor M, Turner D, Latosinsky S. *Determining Acceptable Waiting Times for the Surgical Treatment of Solid Organ Malignancies—A Systematic Review*. Report to the Canadian Institutes of Health Research. Accessed January 2006 at http://cancercare.mb.ca/epi/pdfs/cihr_waittime_report2_111005.pdf

INSIDE

3

Chapter

Cardiac Procedures

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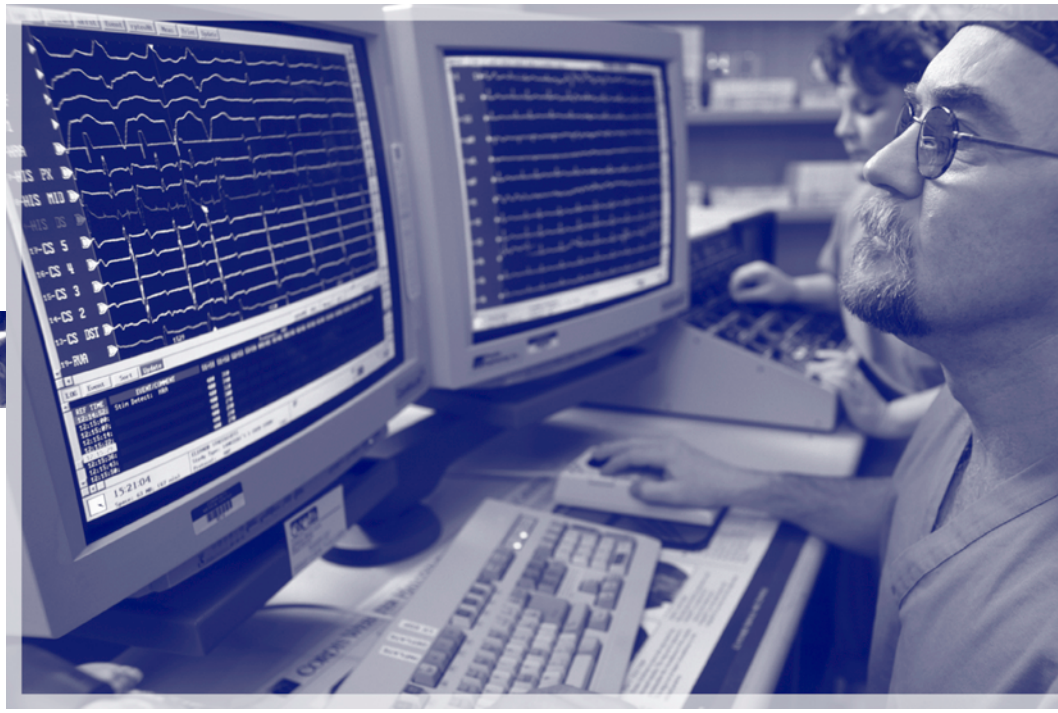


Executive Summary

Issue

There is concern regarding access to critical cardiac services, including coronary angiography; percutaneous coronary intervention (PCI), also known as coronary angioplasty; and coronary artery bypass graft surgery.

Study

Trends in the rates and wait times for coronary angiography, angioplasty and bypass surgery in Ontario were examined by conducting a detailed examination of data collected by the Cardiac Care Network of Ontario (CCN) over the past three fiscal years (2002/03 to 2004/05).

Key findings

- Over the past three years, rates of coronary angiography and angioplasty have been rapidly rising, while rates of bypass surgery have modestly declined.
- Two-fold variations in cardiac procedure rates exist across Local Health Integration Networks (LHINs).
- Marked variations in wait times for cardiac procedures exist across Ontario.
- Cardiac procedure rates and wait times were generally similar between the poorest and the wealthiest neighbourhoods in Ontario.
- Wait times for angiography, angioplasty and bypass surgery have decreased in the past year.
- In 2004/05, 61 per cent of patients awaiting coronary angiography and 81 per cent of patients awaiting bypass surgery received their procedures within Recommended Maximum Wait Times (RMWT), or for bypass surgery, within the Ontario wait time target. Both these findings represent an improvement in wait times relative to the previous year.

Implications

Access to cardiac procedures such as coronary angiography and angioplasty has improved in Ontario during the past three years. There continues to be wide variation across LHINs in rates and wait times for these procedures. Future Ontario policy initiatives should establish new targets for procedure rates over the next five years. It is important to ensure that increasing supply does not inappropriately drive up the demand for unnecessary procedures.

Introduction

Evaluating rates of service provision and wait times for interventions to detect and treat ischemic heart disease continues to be a priority for policy makers in Ontario and across Canada. Data from last year's ICES Atlas, *Access to Health Services in Ontario*, demonstrated progressive increases in the volume and utilization rates of coronary angiography and angioplasty. Conversely, rates of bypass surgery have remained stable over several years. While the previous Atlas found that only 50 to 60 per cent of patients had received angiography and bypass surgery within Recommended Maximum Wait Times (RMWT), there was evidence that wait times for all coronary interventions had decreased from 2000/01 to 2003/04.

In this chapter, trends in utilization rates and wait times for coronary angiography, angioplasty and bypass surgery are reviewed with a focus on fiscal years 2002/03 to 2004/05. This was a period of continued significant growth in capacity for coronary angiography and angioplasty services in Ontario.[1]

- In 2000, a Cardiac Care Network of Ontario (CCN) Target Setting Panel recommended an eight per cent increase in capacity for coronary angiography and angioplasty in Ontario.
- The Panel set minimum procedure target rates for angiography at 500 cases per 100,000 adults by 2003/04 and an additional 40 cases per 100,000 adults in 2005/06 (for a total of 540 cases).
- Targets for angioplasty were set at 140 cases per 100,000 adults by 2003/04 and 160 cases per 100,000 adults in 2005/06 (an increase of 14 per cent).
- Targets for bypass surgery were set at 110 cases per 100,000 adults by 2005/06.
- Targets for total revascularization (either angioplasty or bypass surgery) were set at 250 cases per 100,000 adults by 2003/04 and 270 cases per 100,000 adults by 2005/06.[2]
- These targets were further updated in 2004, using additional modeling to assist in future projections.[3]

Chapter 3 – List of Exhibits

Exhibit 3.10b Quarterly rates, median waits and 90 per cent of procedures completed for semi-urgent coronary angiography patients in Ontario, 2002/03–2004/05

Exhibit 3.10c Quarterly rates, median waits and 90 per cent of procedures completed for elective coronary angiography patients in Ontario, 2002/03–2004/05

Exhibit 3.10d Quarterly rates, median waits and 90 per cent of procedures completed for in-hospital angioplasty patients in Ontario, 2002/03–2004/05

Exhibit 3.10e Quarterly rates, median waits and 90 per cent of procedures completed for angioplasty patients waiting at home, in Ontario, 2002/03–2004/05

Exhibit 3.10f Quarterly rates, median waits and 90 per cent of surgeries completed for urgent bypass surgery patients in Ontario, 2002/03–2004/05

Exhibit 3.10g Quarterly rates, median waits and 90 per cent of surgeries completed for semi-urgent bypass surgery patients in Ontario, 2002/03–2004/05

Exhibit 3.10h Quarterly rates, median waits and 90 per cent of surgeries completed for elective bypass surgery patients in Ontario, 2002/03–2004/05

Exhibit 3.11a Relationship between age- and sex-adjusted rate of coronary angiography per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05

Exhibit 3.11b Relationship between age- and sex-adjusted rate of angioplasty per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05

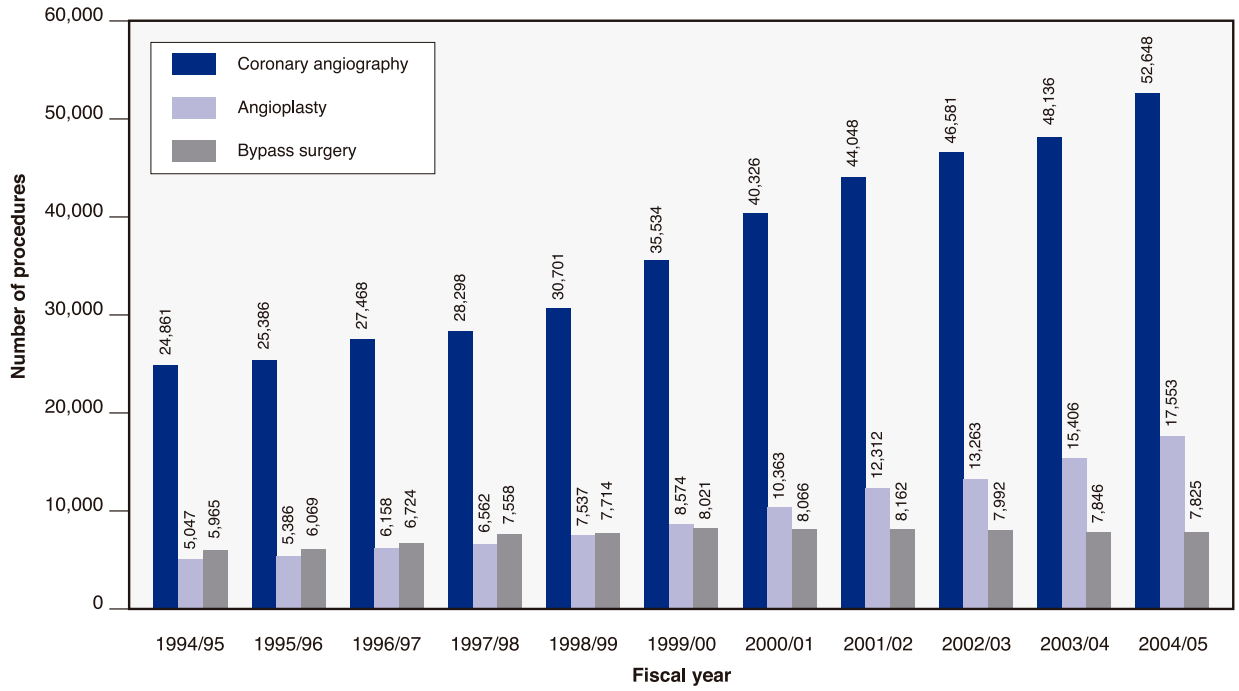
Exhibit 3.11c Relationship between age- and sex-adjusted rate of bypass surgery per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05

Exhibit 3.12 30-day and 1-year mortality rates following bypass surgery per 100 patients in Ontario, 2002/03–2004/05

Exhibits and Findings

Rates of Service Provision for Selected Cardiac Procedures

3.1 Annual number of coronary angiograms, angioplasties and bypass surgeries in Ontario, 1994/95–2004/05



Data source: Cardiac Care Network of Ontario

For Exhibit 3.1

- Over the past ten years, the total number of cardiac procedures carried out in Ontario has increased considerably. There was a two-fold increase in the number of coronary angiography procedures; the number of coronary angioplasties increased 3.5 times; and the number of bypass surgery procedures increased 1.3-fold.
- Between 2003/04 and 2004/05, coronary angiography increased by nine per cent; angioplasty increased by 14 per cent.
- The overall number of bypass surgeries increased between 1994/95 and 2001/02. But the numbers have declined steadily (although marginally) since then (i.e., there were 21 fewer bypass procedures performed in 2004/05 compared to 2003/04).
- Ontario's rates of coronary angiography and angioplasty are lower than those in Alberta and British Columbia, but higher than those in Eastern Canada.[2,4,5]

3.2a Number and age- and sex-adjusted rate of coronary angiography per 100,000 population aged 20 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Coronary Angiographies	Rate per 100,000 Population	Number of Coronary Angiographies	Rate per 100,000 Population	Number of Coronary Angiographies	Rate per 100,000 Population
1. Erie St. Clair	2,032	417	2,237	451	2,543	504
2. South West	2,731	382	2,799	383	3,073	412
3. Waterloo Wellington	1,949	415	1,903	395	2,036	411
4. Hamilton Niagara Haldimand Brant	5,709	536	6,095	562	6,562	593
5. Central West	2,241	504	2,496	543	2,768	575
6. Mississauga Oakville	3,623	563	3,668	547	3,815	547
7. Toronto Central	3,855	454	3,845	448	4,291	495
8. Central	5,200	509	5,260	494	5,856	530
9. Central East	6,088	571	6,228	571	6,518	584
10. South East	2,730	680	2,675	652	3,075	733
11. Champlain	3,675	428	3,825	434	4,296	478
12. North Simcoe Muskoka	1,653	527	1,661	510	1,991	588
13. North East	3,302	687	3,513	721	3,729	754
14. North West	1,208	648	1,427	757	1,528	803
All Ontario	**46,581**	**516**	**48,136**	**520**	**52,648**	**556**

Missing LHIN: 585 patients with missing LHIN in 2002/03
504 patients with missing LHIN in 2003/04
567 patients with missing LHIN in 2004/05

SARV summary statistics, angiography, 2004/05, Ontario patients only	Value	P-value
Extremal Quotient [EQ]	2.0	
Ratio of Third Quartile over First Quartile	1.2	
Coefficient of Variation (%) [CV]	16.6	
Systematic Component of Variation	44.1	
Adjusted Chi-square (likelihood ratio)	1,472.2	<0.0001

Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibits 3.2a to 3.2d

- Absolute rates for coronary angiography increased by eight per cent between 2002/03 and 2004/05. Rates increased by 26 per cent for angioplasty and fell by nearly seven per cent for bypass surgery.
- The absolute rate of any revascularization procedure (angioplasty or bypass surgery) increased by 14 per cent between 2002/03 and 2004/05.
- There are marked variations in age- and sex-adjusted procedure rates across Local Health Integration Networks (LHINs).

3.2b Number and age- and sex-adjusted rate of angioplasty per 100,000 population aged 20 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Angioplasties	Rate per 100,000 Population	Number of Angioplasties	Rate per 100,000 Population	Number of Angioplasties	Rate per 100,000 Population
1. Erie St. Clair	422	86	556	112	699	138
2. South West	730	102	846	116	925	124
3. Waterloo Wellington	543	115	616	127	693	139
4. Hamilton Niagara Haldimand Brant	1,574	149	1,888	174	2,193	198
5. Central West	603	136	722	156	895	185
6. Mississauga Oakville	970	150	1,188	177	1,204	172
7. Toronto Central	1,076	127	1,118	131	1,383	160
8. Central	1,448	142	1,668	156	1,916	174
9. Central East	1,500	141	1,805	165	1,942	174
10. South East	1,038	258	1,076	261	1,164	277
11. Champlain	1,565	181	1,751	198	1,993	221
12. North Simcoe Muskoka	471	150	543	166	660	195
13. North East	901	187	1,106	226	1,371	276
14. North West	229	122	323	169	312	162
All Ontario	**13,263**	**147**	**15,406**	**166**	**17,553**	**185**

Missing LHIN: 193 patients with missing LHIN in 2002/03
200 patients with missing LHIN in 2003/04
203 patients with missing LHIN in 2004/05

SARV summary statistics, angioplasty, 2004/05, Ontario patients only	Value	P-value
Extremal Quotient [EQ]	2.2	
Ratio of Third Quartile over First Quartile	1.2	
Coefficient of Variation (%) [CV]	21.1	
Systematic Component of Variation	58.2	
Adjusted Chi-square (likelihood ratio)	785.2	<0.0001

Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.2c Number and age- and sex-adjusted rate of bypass surgery per 100,000 population aged 20 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Bypass Surgeries	Rate per 100,000 Population	Number of Bypass Surgeries	Rate per 100,000 Population	Number of Bypass Surgeries	Rate per 100,000 Population
1. Erie St. Clair	454	93	469	94	416	82
2. South West	553	77	614	84	578	77
3. Waterloo Wellington	416	90	360	75	365	75
4. Hamilton Niagara Haldimand Brant	1,106	103	1,064	97	1,070	96
5. Central West	403	92	465	104	465	101
6. Mississauga Oakville	663	106	628	95	675	98
7. Toronto Central	514	61	503	59	494	58
8. Central	807	80	827	78	812	74
9. Central East	962	90	953	87	922	83
10. South East	418	103	374	90	448	106
11. Champlain	645	76	605	69	598	67
12. North Simcoe Muskoka	335	105	279	85	320	93
13. North East	489	100	439	89	417	82
14. North West	165	88	216	113	198	103
All Ontario	**7,992**	**89**	**7,846**	**85**	**7,825**	**83**

Missing LHIN: 62 patients with missing LHIN in 2002/03
50 patients with missing LHIN in 2003/04
47 patients with missing LHIN in 2004/05

SARV summary statistics, bypass surgery, 2004/05, Ontario patients only	Value	P-value
Extremal Quotient [EQ]	1.8	
Ratio of Third Quartile over First Quartile	1.3	
Coefficient of Variation (%) [CV]	16.7	
Systematic Component of Variation	27.0	
Adjusted Chi-square (likelihood ratio)	212.5	<0.0001

Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.2d Number and age- and sex-adjusted rate of revascularization* per 100,000 population aged 20 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Revascularizations	Rate per 100,000 Population	Number of Revascularizations	Rate per 100,000 Population	Number of Revascularizations	Rate per 100,000 Population
1. Erie St. Clair	876	179	1,025	206	1,115	220
2. South West	1,283	179	1,460	200	1,503	201
3. Waterloo Wellington	959	205	976	203	1,058	213
4. Hamilton Niagara Haldimand Brant	2,680	251	2,952	271	3,263	294
5. Central West	1,006	228	1,187	260	1,360	286
6. Mississauga Oakville	1,633	256	1,816	272	1,879	270
7. Toronto Central	1,590	188	1,621	190	1,877	217
8. Central	2,255	221	2,495	234	2,728	248
9. Central East	2,462	231	2,758	253	2,864	257
10. South East	1,456	361	1,450	351	1,612	382
11. Champlain	2,210	257	2,356	267	2,591	288
12. North Simcoe Muskoka	806	255	822	251	980	288
13. North East	1,390	288	1,545	315	1,788	358
14. North West	394	210	539	283	510	265
All Ontario	**21,255**	**236**	**23,252**	**251**	**25,378**	**268**

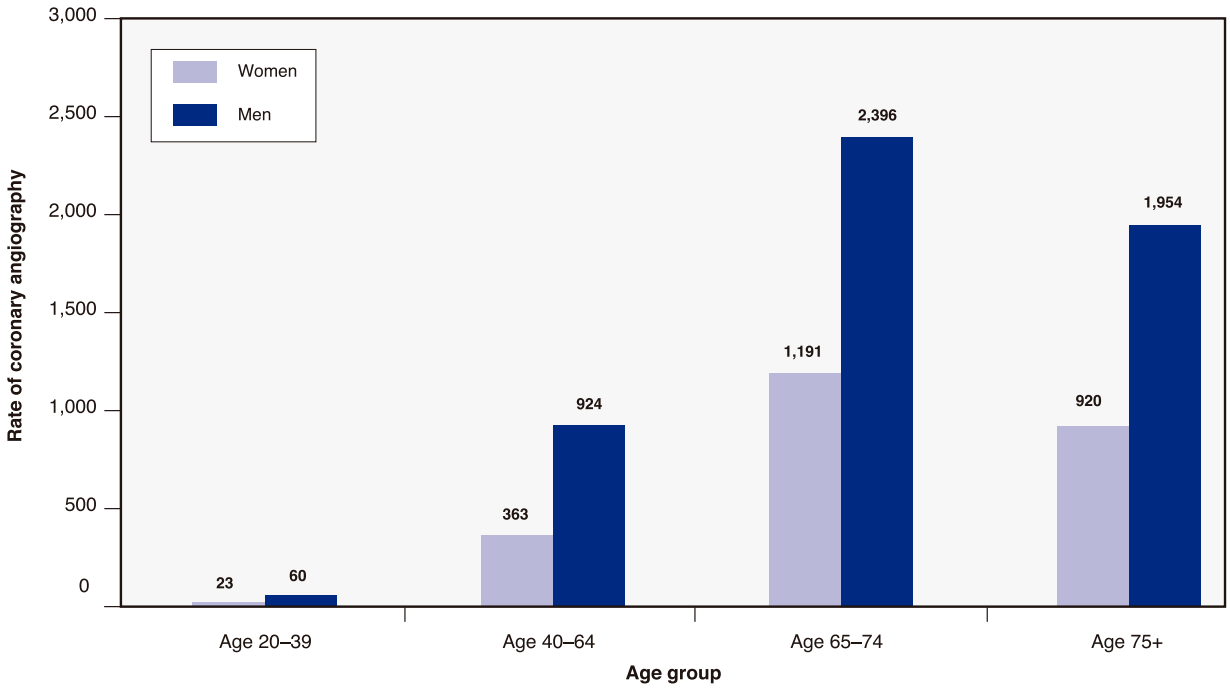
Missing LHIN: 255 patients with missing LHIN in 2002/03
250 patients with missing LHIN in 2003/04
250 patients with missing LHIN in 2004/05

SARV summary statistics, revascularization, 2004/05, Ontario patients only	Value	P-value
Extremal Quotient [EQ]	1.9	
Ratio of Third Quartile over First Quartile	1.3	
Coefficient of Variation (%) [CV]	16.7	
Systematic Component of Variation	35.4	
Adjusted Chi-square (likelihood ratio)	717.6	<0.0001

* Revascularization includes either angioplasty or bypass surgery

Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.3a Age- and sex-specific rates of coronary angiography per 100,000 population aged 20 years and older in Ontario, 2004/05

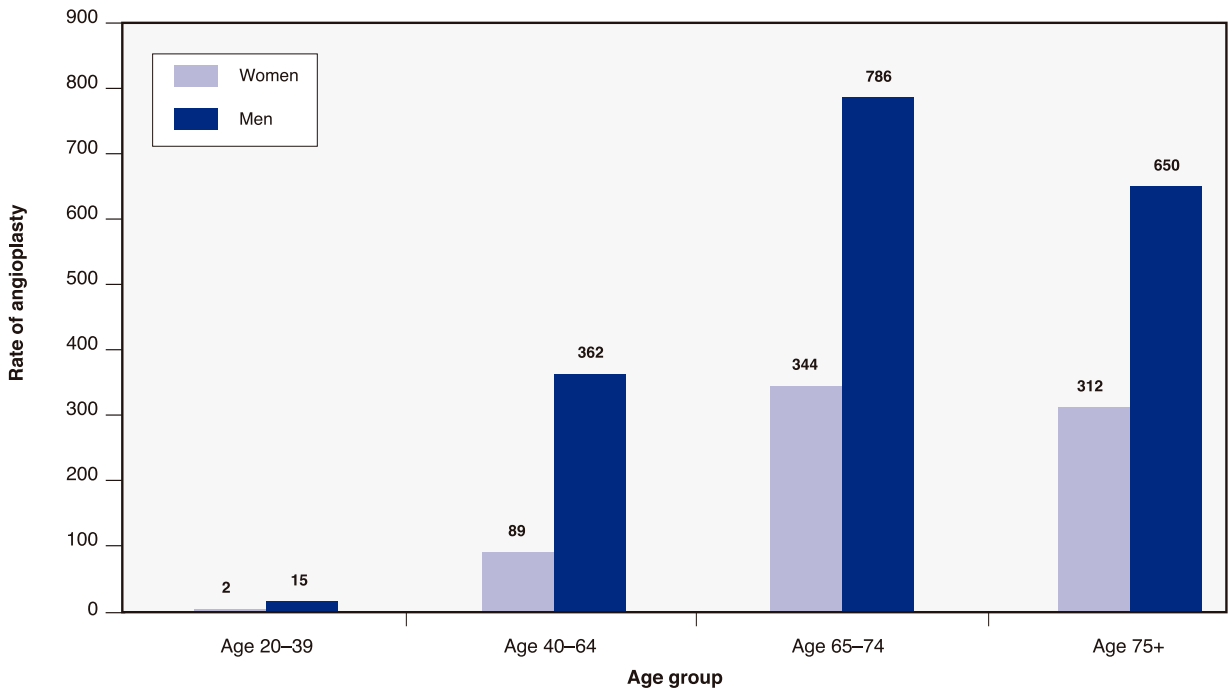


Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates

For Exhibits 3.3a to 3.3c

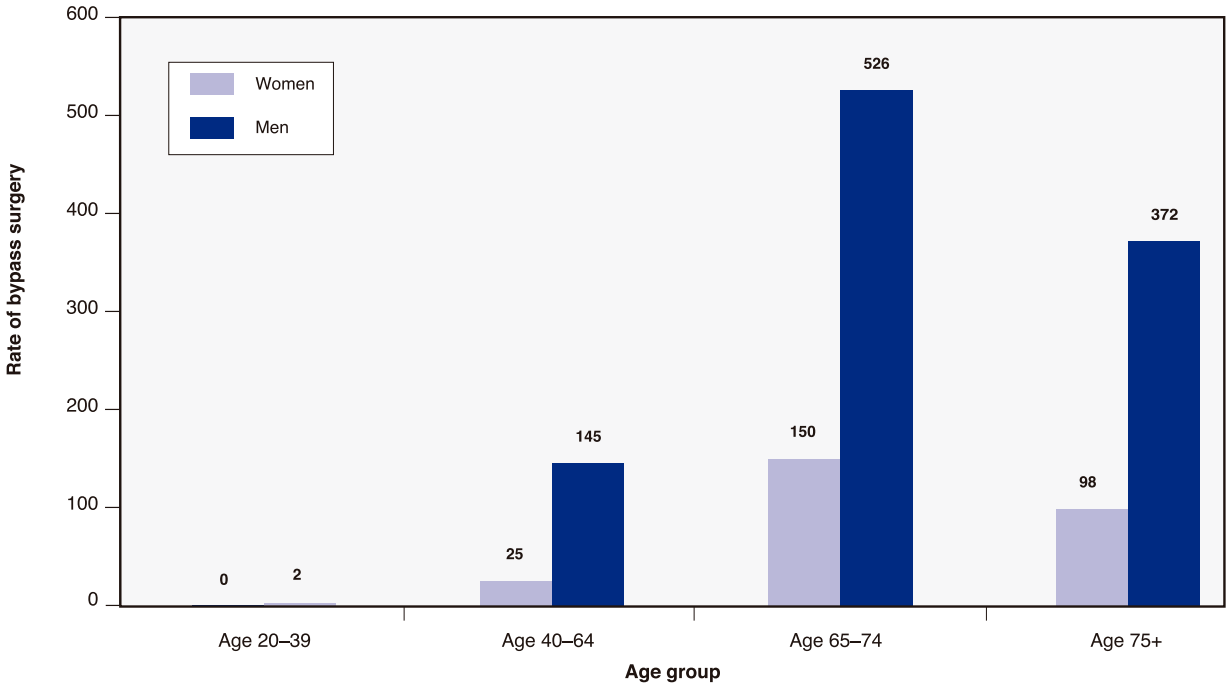
- These exhibits provide a breakdown of cardiac procedures stratified by age and gender. Utilization rates for all three procedures were highest among patients aged 65–74 years, corresponding with the average age of patients hospitalized with angina and heart attack.
- Rates for all procedures were considerably lower in women than in men. Compared to women, and across age groups, men had twice the rate of coronary angiography, nearly 2.5 times the rate of angioplasty, and nearly four times the rate of bypass surgery.

3.3b Age- and sex-specific rates of angioplasty per 100,000 population aged 20 years and older in Ontario, 2004/05



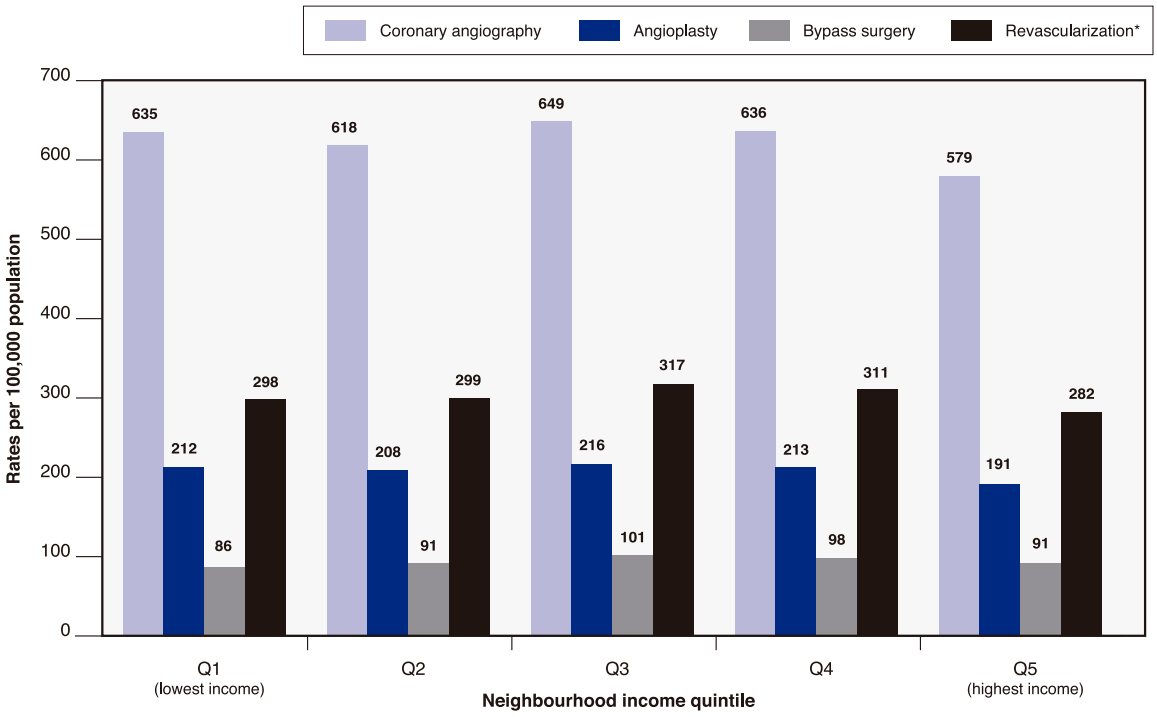
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates

3.3c Age- and sex-specific rates of bypass surgery per 100,000 population aged 20 years and older in Ontario, 2004/05



Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates

3.4 Age- and sex-adjusted rates of coronary angiography, angioplasty and bypass surgery per 100,000 population aged 20 years and older, by neighbourhood income quintile, in Ontario, 2004/05



* Revascularization includes either angioplasty or bypass surgery

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibit 3.4

- The overall procedure rates were similar among patients living in poorer and more affluent neighbourhoods. Last year's ICES Atlas found a higher rate of procedures among patients from lower-income neighbourhoods, which was not surprising, since heart disease is more common in people from lower socioeconomic groups.
- The flat socioeconomic gradient may suggest that patients living in wealthier neighbourhoods used more of these specific health care resources than they were using just one year ago.

3.5 Number of coronary angiographies, angioplasties and bypass surgeries, by hospital corporation, in Ontario, 2004/05

Hospital Corporation	City	Number of Coronary Angiographies	Number of Angioplasties	Number of Bypass Surgeries
Academic				
Hamilton Health Sciences Corportion	Hamilton	5,010	1,962	932
Hôpital Régional de Sudbury Regional Hospital Corporation	Sudbury	2,605	1,311	370
Kingston General Hospital	Kingston	2,776	1,140	435
London Health Sciences Centre	London	3,505	1,420	961
St. Michael's Hospital	Toronto	2,830	1,445	874
Sunnybrook and Women's College Health Sciences Centre	Toronto	3,151	1,601	709
Thunder Bay Regional Health Sciences Centre	Thunder Bay	1,424	N/A	N/A
University Health Network	Toronto	6,297	2,003	1,067
University of Ottawa Heart Institute	Ottawa	4,637	2,225	691
Community				
Hotel-Dieu Grace Hospital	Windsor	1,495	N/A	N/A
Peterborough Regional Health Centre	Peterborough	1,740	N/A	N/A
Rouge Valley Health System	Toronto	3,056	628	N/A
St. Mary's General Hospital	Kitchener	2,806	950	332
Sault Area Hospitals	Sault Ste. Marie	848	N/A	N/A
Southlake Regional Health Centre	Newmarket	4,210	1,410	583
Toronto East General Hospital	Toronto	1,938	N/A	N/A
Trillium Health Centre	Mississauga	4,320	1,457	871

N/A = these procedures are not available at these hospital corporations.

Data source: Cardiac Care Network of Ontario

For Exhibit 3.5

- This exhibit shows cardiac procedure volumes (2004/05) for the 17 hospital corporations in Ontario that provide these services. Of these, 11 provided all three cardiac services (coronary angiography, angioplasty and bypass surgery); one provided two cardiac services (coronary angiography and angioplasty); and five provided coronary angiography only. This pattern is unchanged from last year.
- The University Health Network in Toronto did the largest volume of coronary angiography and bypass surgery in the province, while the University of Ottawa Heart Institute did the largest volume of angioplasty.
- Among all community hospitals in Ontario, the Trillium Health Centre in Mississauga did the largest volume of these three cardiac procedures.

Wait Times for Selected Cardiac Procedures

Urgency rating scores

Ontario patients awaiting cardiac procedures are tracked in a registry kept by the Cardiac Care Network of Ontario (CCN). Based on presenting symptoms, each cardiac patient is assigned an urgency rating score (URS) that corresponds to one of three categories (urgent, semi-urgent, elective). Each urgency level has a corresponding Recommended Maximum Wait Time (RMWT).

The urgency scoring system was developed through a panel process involving Ontario physicians. The patient's urgency score considers clinical factors (e.g., frequency of chest pain, recent heart attack) along with relevant test results (e.g., stress testing, and/or the extent of artery blockage).

Importantly, urgency rating scores (and RMWT) have been developed for coronary angiography and bypass surgery (see Exhibits 3.8a and 3.8c) but have yet to be developed for angioplasty in Ontario.[6,7] The urgency rating scores have been validated and appropriately reflect physician judgment and the risk of adverse events for patients waiting in the queue.[8–10]

Relationship between urgency rating scores, urgency categories, Recommended Maximum Wait Times (RMWT), and Ontario wait time targets for coronary angiography

Calculated Urgency Rating Score	Urgency Category	RMWT	Ontario Wait Time Target
1	Urgent	< 1 day	Ontario wait time targets have not been adopted for coronary angiography
2		1–3 days	
3		3–7 days	
4	Semi-urgent	7–14 days	
5		2–6 weeks	
6	Elective	6 weeks–3 months	
7		no urgency need	

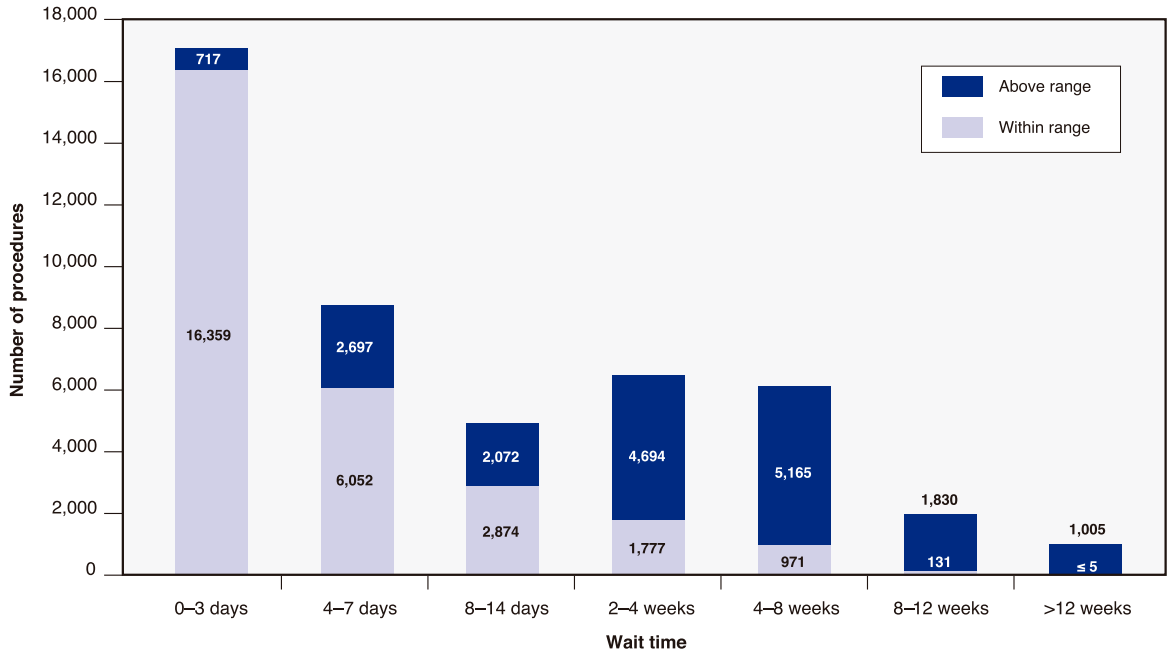
Source: Basinski ASH et al. *Can J Cardiol* 1994; 9: 313–321

Relationship between urgency rating scores, urgency categories, Recommended Maximum Wait Times (RMWT), and Ontario wait time targets for bypass surgery

Calculated Urgency Rating Score	Urgency Category	RMWT	Ontario Wait Time Target
1	Urgent	Immediate	Urgent Within 2 weeks
2		< 1 day	
3		1–3 days	
4	Semi-urgent	3–14 days	Semi-urgent Within 6 weeks
5		2–6 weeks	
6	Elective	6 weeks–3 months	Elective Within 26 weeks
7		3–6 months	

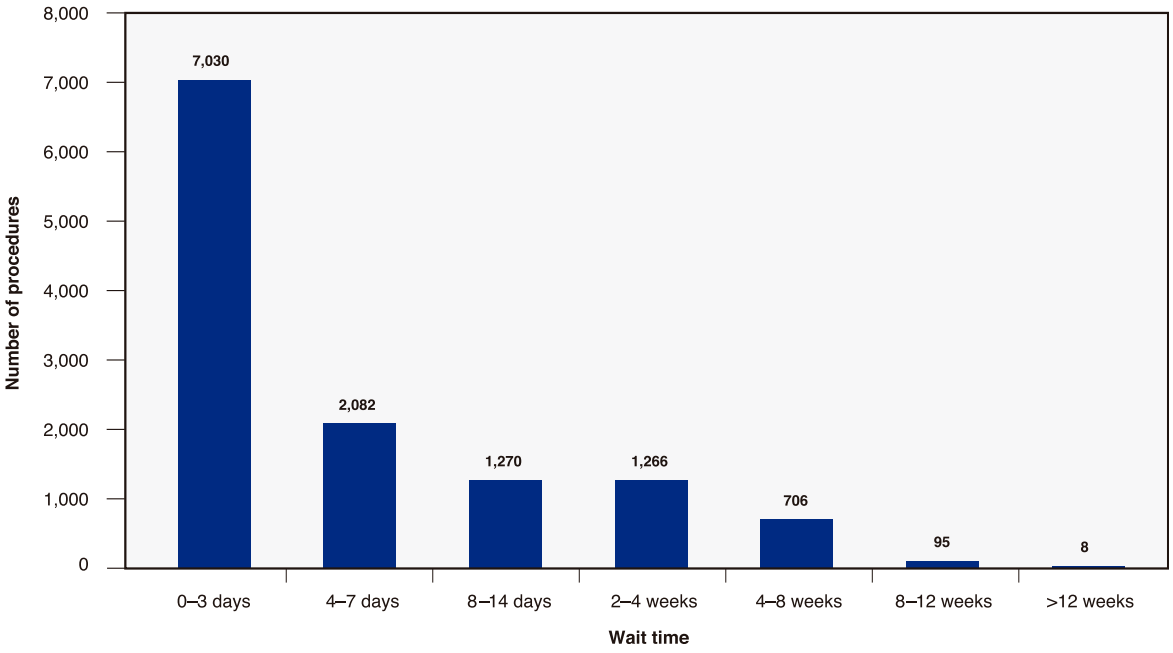
Source: Naylor CD. *Lancet* 1990; 335: 1070–73

3.6a Number of coronary angiographies performed within specified wait time ranges in Ontario, 2004/05



Data source: Cardiac Care Network of Ontario

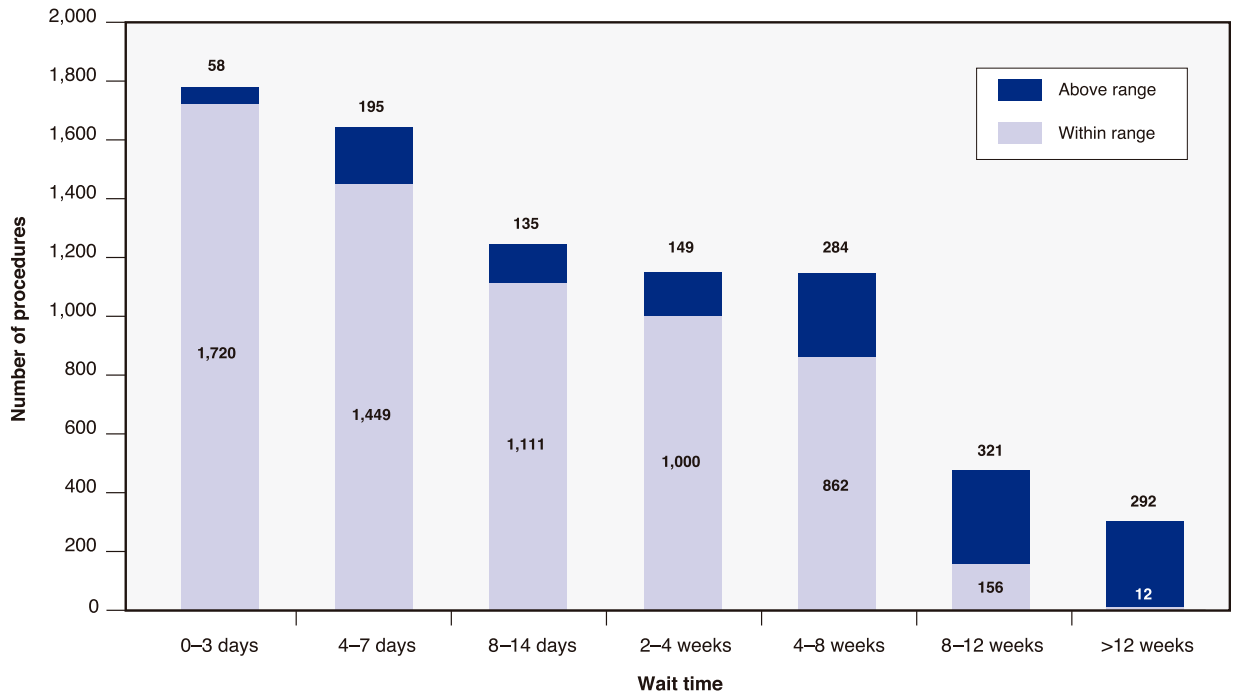
3.6b Number of angioplasties performed within specified wait time ranges* in Ontario, 2004/05



* There are no recommended wait times for angioplasty

Data source: Cardiac Care Network of Ontario

3.6c Number of bypass surgeries performed within specified wait time ranges in Ontario, 2004/05



Data source: Cardiac Care Network of Ontario

For Exhibits 3.6a to 3.6c

- Overall, 61 per cent of patients received coronary angiography and 81 per cent received bypass surgery within specified wait time ranges. This represents an improvement of five per cent for angiography and nine per cent for bypass surgery compared to the previous year.
- Significant delays (as defined by the proportion of patients who received their procedure beyond the specified wait time range) generally occurred much less often among urgent patients (whose median wait times were the shortest) than among elective patients (whose median wait times were the longest).

3.7a Median wait times, 90 per cent completed and percentage of coronary angiographies performed within Recommended Maximum Wait Times (RMWT)*, by urgency category, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

	Urgent (RMWT* 0–7 days)									Semi-Urgent (RMWT* 8–28 days)									Elective (RMWT* 29 days or greater)								
	2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
Local Health Integration Network	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*
1. Erie St. Clair	3	10	57	3	8	58	3	10	61	14	50	43	11	48	46	15	57	41	20	64	67	21	63	67	27	67	59
2. South West	3	17	49	2	14	62	2	17	61	14	50	44	14	52	45	11	43	48	26	66	62	23	73	65	21	54	65
3. Waterloo Wellington	2	7	63	1	5	75	1	4	80	14	41	46	12	47	46	12	41	48	28	49	65	28	50	63	30	46	60
4. Hamilton Niagara Haldimand Brant	4	15	37	3	19	45	2	8	55	33	106	26	29	130	31	22	76	31	43	113	40	48	154	39	30	80	59
5. Central West	2	6	70	2	6	70	1	5	78	18	51	36	16	69	41	14	43	41	24	58	71	25	77	62	23	52	71
6. Mississauga Oakville	3	6	59	2	6	64	2	5	73	19	57	40	18	71	40	14	47	44	33	67	62	40	80	51	27	59	68
7. Toronto Central	1	5	76	1	4	83	1	4	87	8	41	57	5	38	65	4	30	67	13	47	83	11	51	81	10	36	87
8. Central	2	6	74	1	5	76	1	5	80	9	41	52	8	43	54	7	33	59	15	42	81	14	49	79	13	38	84
9. Central East	2	7	62	1	6	70	1	4	78	12	40	45	9	37	53	7	26	61	18	59	73	15	39	84	14	31	91
10. South East	2	8	62	1	6	74	2	7	69	7	53	55	8	96	52	9	78	51	27	81	61	43	130	41	24	119	61
11. Champlain	2	8	59	3	9	59	2	9	61	32	79	31	29	71	35	33	69	36	58	96	30	56	95	30	61	99	28
12. North Simcoe Muskoka	2	7	64	3	10	59	2	6	70	10	34	52	10	42	51	7	28	58	14	42	82	17	49	75	14	35	85
13. North East	2	13	66	2	12	69	1	6	78	23	79	34	22	81	33	14	69	42	28	89	55	33	91	50	22	67	65
14. North West	4	7	58	3	7	67	2	6	70	18	65	41	12	65	46	14	55	44	53	84	40	50	96	42	38	69	48
All Ontario	**2**	**8**	**60**	**2**	**8**	**65**	**1**	**6**	**71**	**14**	**59**	**43**	**13**	**67**	**46**	**11**	**52**	**49**	**24**	**70**	**65**	**24**	**82**	**63**	**21**	**62**	**70**

*As Ontario wait time targets have not been adopted for coronary angiography, the Cardiac Care Network of Ontario's Urgency Rating System, which is well established in Ontario, has been used above. Recommended Maximum Wait Times (RMWT) are:

Urgent = RMWT of 0–7 days
Semi-Urgent = RMWT of 8–28 days
Elective = RMWT of 29 days or greater

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibit 3.7a

- Between 2002/03 and 2004/05, the median wait time for coronary angiography declined by one day for urgent patients, by three days for semi-urgent patients, and by three days for elective patients.
- The wait times for urgent patients in the population who waited longest for angiography (90 per cent completed) decreased from eight days to six days.
- However, wait times for coronary angiography varied considerably across Local Health Integration Networks and within urgency groups.

3.7b Median wait times and 90 per cent of angioplasties completed, by patient location at time of referral, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	Referred from Home						Referred from In-Hospital						Overall					
	2002/03		2003/04		2004/05		2002/03		2003/04		2004/05		2002/03		2003/04		2004/05	
	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)
1. Erie St. Clair	25	137	20	48	18	48	4	12	2	8	3	8	9	91	6	34	7	30
2. South West	27	111	19	53	16	48	2	8	1	5	1	4	4	42	2	27	2	25
3. Waterloo Wellington	30	70	19	58	17	30	3	9	1	6	1	3	7	45	3	27	1	23
4. Hamilton Niagara Haldimand Brant	35	90	31	130	22	76	2	10	2	9	1	6	6	56	4	57	3	36
5. Central West	32	62	21	43	13	30	3	9	2	7	1	5	6	47	5	33	2	20
6. Mississauga Oakville	29	53	20	42	14	28	2	7	1	5	1	4	4	41	3	27	2	20
7. Toronto Central	28	61	20	51	11	28	1	6	1	5	1	4	3	48	2	35	2	19
8. Central	31	63	21	57	13	34	2	8	2	7	1	5	6	49	4	39	3	22
9. Central East	28	61	19	49	11	29	2	8	2	6	1	5	6	52	4	37	3	21
10. South East	28	69	38	105	26	97	1	5	1	5	1	6	3	43	2	54	2	39
11. Champlain	34	73	35	70	41	70	2	6	2	7	2	7	4	48	4	47	4	55
12. North Simcoe Muskoka	32	56	22	55	15	40	2	7	2	7	2	5	6	46	5	41	3	26
13. North East	31	83	35	114	25	88	1	5	1	5	1	4	3	63	3	84	3	53
14. North West	38	85	44	78	36	90	4	14	5	12	6	12	10	63	9	62	7	51
All Ontario	**30**	**70**	**24**	**72**	**17**	**55**	**2**	**7**	**2**	**6**	**1**	**5**	**5**	**49**	**3**	**42**	**3**	**30**

Note: There are currently no Ontario Recommended Maximum Wait Times for angioplasty

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibit 3.7b

- Between 2002/03 and 2004/05, median wait times for angioplasty procedures have continued to decline, both for outpatient and inpatient referrals. Likewise, the upper level of waiting times (i.e., 90 per cent completed) for angioplasty dropped by 15 days for patients referred from home and by two days for patients referred from hospital.
- In 2004/05, the upper level of wait times (i.e., 90 per cent completed) was 12 days for inpatient angioplasty referrals (North West Local Health Integration Network [LHIN]), and 97 days for outpatient angioplasty referrals (South East LHIN).
- The North West and Erie St. Clair LHINs had the longest angioplasty median wait times in 2004/05: in-hospital waits were six times longer than the provincial average, while out-of-hospital waits were twice as long.

3.7c Median wait times, 90 per cent completed and percentage of bypass surgery performed within Ontario wait time targets, by urgency category, and by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	Urgent (within Ontario wait time target of 2 weeks)									Semi-Urgent (within Ontario wait time target of 6 weeks)									Elective (within Ontario wait time target of 26 weeks)								
	2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks
1. Erie St. Clair	4	11	76	4	11	58	4	8	67	11	80	67	10	74	75	8	41	81	40	130	65	27	144	72	23	97	79
2. South West	3	12	68	3	9	63	4	10	58	10	80	71	7	52	77	8	43	85	39	113	70	30	127	72	27	98	76
3. Waterloo Wellington	5	14	63	3	15	73	3	13	74	12	98	69	7	64	78	7	72	80	47	121	64	36	121	66	37	151	64
4. Hamilton Niagara Haldimand Brant	4	15	56	3	13	67	3	13	69	8	62	77	10	80	71	9	63	75	54	137	57	55	161	56	37	99	75
5. Central West	4	14	65	3	11	74	3	10	81	11	52	75	8	74	76	7	40	85	41	106	76	41	112	66	24	67	87
6. Mississauga Oakville	3	16	65	2	13	79	3	13	61	13	67	69	6	51	82	8	42	82	42	153	66	41	101	68	29	68	88
7. Toronto Central	2	14	78	2	17	72	2	9	80	10	69	72	6	77	71	6	40	83	41	93	73	48	100	66	20	57	91
8. Central	4	16	72	3	17	74	2	9	75	12	70	70	8	57	74	6	34	85	42	90	74	43	105	70	22	67	88
9. Central East	4	18	66	4	27	67	2	8	82	13	82	70	9	69	71	6	32	86	43	93	70	42	102	70	20	56	94
10. South East	6	31	55	5	18	64	4	16	73	8	41	84	7	41	80	6	27	92	19	55	96	14	64	90	15	41	99
11. Champlain	2	21	74	2	15	75	1	12	83	10	44	76	12	36	81	5	28	90	44	72	88	42	75	88	21	50	97
12. North Simcoe Muskoka	5	18	61	4	35	64	3	9	69	15	79	65	13	77	72	6	56	81	49	88	70	44	110	69	23	76	84
13. North East	2	20	74	2	50	74	2	31	69	5	60	80	9	81	71	4	43	81	14	67	93	20	95	84	22	69	90
14. North West	6	21	67	6	16	65	6	22	58	13	52	69	14	68	69	7	62	76	29	139	68	50	176	59	33	95	78
All Ontario	**3**	**15**	**67**	**3**	**15**	**69**	**3**	**11**	**72**	**10**	**63**	**73**	**8**	**61**	**75**	**7**	**41**	**83**	**39**	**105**	**74**	**40**	**113**	**71**	**24**	**75**	**86**

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibit 3.7c

- As with coronary angiography and angioplasty, wait times for bypass surgery in 2004/05 were shorter than in previous years, especially among semi-urgent and elective patients.
- As in 2003/04, the median wait time for urgent bypass surgery in the North West Local Health Integration Network (LHIN) remained longer than median wait times in any other LHIN.

3.8a Median wait times, 90 per cent completed and percentage of coronary angiographies performed within Recommended Maximum Wait Times (RMWT)*, by urgency category, age and gender, and for the province of Ontario, 2002/03–2004/05

		Urgent (RMWT* 0–7 days)									Semi-Urgent (RMWT* 8–28 days)									Elective (RMWT* 29 days or greater)								
		2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
	Age and Gender Group	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*
WOMEN by age group	Age 20–39	1	6	68	1	6	79	1	5	79	8	53	52	8	71	58	6	46	57	25	55	65	28	97	63	20	45	70
	Age 40–64	2	7	61	2	8	63	2	6	71	15	62	41	13	68	44	12	53	48	23	70	67	25	86	61	20	63	72
	Age 65–74	3	9	57	2	8	62	2	7	67	15	62	40	14	67	44	12	54	47	28	76	60	23	81	64	22	62	69
	Age 75+	2	8	56	2	8	62	2	7	67	13	58	47	9	65	52	9	50	52	21	67	63	23	85	62	19	56	71
	Women Overall	**2**	**8**	**58**	**2**	**8**	**63**	**2**	**7**	**69**	**15**	**61**	**42**	**13**	**68**	**46**	**11**	**52**	**48**	**24**	**71**	**65**	**25**	**84**	**62**	**20**	**62**	**71**
MEN by age group	Age 20–39	2	5	69	1	5	77	1	4	84	7	47	56	5	53	62	4	48	66	18	64	76	22	82	71	15	62	75
	Age 40–64	2	7	63	2	7	68	1	6	74	14	57	44	12	67	47	11	54	49	24	69	66	24	79	64	21	62	71
	Age 65–74	2	11	58	2	8	63	2	7	69	16	62	40	14	68	43	12	51	47	23	70	64	22	82	62	21	64	69
	Age 75+	2	9	56	2	9	60	2	7	66	13	55	46	14	65	43	9	48	51	22	69	63	24	82	58	19	63	70
	Men Overall	**2**	**8**	**60**	**2**	**7**	**66**	**1**	**6**	**72**	**14**	**57**	**43**	**13**	**67**	**45**	**11**	**52**	**49**	**23**	**69**	**65**	**24**	**81**	**63**	**21**	**62**	**70**
All Ontario		**2**	**8**	**60**	**2**	**8**	**65**	**1**	**6**	**71**	**14**	**59**	**43**	**13**	**67**	**46**	**11**	**52**	**49**	**24**	**70**	**65**	**24**	**82**	**63**	**21**	**62**	**70**

*As Ontario wait time targets have not been adopted for coronary angiography, the Cardiac Care Network of Ontario's Urgency Rating System, which is well established in Ontario, has been used above. Recommended Maximum Wait Times (RMWT) are:

Urgent = RMWT of 0–7 days
Semi-Urgent = RMWT of 8–28 days
Elective = RMWT of 29 days or greater

Data source: Cardiac Care Network of Ontario

For Exhibits 3.8a to 3.8c

- Although there was a tendency toward shorter wait times among younger patients, wait times for cardiac procedures were generally consistent across age and gender subgroups (after accounting for variations in urgency).

3.8b Median wait times and 90 per cent of coronary angioplasties completed, by patient location at time of referral, by age and gender, and for the province of Ontario, 2002/03–2004/05

		Referred from Home						Referred from In-Hospital						Overall					
		2002/03		2003/04		2004/05		2002/03		2003/04		2004/05		2002/03		2003/04		2004/05	
Age and Gender Group		Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)
WOMEN by age group	Age 20–39	6	48	30	105	18	65	1	6	1	4	1	3	1	36	2	37	1	15
	Age 40–64	29	73	23	75	17	65	2	8	1	6	1	5	5	49	3	42	3	33
	Age 65–74	35	73	27	71	19	56	2	8	2	7	1	6	5	53	4	45	3	36
	Age 75+	33	78	24	79	17	55	2	8	2	7	1	6	4	44	3	36	3	24
	Women Overall	**33**	**75**	**25**	**75**	**18**	**62**	**2**	**8**	**2**	**7**	**1**	**6**	**5**	**49**	**3**	**42**	**3**	**30**
MEN by age group	Age 20–39	26	63	18	65	13	50	1	7	1	5	0	4	3	35	1	21	1	25
	Age 40–64	29	66	24	71	17	54	2	7	1	6	1	5	5	48	3	41	2	29
	Age 65–74	32	71	25	75	17	53	2	8	2	7	1	6	7	56	5	48	4	35
	Age 75+	33	69	24	71	16	51	2	8	2	7	1	6	5	46	4	42	3	28
	Men Overall	**30**	**69**	**24**	**72**	**16**	**54**	**2**	**7**	**1**	**6**	**1**	**5**	**5**	**49**	**4**	**42**	**3**	**31**
All Ontario		**30**	**70**	**24**	**72**	**17**	**55**	**2**	**7**	**2**	**6**	**1**	**5**	**5**	**49**	**3**	**42**	**3**	**30**

Note: There are currently no Ontario Recommended Maximum Wait Times for angioplasty

Data source: Cardiac Care Network of Ontario

3.8c Median wait times, 90 per cent completed and percentage of bypass surgery performed within Ontario wait time targets, by urgency category, age and gender, and for the province of Ontario, 2002/03–2004/05

		Urgent (within Ontario wait time target of 2 weeks)									Semi-Urgent (within Ontario wait time target of 6 weeks)									Elective (within Ontario wait time target of 26 weeks)								
		2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
Age and Gender Group		Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 2 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 6 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Bypass Surgeries Performed Within 26 Weeks
WOMEN by age group	Age 20–39	0	0	100	0	7	100	1	1	100	22	30	100	8	33	67	28	104	67	27	91	82	11	55	100	35	55	50
	Age 40–64	3	14	68	3	12	66	2	12	73	8	49	76	6	57	80	6	32	89	34	94	80	35	113	71	23	77	86
	Age 65–74	3	13	68	3	11	73	3	9	72	8	49	80	7	55	75	6	37	85	43	107	75	41	112	75	25	72	88
	Age 75+	3	12	61	2	9	75	3	13	66	8	61	81	7	55	79	8	42	84	33	111	71	31	110	71	21	68	91
	Women Overall	**3**	**13**	**66**	**3**	**11**	**72**	**3**	**12**	**71**	**8**	**50**	**79**	**7**	**57**	**78**	**6**	**37**	**86**	**36**	**105**	**76**	**36**	**111**	**73**	**22**	**72**	**88**
MEN by age group	Age 20–39	2	9	71	2	11	69	1	8	87	7	191	78	5	35	82	6	42	89	29	80	82	20	68	82	35	89	83
	Age 40–64	3	14	70	3	15	70	3	11	74	10	68	71	8	59	75	7	42	82	41	109	72	40	113	70	24	75	86
	Age 65–74	4	24	62	3	18	64	3	13	72	12	75	70	10	69	74	7	42	82	40	103	74	43	117	69	26	72	85
	Age 75+	4	19	70	3	15	72	3	10	69	10	62	71	9	68	75	7	38	83	41	109	72	37	113	73	22	76	85
	Men Overall	**4**	**18**	**67**	**3**	**16**	**68**	**3**	**11**	**72**	**11**	**69**	**71**	**8**	**62**	**74**	**7**	**42**	**82**	**40**	**105**	**73**	**41**	**113**	**70**	**24**	**75**	**86**
All Ontario		**3**	**15**	**67**	**3**	**15**	**69**	**3**	**11**	**72**	**10**	**63**	**73**	**8**	**61**	**75**	**7**	**41**	**83**	**39**	**105**	**74**	**40**	**113**	**71**	**24**	**75**	**86**

Data source: Cardiac Care Network of Ontario

3.9a Median wait times, 90 per cent completed and percentage of coronary angiographies performed within Recommended Maximum Wait Times (RMWT)*, by urgency category, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	Urgent (RMWT* 0–7 days)									Semi-Urgent (RMWT* 8–28 days)									Elective (RMWT* 29 days or greater)								
	2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*	Median Wait Time (Days)	90% Completed Within (Days)	Per cent of Coronary Angiographies Performed Within RMWT*
Q1. Lowest income	2	8	60	2	8	66	1	7	71	15	59	43	13	70	46	11	53	48	25	74	63	23	84	62	21	65	70
Q2. Lower income	2	8	60	2	8	65	1	6	71	14	60	43	13	65	45	11	53	48	23	70	65	24	80	62	20	62	69
Q3. Median income	2	8	59	2	8	65	1	6	71	15	60	42	13	70	46	11	53	49	24	70	65	24	86	62	22	63	69
Q4. Higher income	2	8	59	2	8	63	2	6	70	14	57	44	13	66	46	11	52	48	24	69	66	25	83	61	21	61	73
Q5. Highest income	2	8	60	2	7	64	1	6	71	14	58	42	13	64	45	10	50	50	24	69	66	24	79	64	21	63	71
All Ontario	**2**	**8**	**60**	**2**	**8**	**65**	**1**	**6**	**71**	**14**	**59**	**43**	**13**	**67**	**46**	**11**	**52**	**49**	**24**	**70**	**65**	**24**	**82**	**63**	**21**	**62**	**70**

*As Ontario wait time targets have not been adopted for coronary angiography, the Cardiac Care Network of Ontario's Urgency Rating System, which is well established in Ontario, has been used above. Recommended Maximum Wait Times (RMWT) are:

Urgent = RMWT of 0–7 days
Semi-Urgent = RMWT of 8–28 days
Elective = RMWT of 29 days or greater

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibits 3.9a to 3.9c

- There were no large differences in wait times for selected cardiac procedures between patients living in high- vs. low-income neighbourhoods.
- The exception involved patients who were referred for angioplasty from home. In 2004/05, as in the previous year, individuals from the highest neighbourhood income quintile waited less time for their angioplasty than those in lower neighbourhood income quintiles. In contrast, individuals from the lowest neighbourhood income quintile waited less time for semi-urgent and elective bypass surgery.

3.9b Median wait times and 90 per cent of coronary angioplasties completed, by patient location at time of referral, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

Neighbourhood Income Quintile	Referred from Home						Referred from In-Hospital						Overall					
	2002/03		2003/04		2004/05		2002/03		2003/04		2004/05		2002/03		2003/04		2004/05	
	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)	Median Wait Time (Days)	90% Completed Within (Days)
Q1. Lowest income	32	74	27	83	19	62	2	8	1	6	1	6	5	52	3	46	3	34
Q2. Lower income	32	72	25	79	18	52	2	7	2	7	1	5	5	50	4	42	3	30
Q3. Median income	29	66	25	76	16	56	2	8	1	6	1	5	5	49	3	42	3	29
Q4. Higher income	29	67	23	63	16	53	2	7	2	6	1	5	5	48	4	41	3	30
Q5. Highest income	30	70	22	66	15	51	2	7	2	6	1	5	5	49	3	40	3	29
All Ontario	**30**	**70**	**24**	**72**	**17**	**55**	**2**	**7**	**2**	**6**	**1**	**5**	**5**	**49**	**3**	**42**	**3**	**30**

Note: There are currently no Ontario Recommended Maximum Wait Times for angioplasty

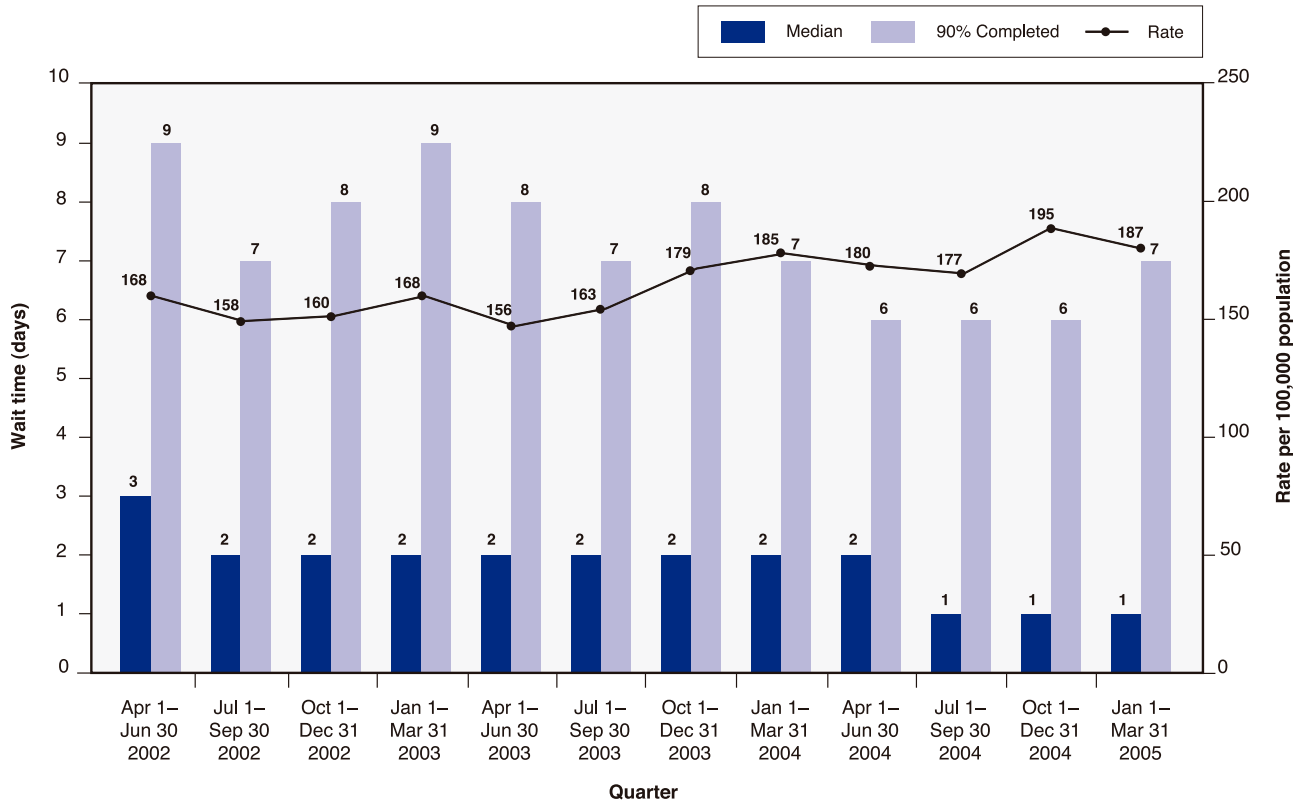
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

3.9c Median wait times, 90 per cent completed and percentage of bypass surgery performed within Ontario wait time targets, by urgency category, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	Urgent (within Ontario wait time target of 2 weeks)									Semi-Urgent (within Ontario wait time target of 6 weeks)									Elective (within Ontario wait time target of 26 weeks)								
	2002/03			2003/04			2004/05			2002/03			2003/04			2004/05			2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 2 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 2 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 2 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 6 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 26 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 26 Weeks**	**Median Wait Time (Days)**	**90% Completed Within (Days)**	**Per cent of Bypass Surgeries Performed Within 26 Weeks**
Q1. Lowest income	4	23	59	3	16	71	3	11	73	10	77	72	9	62	73	6	36	85	36	99	74	37	120	71	22	76	87
Q2. Lower income	3	14	67	3	13	70	3	12	70	10	56	74	8	65	74	6	44	82	39	108	72	41	113	69	24	69	87
Q3. Median income	4	14	68	3	14	68	3	12	70	11	66	71	8	63	76	6	41	84	42	109	74	41	117	69	26	74	86
Q4. Higher income	3	14	70	3	16	67	3	12	74	11	63	73	8	57	75	7	43	83	42	109	74	40	111	73	23	79	85
Q5. Highest income	3	15	70	3	14	70	3	11	72	10	68	73	8	64	76	7	41	82	39	100	74	42	111	71	25	71	86
All Ontario	**3**	**15**	**67**	**3**	**15**	**69**	**3**	**11**	**72**	**10**	**63**	**73**	**8**	**61**	**75**	**7**	**41**	**83**	**39**	**105**	**74**	**40**	**113**	**71**	**24**	**75**	**86**

Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

3.10a Quarterly rates, median waits and 90 per cent of procedures completed for urgent coronary angiography patients in Ontario, 2002/03–2004/05

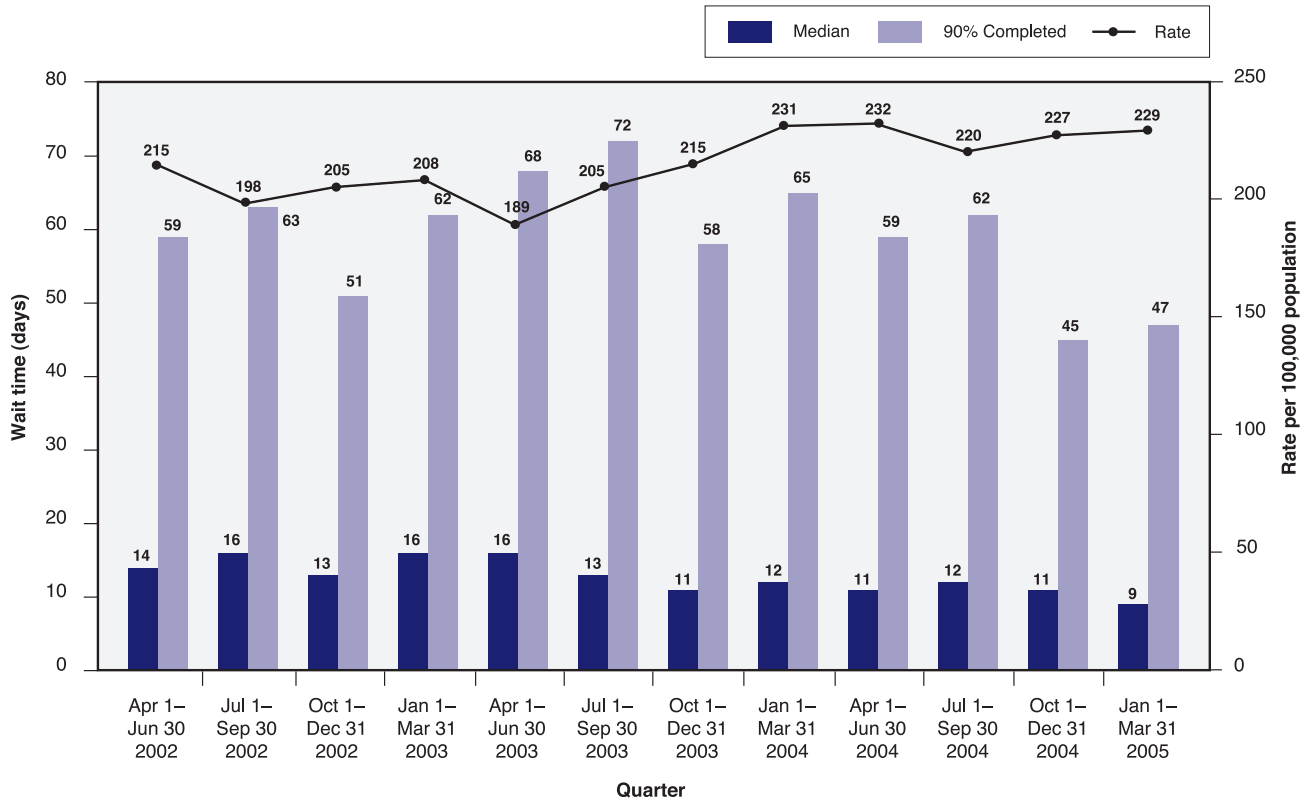


Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

Exhibits 3.10a to 3.10h

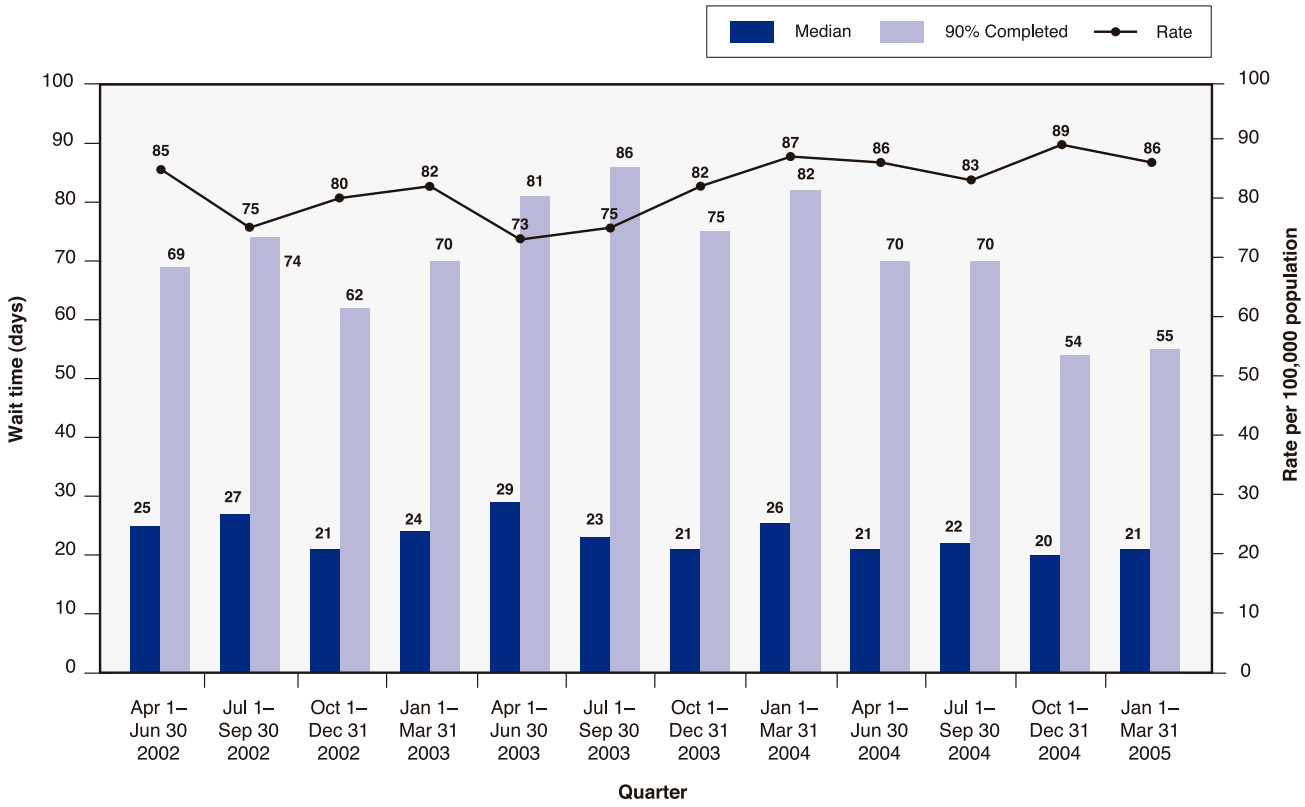
- Quarterly plots of rates and waits for fiscal years 2002/03 to 2004/05 show that wait times for selected cardiac procedures in 2004/05 have fallen, while procedure rates have either held steady or increased.
- This suggests that decreases in wait times over the previous year are likely attributable to increasing procedural capacity, rather than to changes in the numbers of patients referred into the queue.

3.10b Quarterly rates, median waits and 90 per cent of procedures completed for semi-urgent coronary angiography patients in Ontario, 2002/03–2004/05



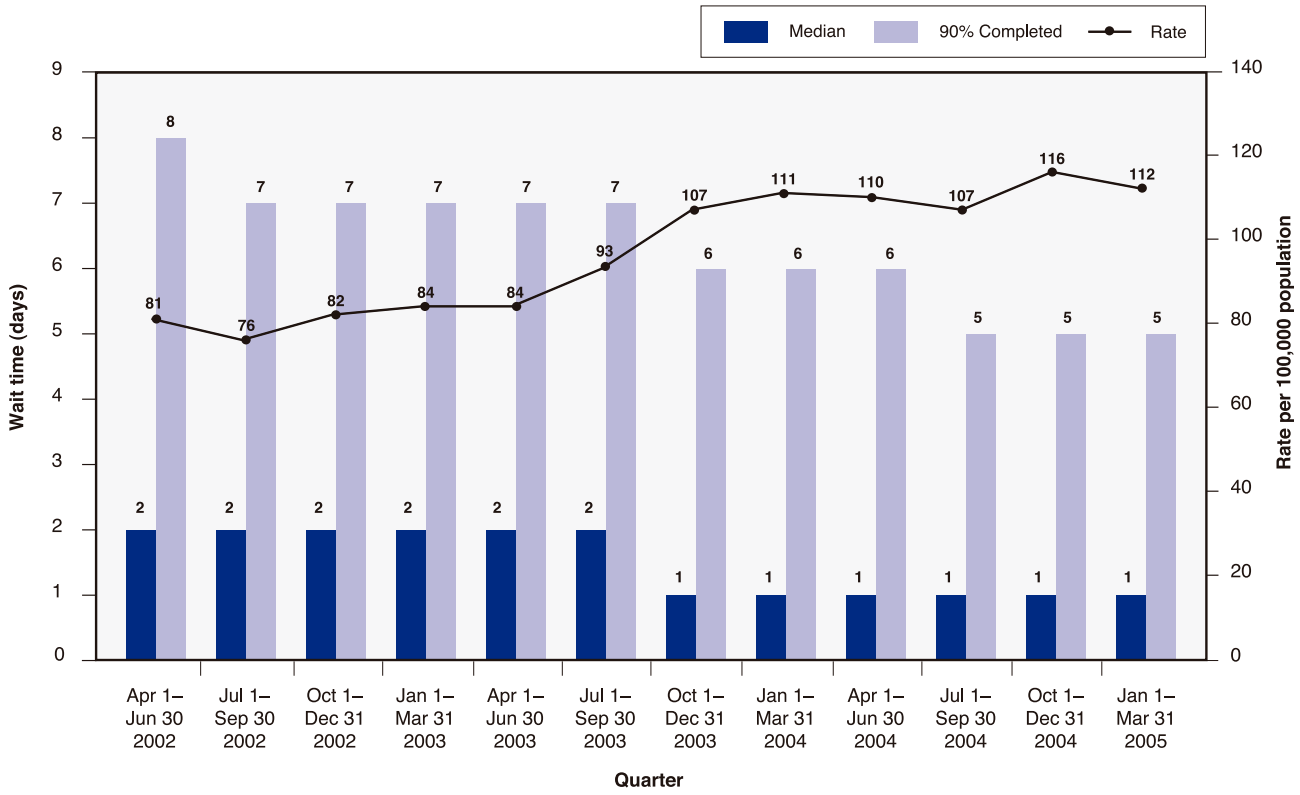
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.10c Quarterly rates, median waits and 90 per cent of procedures completed for elective coronary angiography patients in Ontario, 2002/03–2004/05



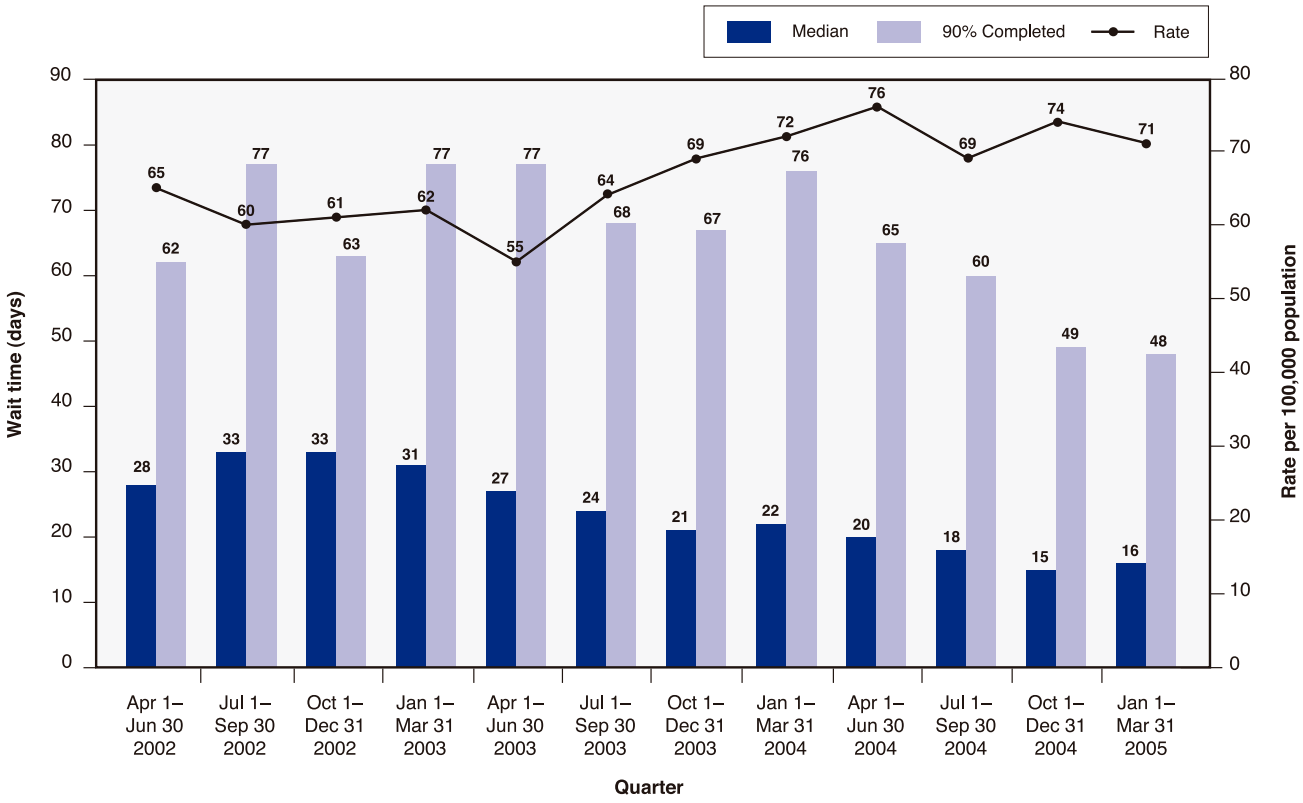
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.10d Quarterly rates, median waits and 90 per cent of procedures completed for in-hospital angioplasty patients in Ontario, 2002/03–2004/05



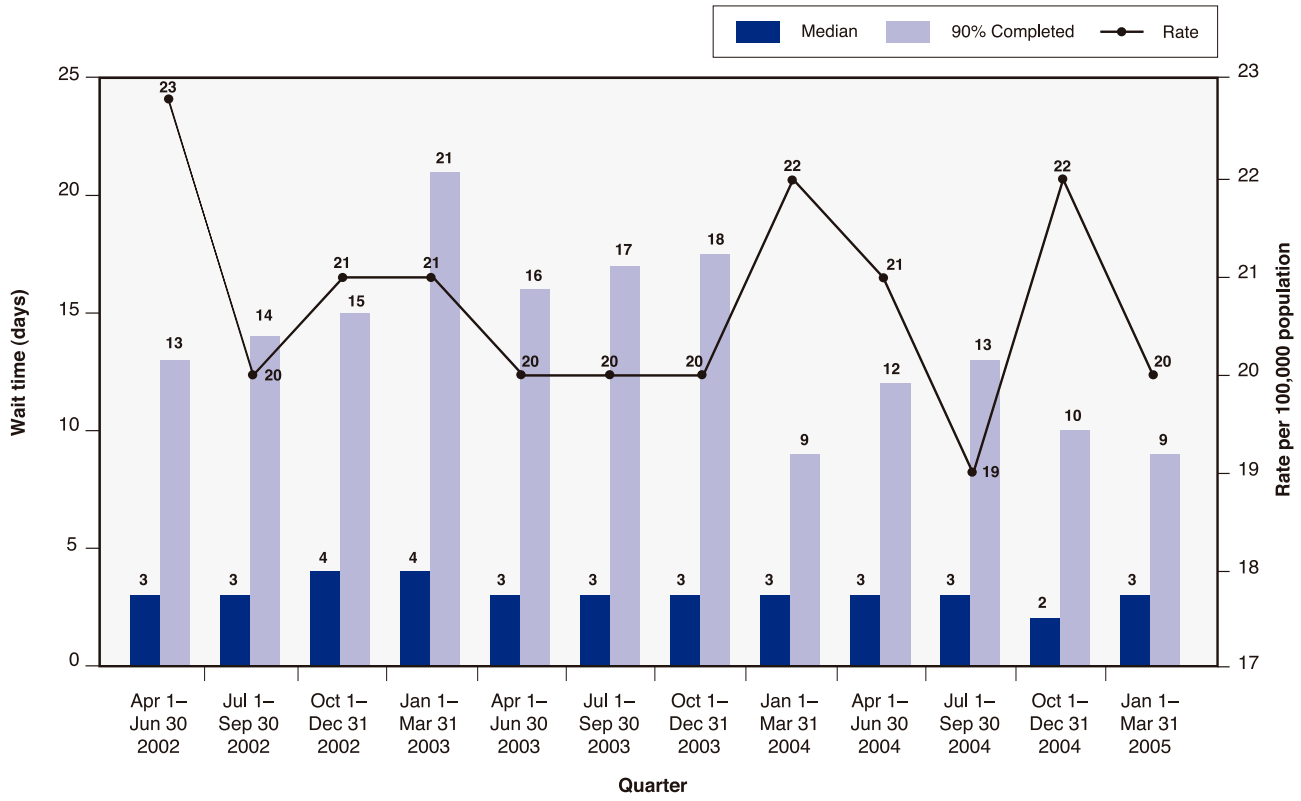
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.10e Quarterly rates, median waits and 90 per cent of procedures completed for angioplasty patients waiting at home, in Ontario, 2002/03–2004/05



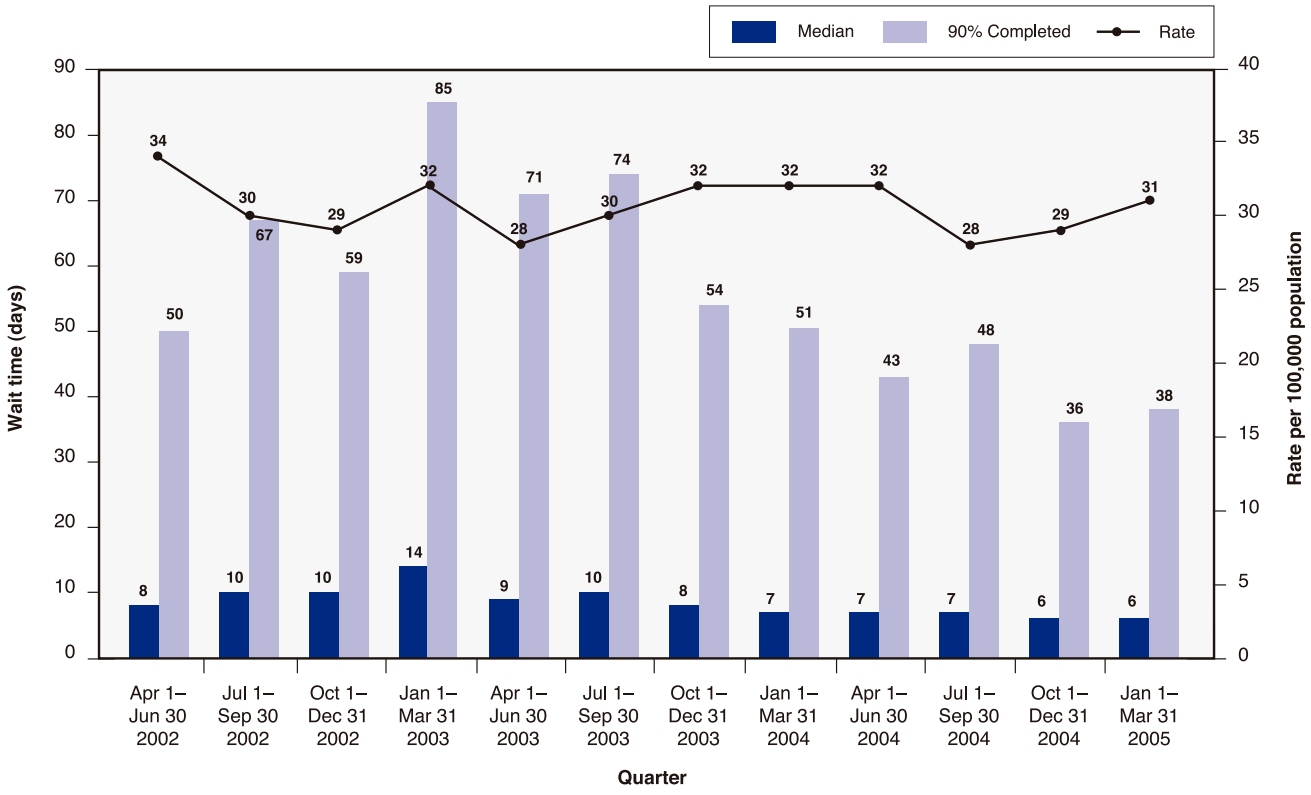
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.10f Quarterly rates, median waits and 90 per cent of surgeries completed for urgent bypass surgery patients in Ontario, 2002/03–2004/05



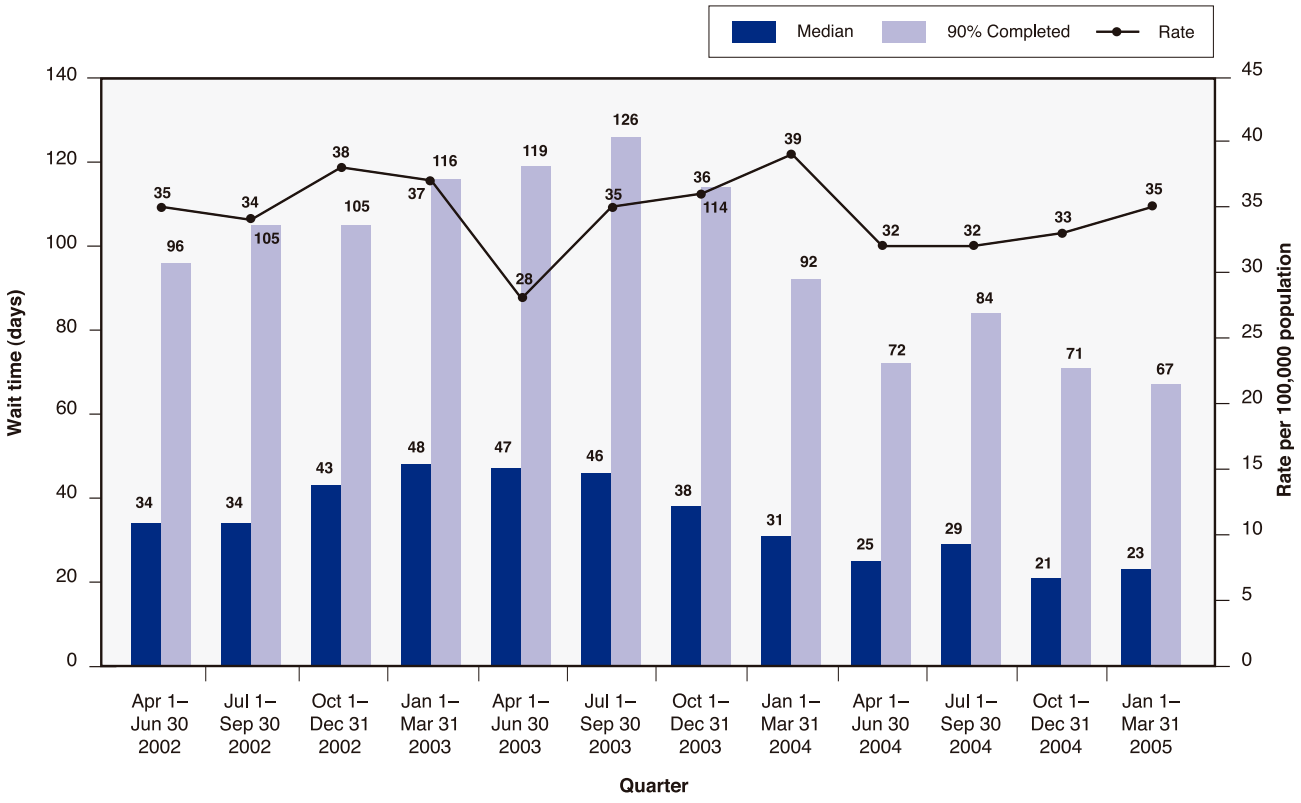
Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

3.10g Quarterly rates, median waits and 90 per cent of surgeries completed for semi-urgent bypass surgery patients in Ontario, 2002/03–2004/05



Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

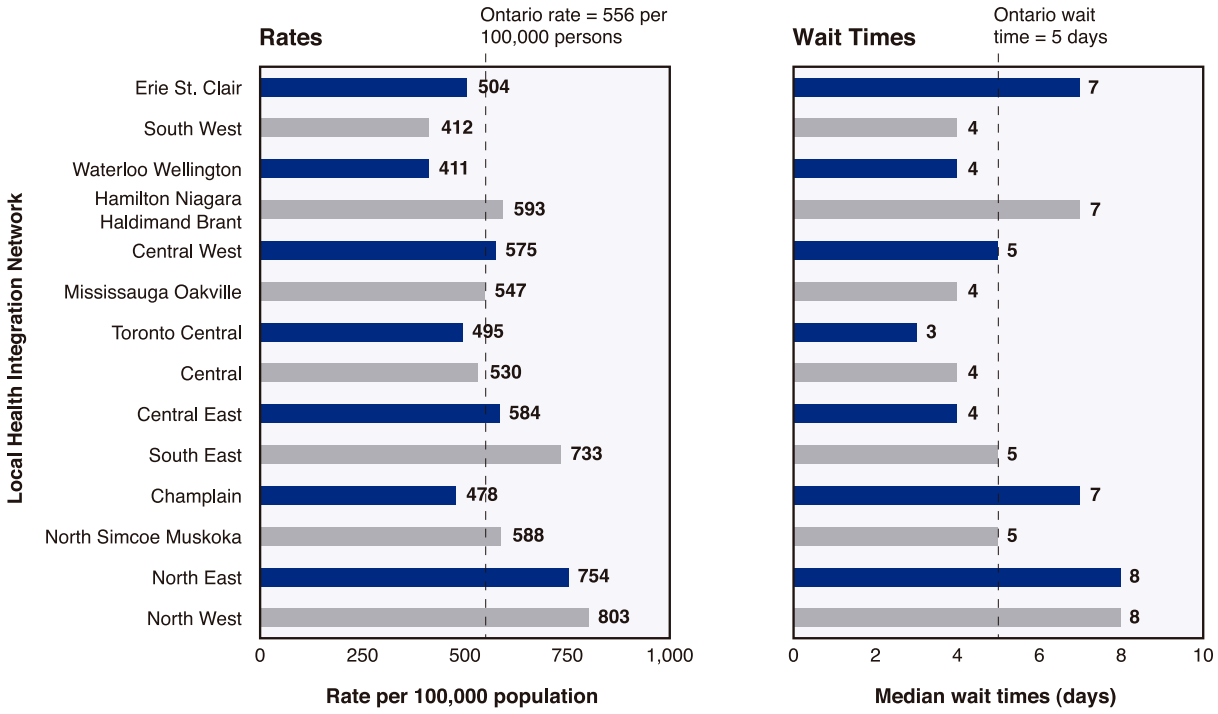
3.10h Quarterly rates, median waits and 90 per cent of surgeries completed for elective bypass surgery patients in Ontario, 2002/03–2004/05



Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

To provide an indirect assessment of variations in access to cardiac procedures, regional differences in the utilization rates of three procedures—coronary angiography, angioplasty and bypass surgery—were compared with regional differences in the corresponding wait times for each procedure.

3.11a Relationship between age- and sex-adjusted rate of coronary angiography per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05

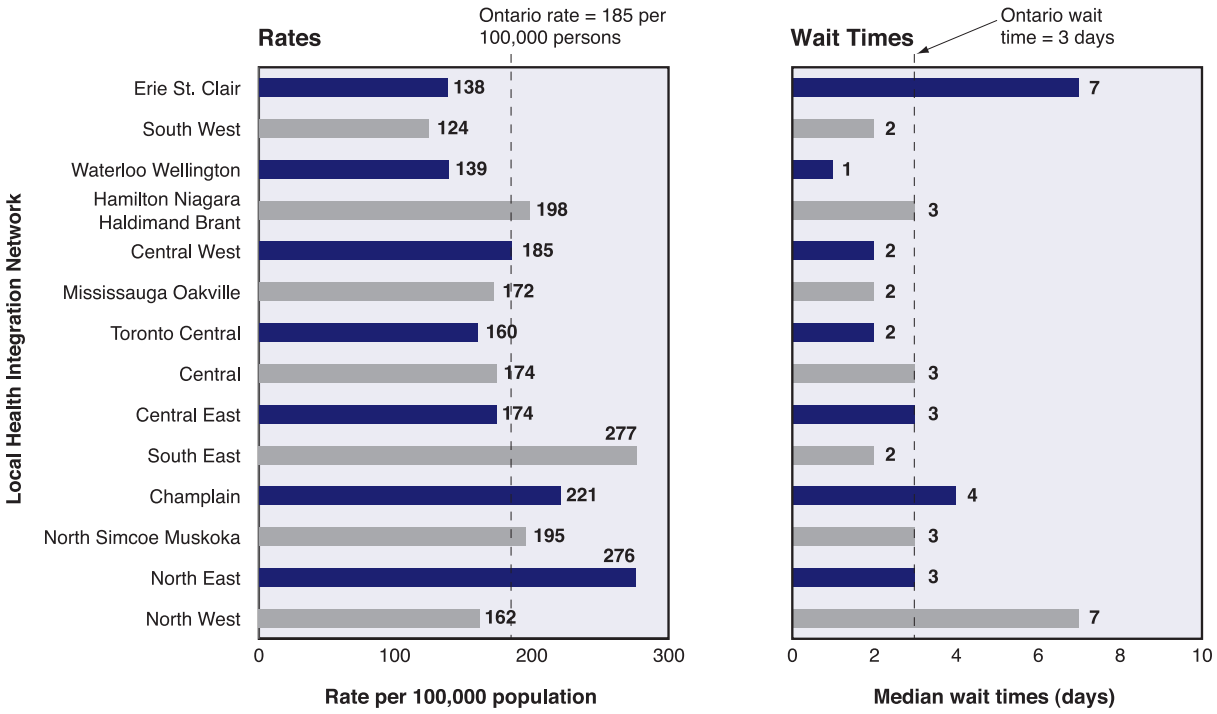


Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 3.11a

- Both the Champlain and Erie St. Clair Local Health Integration Networks (LHINs) fell below the average provincial rate for angiography procedures. When this is coupled with the fact that procedure wait times were two days longer in these LHINs than the provincial average, it is possible that there may be a shortfall in angiography resource capacity in these regions.
- Northern regions of Ontario have high rates of coronary angiography and long median wait times for this procedure. This suggests that there is a higher burden of cardiac disease in northern Ontario or a lower clinical threshold for intervention, or both.

3.11b Relationship between age- and sex-adjusted rate of angioplasty per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05

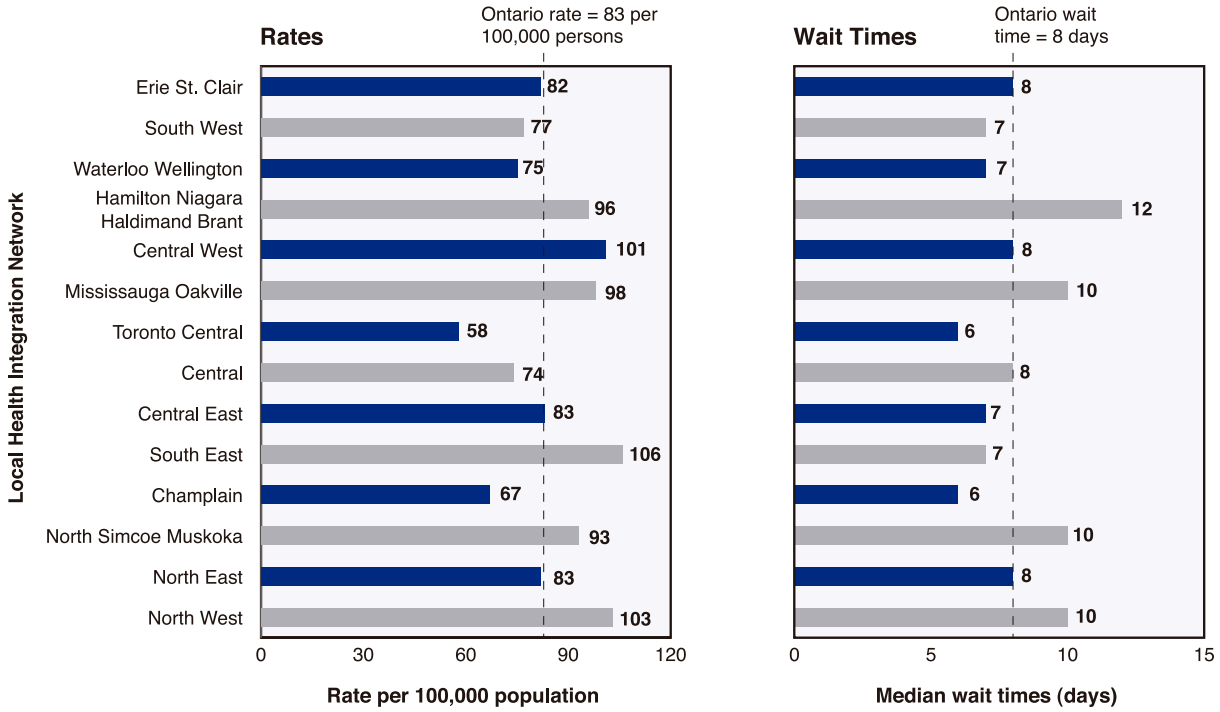


Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 3.11b

- The Erie St. Clair and North West Local Health Integration Networks (LHINs) had low rates of angioplasty and the longest waiting times. This suggests there may be a short-fall in angioplasty resource capacity in these regions.

3.11c Relationship between age- and sex-adjusted rate of bypass surgery per 100,000 population aged 20 years and older and median wait times (days), by Local Health Integration Network, and for the province of Ontario, 2004/05



Data sources: Cardiac Care Network of Ontario; Ministry of Health and Long-Term Care – Registered Persons Database; Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 3.11c

- Generally, as rates of service increased, wait times also increased. The exception was the in the South East Local Health Integration Network (LHIN), which had the highest rate of service coupled with wait times lower than the provincial average.
- In 2004/05, there was significant variation across LHINs. The ratio of the LHIN with the highest rate of procedures divided by the LHIN with the lowest rate of procedures was: 2.0 for angioplasty; 2.2 for coronary angiography, and 1.8 for bypass surgery. This degree of variation across LHINs was similar to the corresponding ratios observed in 2003/04.

3.12 30-day and 1-year mortality rates following bypass surgery per 100 patients in Ontario, 2002/03–2004/05

	Rates per 100 patients					
	2002/03		2003/04		2004/05	
	30-day Mortality Rate	1-year Mortality Rate	30-day Mortality Rate	1-year Mortality Rate	30-day Mortality Rate	1-year Mortality Rate
All Ontario	1.71	3.35	1.95	3.84	1.93	N/A

For Exhibit 3.12

- The provincial 30-day mortality rates following bypass surgery did not increase over the past year. These rates are consistent with 30-day mortality rates in other jurisdictions within Canada and elsewhere.[11]

Discussion

This recent analysis of data has demonstrated continued increases in the rates of coronary angiography and angioplasty in Ontario. It also detected a modest decline in bypass surgery rates over the past year. Wait times for all three procedures continued to decline, which is consistent with the increase in funding provided for these procedures.

The degree to which increasing procedural capacity and utilization reflects the most efficient use of Ontario's health care resources is unknown. Recent reports have shown that the amount of money spent on technology for the investigation and management of ischemic heart disease in Ontario nearly doubled between 1992 and 2001. Such costs cumulatively account for more than $2.8 billion in direct expenditures.[12] The proliferation in cardiac testing/interventions over time has outstripped shifts in our population and changes in the prevalence of coronary artery disease. Indeed, such growth is keeping pace with advances in cardiac technology observed in the United States over the same time period (1992 to 2001).

It is difficult to reach definitive conclusions about the appropriateness of the observed increases in coronary angiography and angioplasty procedures. The extent to which the growth in angiography and angioplasty represents good "value for money" is equally unclear, given that the number of lives saved and hospitalizations avoided in Ontario as a result of such increased procedural expenditures is unknown.[12]

There has been a steady increase in the availability of facilities for cardiac procedures, trained staff, and equipment. Even so, significant variations in utilization rates and wait times still exist across regions. For example, rates and waits continue to be disproportionately higher in North West regions of Ontario compared to other jurisdictions. It is unclear whether the current system for delivering cardiac procedures reflects regional differences in the burden of heart disease. Nor do we know just how urgently patients in this area need these interventions. Moreover, a small minority of patients in selected regions of Ontario are still experiencing excessive service delays (e.g., 151 days for elective surgery in the Wellington Waterloo Local Health Integration Network [LHIN] and 31 days for urgent surgery in the North East LHIN).

In the spring of 2005, the Cardiac Care Network of Ontario (CCN), in support of the Provincial Wait Times Strategy, initiated a 10-Point Plan for Action to reduce regional disparities in cardiac wait times. Future policy initiatives must focus attention on aligning access with need for services.

In recent years, initiatives from the CCN and other groups have led to continued development and validation of clinical urgency scales.[13] This means that in Ontario, patients who are awaiting coronary angiography and bypass surgery are prioritized according to medical necessity. Indeed, the use of these wait list management tools has helped to diminish disparities in wait times for cardiac surgeries in Ontario, given that the current data show wait times did not seem to be markedly influenced by factors like age and gender.

The CCN is currently undertaking initiatives to develop and implement similar tools for angioplasty and for several types of cardiac valve surgery, while continuing to refine existing urgency scales for angiography and bypass surgery.

In conclusion, the findings in this chapter demonstrate steady growth in coronary angiography and angioplasty use, and a consistent decline in waiting times for angiography, angioplasty and bypass surgery. Policy makers must continue to monitor and evaluate regional variations in utilization and waiting times, establish targets for procedure rates over the next five years, and ensure that increasing supply does not lead to demand for unnecessary procedures.

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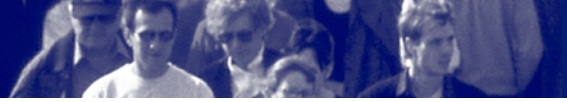


INSIDE

4

Chapter

Cataract Surgery

Chaim M. Bell, MD, PhD, FRCPC, Wendy V. Hatch, OD, MSc, Pamela M. Slaughter, MA, MSc, Geta Cernat, MD, and Shaun Singer, MD, FRCSC

Executive Summary

Issue

Cataract surgery markedly improves the vision of patients with cataracts. There is continued concern that Ontario residents may be experiencing prolonged waits for cataract surgery.

Study

The rates and geographical distribution of cataract surgery throughout Ontario were determined using data from the Ministry of Health and Long-Term Care Ontario Health Insurance Plan (MOHLTC-OHIP) physician claims database and the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD). Estimated wait times for cataract surgery were calculated based on visits with ophthalmologists before surgery.

Key findings

- In 2004/05, the number of annual cataract surgery procedures in Ontario increased from 102,644 to 111,194. This was an eight per cent increase from the previous year—a larger annual increase than has been observed during the past five years (range three to seven per cent).
- The overall adjusted rates of cataract surgery increased from 1,116 to 1,185 procedures per 100,000 population, and these rates varied substantially across the province.
- The median estimated wait time for cataract surgery in Ontario in 2004/05 did not change from the 15 weeks seen in 2003/04. Similar to last year, approximately half (46 per cent) of persons having cataract surgery in Ontario waited longer than the Recommended Maximum Wait Time (RMWT) of 16 weeks used in producing last year's ICES Atlas. Ontario has recently adopted a priority classification, with four priority levels, and associated wait time targets. The RMWT of 16 weeks referenced in the first edition of *Access to Health Services in Ontario* falls between Ontario's wait time targets of 12 weeks for Priority III cases and 26 weeks for Priority IV patients.[1]
- Estimated wait times by Local Health Integration Network (LHIN) varied considerably across the province; the shortest median wait was nine weeks, while the longest median wait was 20 weeks.

Implications

Many Ontario residents continued to wait longer than the RMWT of 16 weeks (used to produce last year's Atlas) for their cataract surgery. While median wait times have not increased, the supply of services will have to exceed the rate of increase in demand if waiting times in Ontario are to drop significantly in the future.

Introduction

Cataracts are one of the most common causes of treatable vision loss. Management usually includes surgical excision and lens implantation. It is expected that the demand for cataract surgery will continue to rise due to an aging population and to changing thresholds for surgery. It is estimated that by 2020, the number of cataract surgeries will increase by at least 50 per cent.[2, 3]

Wait times are usually defined as the difference between the date of decision for surgery and the date of surgery. Administrative data provided the date of surgery; however, the date of decision for surgery was estimated using the algorithm developed for last year's ICES Atlas, *Access to Health Services in Ontario*. The algorithm incorporated two different techniques modified from previous research in Manitoba and Ontario.[4, 5] This combined method was validated with primary data collection on wait times from centres in London and Ottawa (Appendix 4.B).

In December 2005, the Ontario government announced a priority classification with the following four priority levels and associated wait time targets:

- **Priority I** (immediate surgery) for cataracts that are producing another eye disease or are impairing the ability to treat another eye disease
- **Priority II** (a target of six weeks) for patients who are unable to function without assistance
- **Priority III** (a target of 12 weeks) for patients who cannot continue to work, drive, or care for others
- **Priority IV** (a target of 26 weeks) for patients with one good eye and functional vision, but who may experience a loss of speed and function in many tasks[1]

Within this chapter, reference is made to a Recommended Maximum Wait Time (RMWT) of 16 weeks. This RMWT is being used:

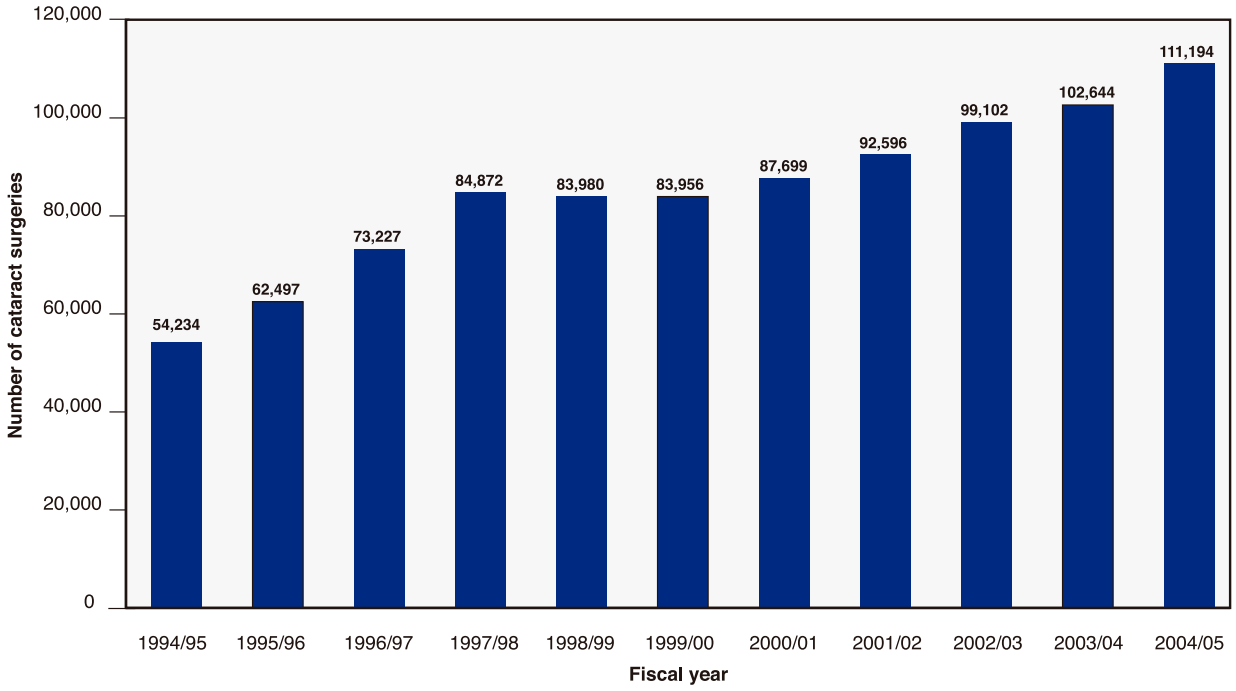
- to allow for comparison with findings in last year's Atlas; and,
- because existing administrative data do not distinguish patient priority levels.

Chapter 4 – List of Exhibits

Exhibits and Findings

Rates of Service Provision

4.1 Annual number of cataract surgeries for the population aged 20 years and older, in Ontario, 1994/95–2004/05



Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 4.1

- The annual number of cataract surgeries in Ontario increased by 8,550 procedures (eight per cent) from 102,644 procedures in 2003/04 to 111,194 procedures in 2004/05. This is a larger increase than has been observed during any of the previous five years (range three to seven per cent).

4.2 Number of ophthalmologists and volume of cataract surgery in Ontario, 2002/03—2004/05

	2002/03	2003/04	2004/05
Number of ophthalmologists	433	439	433
Number of ophthalmologists performing cataract surgery	272	276	273
Number of ophthalmologists performing >50 surgeries/year	231	241	249
Median number of procedures by surgeons performing >50 surgeries/year	392	400	421
Number of ophthalmologists performing 50–250 surgeries/year	60	62	62
Number of ophthalmologists performing 250–500 surgeries/year	106	110	112
Number of ophthalmologists performing 500–1,000 surgeries/year	59	62	68
Number of ophthalmologists performing >1,000 surgeries/year	6	7	7

Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 4.2

- There was little change in the number of ophthalmologists practicing in Ontario or in the number performing cataract surgery.
- The median number of procedures performed by ophthalmologists increased, and more surgeons were performing at high volume levels (over 500 procedures per year).

4.3 Number and age- and sex-adjusted rate of cataract surgery per 100,000 population aged 20 years and older, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Cataract Surgeries	Rate per 100,000 Population	Number of Cataract Surgeries	Rate per 100,000 Population	Number of Cataract Surgeries	Rate per 100,000 Population
1. Erie St. Clair	6,474	1,287	6,706	1,316	7,288	1,417
2. South West	8,273	1,097	9,107	1,190	9,823	1,271
3. Waterloo Wellington	4,215	909	4,657	980	4,935	1,020
4. Hamilton Niagara Haldimand Brant	12,882	1,148	13,171	1,155	13,298	1,152
5. Central West	3,568	906	3,623	881	3,947	919
6. Mississauga Halton	5,764	1,018	6,209	1,051	6,942	1,121
7. Toronto Central	7,206	801	7,111	783	8,231	901
8. Central	9,891	1,022	10,071	997	11,890	1,133
9. Central East	11,932	1,108	12,251	1,116	14,136	1,264
10. South East	4,975	1,189	5,283	1,241	5,448	1,261
11. Champlain	11,243	1,328	11,760	1,364	11,979	1,368
12. North Simcoe Muskoka	4,222	1,338	4,312	1,326	4,245	1,276
13. North East	6,126	1,298	6,251	1,304	6,652	1,368
14. North West	2,195	1,184	2,022	1,081	2,246	1,193
All Ontario	**99,102**	**1,102**	**102,644**	**1,116**	**111,194**	**1,185**

Missing LHIN: 136 patients with missing LHIN in 2002/03
110 patients with missing LHIN in 2003/04
134 patients with missing LHIN in 2004/05

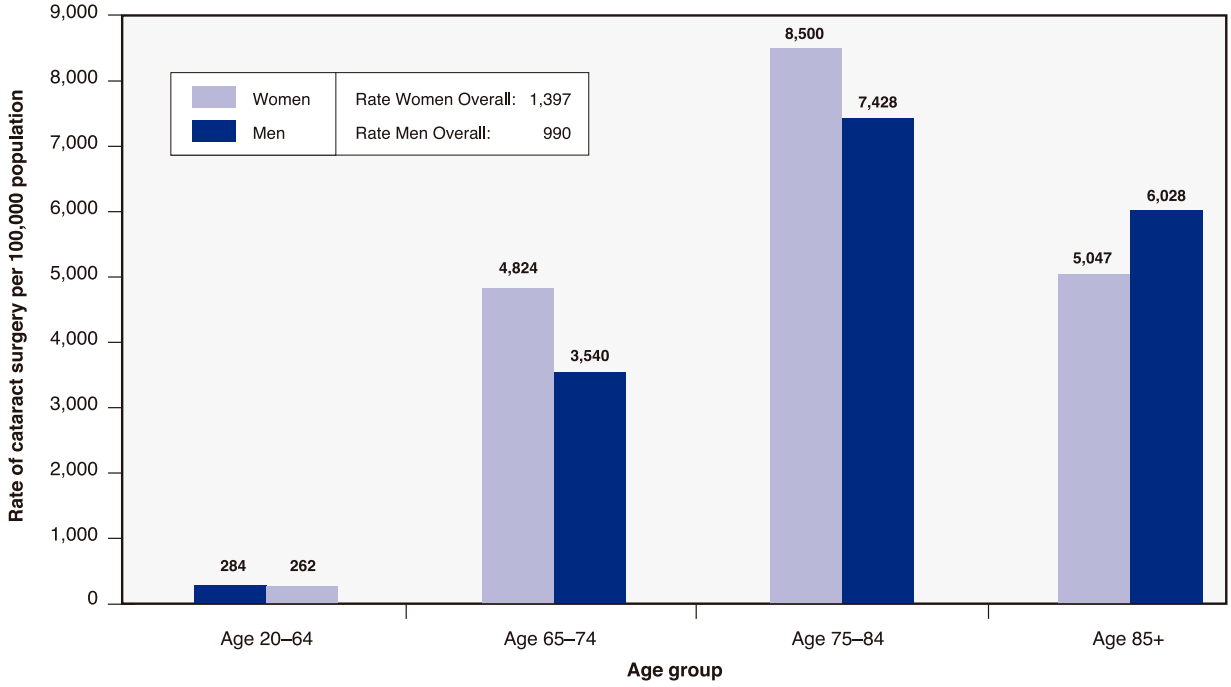
SARV summary statistics 2004/05	Value	P-value
Extremal Quotient [EQ]	1.6	
Coefficient of Variation (%) [CV]	13	
Systematic Component of Variation [SCV]	16	
Adjusted Chi-square (likelihood ratio)	1,917	< 0.0001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 4.3

- The overall rate of cataract surgery procedures continued to increase from 1,102 procedures per 100,000 population in 2002/03 to 1,116 procedures in 2003/04 to 1,185 procedures in 2004/05.
- In 2004/05, the highest age- and sex-adjusted rate (1,417 procedures per 100,000 population) in the Erie St. Clair Local Health Integration Network (LHIN) was 1.6 times higher than the lowest rate (901 procedures per 100,000 population) in the Toronto Central LHIN.

4.4 Age- and sex-specific rate of cataract surgery per 100,000 population aged 20 years and older, in Ontario, 2004/05

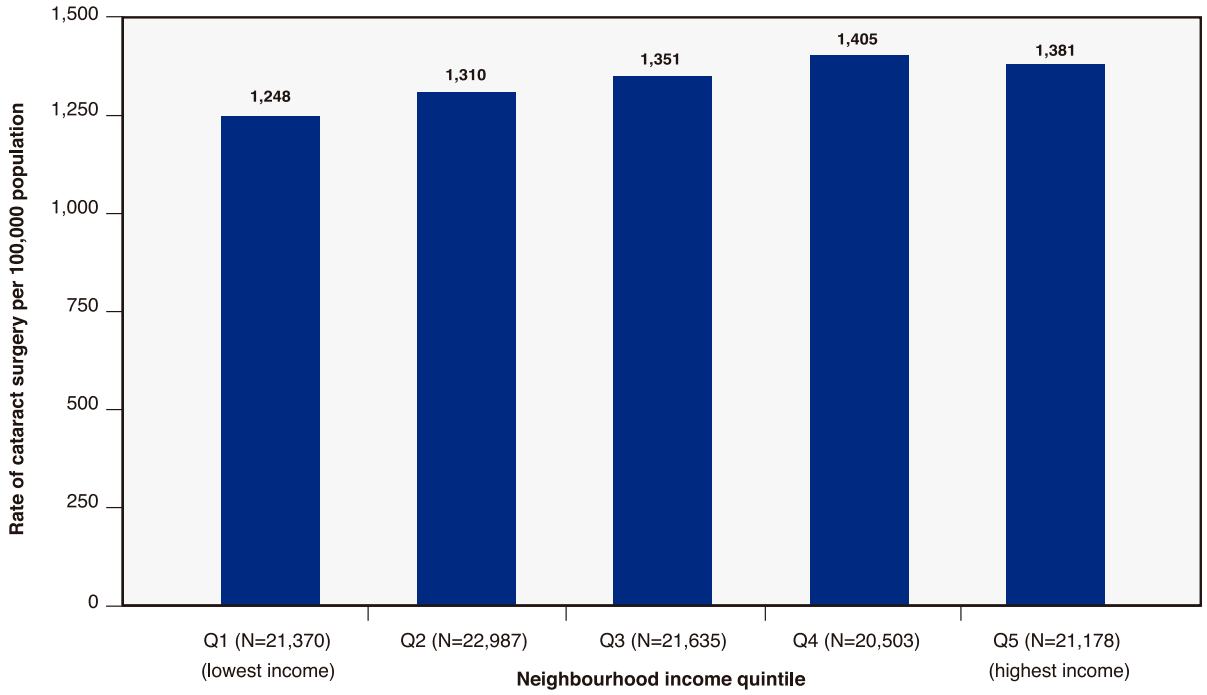


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates

For Exhibit 4.4

- Older individuals and women generally had higher rates of cataract surgery procedures than those reported in last year's ICES Atlas.
- In 2004/05, women had an average crude rate of 1,397 procedures per 100,000 population compared to a rate of 990 procedures per 100,000 population for men.
- In 2004/05, as in 2003/04, men continued to have a higher rate of cataract surgery than women in the oldest age group (85 years and older).

4.5 Age- and sex-adjusted rate of cataract surgery per 100,000 population aged 20 years and older, by neighbourhood income quintile, in Ontario, 2004/05



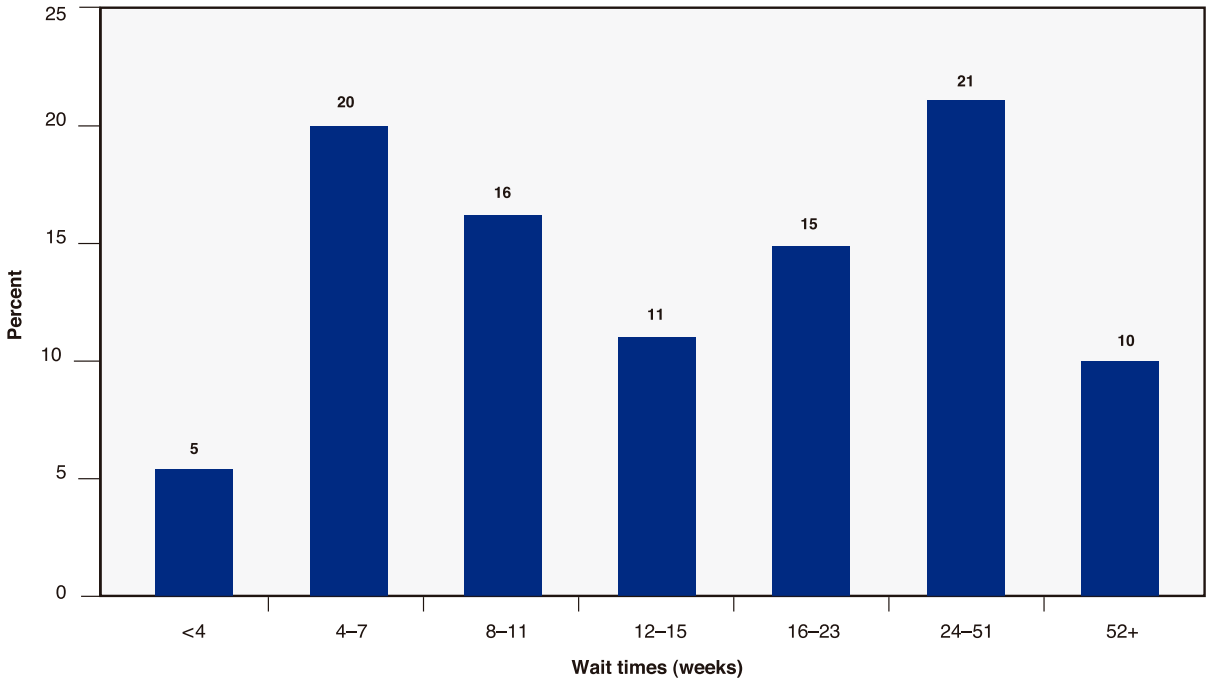
Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 4.5

- Individuals living in low-income neighbourhoods were less likely to receive cataract surgery than those living in higher income neighbourhoods. These findings are similar to those observed in 2003/04.

Wait Times

4.6 Proportion of cataract surgeries performed within specified wait time ranges in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 4.6

- The estimated median wait for cataract surgery in Ontario in 2004/05 remained 15 weeks, showing no change from median waits in 2002/03 and 2003/04.

4.7 Median wait times for cataract surgery and percentage performed within the Recommended Maximum Wait Time of 16 weeks, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03			2003/04			2004/05		
	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 16 Weeks*	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 16 Weeks*	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 16 Weeks*
1. Erie St. Clair	9	59	65	8	54	67	9	45	74
2. South West	21	62	36	22	68	38	19	61	43
3. Waterloo Wellington	16	46	50	19	49	43	20	55	40
4. Hamilton Niagara Haldimand Brant	17	52	48	15	49	53	16	47	51
5. Central West	13	54	56	16	56	51	15	56	52
6. Mississauga Halton	15	52	52	15	51	53	14	48	56
7. Toronto Central	17	54	48	18	59	44	16	54	50
8. Central	15	54	52	17	55	47	16	53	50
9. Central East	13	52	59	14	57	54	13	55	57
10. South East	13	58	55	12	59	61	13	61	57
11. Champlain	18	49	46	16	47	49	15	48	54
12. North Simcoe Muskoka	16	39	51	13	41	59	10	37	73
13. North East	13	49	59	13	53	58	15	53	53
14. North West	10	39	67	12	43	65	14	38	54
All Ontario	**15**	**53**	**52**	**15**	**55**	**52**	**15**	**52**	**54**

* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. However, the Recommended Maximum Wait Time of 16 weeks is being used to allow for comparison with findings in last year's ICES Atlas and because existing administrative data do not distinguish patient priority levels.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistic Canada – Postal Code Conversion File

For Exhibit 4.7

- The median wait time and the proportion of patients having their surgeries within the Recommended Maximum Wait Time (RMWT) of 16 weeks again varied across the province according to Local Health Integration Network (LHIN). In 2004/05, the shortest wait was in the Erie St. Clair LHIN (nine weeks) and the longest wait was in the Waterloo Wellington LHIN (20 weeks).
- Only 54 per cent of patients had their surgeries within the RMWT of 16 weeks. The Erie St. Clair LHIN had the highest proportion of patients (74 per cent) who received cataract surgery within 16 weeks. The Waterloo Wellington LHIN had the lowest proportion (40 per cent).
- Ninety per cent of all patients had cataract surgery performed within one year (52 weeks).

4.8a Median wait times for cataract surgery, 90 per cent of surgeries completed and percentage performed within the Recommended Maximum Wait Time of 16 weeks, by age and gender, and for the province of Ontario, 2002/03–2004/05

		2002/03			2003/04			2004/05		
Age Group		Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Wtihin 16 Weeks*	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 16 Weeks*	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Wtihin 16 Weeks*
WOMEN by age group	Age 20–64	13	49	56	13	49	57	13	49	57
	Age 65–74	16	54	51	16	55	49	15	52	52
	Age 75–84	17	55	48	17	57	48	16	55	51
	Age >85	17	57	47	17	58	48	16	56	50
	Women Overall	**16**	**54**	**50**	**16**	**56**	**50**	**15**	**53**	**52**
MEN by age group	Age 20–64	12	46	59	13	49	60	12	45	61
	Age 65–74	14	52	53	15	52	54	14	51	55
	Age 75–84	15	52	53	15	55	51	15	53	53
	Age >85	16	57	50	16	55	51	15	53	53
	Men Overall	**14**	**51**	**54**	**14**	**53**	**54**	**14**	**51**	**56**
All Ontario		**15**	**53**	**52**	**15**	**55**	**52**	**15**	**52**	**54**

*It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. However, the Recommended Maximum Wait Time of 16 weeks is being used to allow for comparison with findings in last year's ICES Atlas and because existing administrative data do not distinguish patient priority levels.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB)

For Exhibit 4.8a

- The median wait times for cataract surgery in Ontario were similar for men (14 weeks) and for women (15 weeks) in 2004/05.

4.8b Median wait times for cataract surgery, 90 per cent of surgeries completed and percentage performed within the Recommended Maximum Wait Time of 16 weeks, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	**Median Wait Time (Weeks)**	**90% Completed Within (Weeks)**	**% Completed Wtihin 16 Weeks***	**Median Wait Time (Weeks)**	**90% Completed Within (Weeks)**	**% Completed Within 16 Weeks***	**Median Wait Time (Weeks)**	**90% Completed Within (Weeks)**	**% Completed Wtihin 16 Weeks***
Q1 (lowest income)	15	54	53	15	55	52	15	53	53
Q2	15	53	51	15	55	52	15	53	54
Q3	15	52	52	16	54	51	14	52	54
Q4	15	52	53	15	55	51	15	52	54
Q5 (highest income)	16	53	50	16	55	51	15	52	53
All Ontario	**15**	**53**	**52**	**15**	**55**	**52**	**15**	**52**	**54**

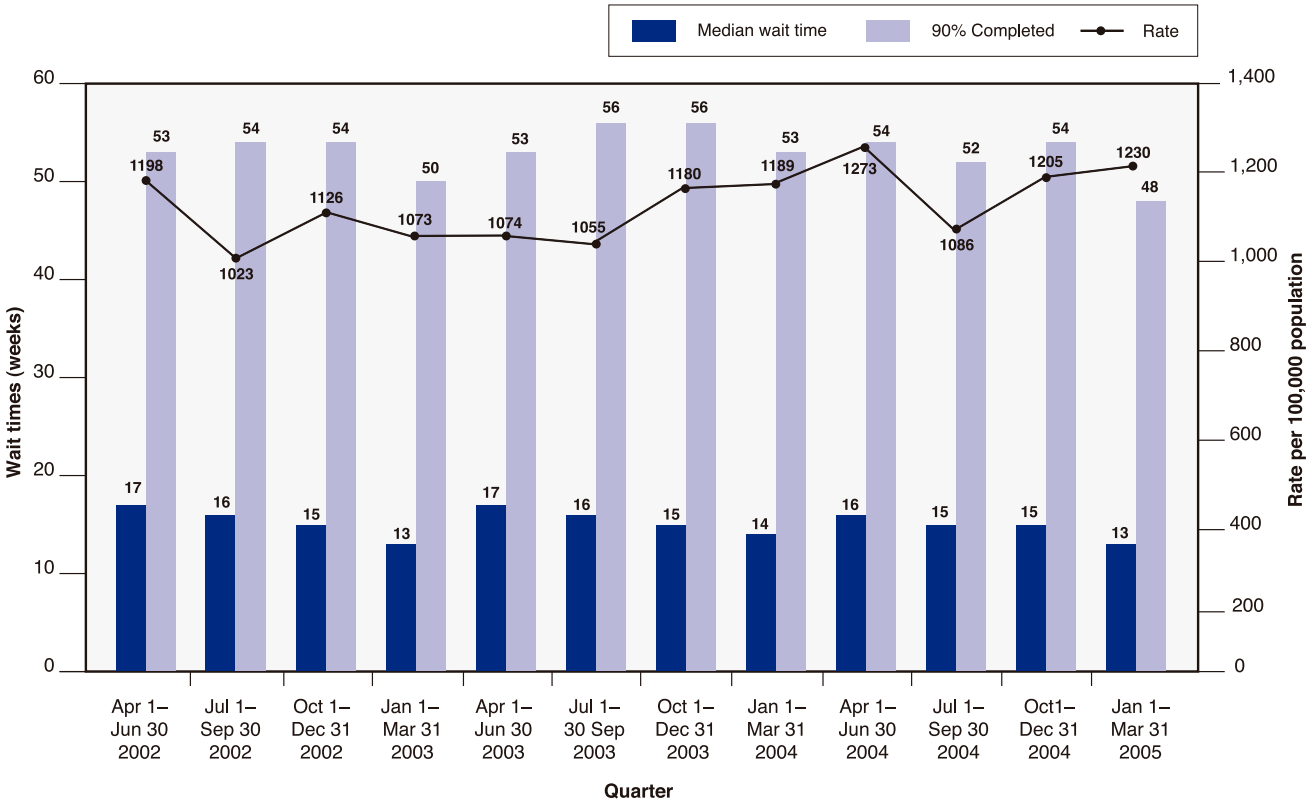
*It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. However, the Recommended Maximum Wait Time of 16 weeks is being used to allow for comparison with findings in last year's ICES Atlas and because existing administrative data do not distinguish patient priority levels.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postal Code Conversion File

For Exhibit 4.8b

- Individuals from neighbourhoods with lower incomes had similar wait times for cataract surgery compared to those living in higher income neighbourhoods.

4.9 Quarterly rates, median waits and 90 per cent of cataract surgeries completed in patients aged 20 years and older in Ontario, April 1, 2002–March 31, 2005

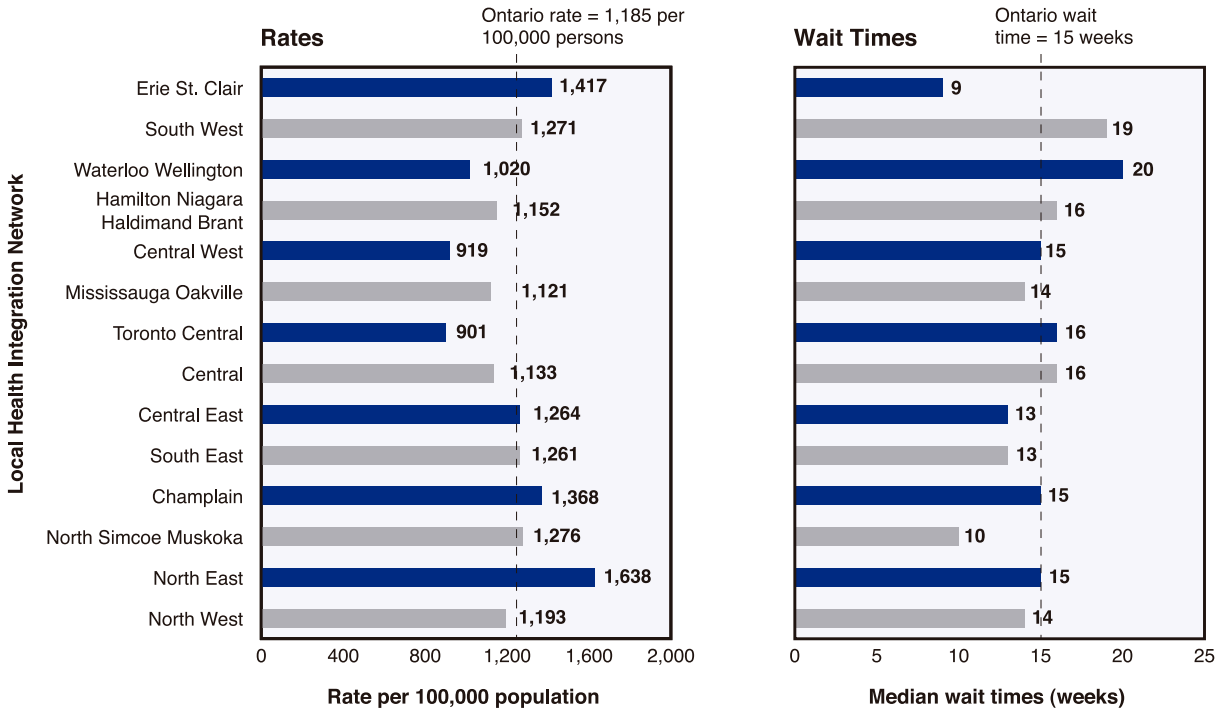


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 4.9

- There appears to be little correlation between wait times and rates of cataract surgery. One would expect to observe shorter wait times during periods when rates of surgery are high, but in general, this was not observed.
- The seasonal trend of shorter waits in winter and longer waits in spring could be due to differences in access to surgery as a result of operating room closures or due to patients' preference for deferring surgery until the spring.

4.10 Relationship between age- and sex-adjusted rate of cataract surgery per 100,000 population aged 20 years and older and median wait time (weeks), by Local Health Integration Network, and for the province of Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 4.10

- There is considerable variation in rates and wait times among Local Health Integration Networks (LHINs).
- Those with lower rates of cataract surgery generally had longer estimated median wait times.

4.11 Number of cataract surgeries among patients aged 20 years and older, by hospital corporation, in Ontario, 2004/05

Hospital Corporation	City	Number of Procedures in OHIP	Number of Procedures in CIHI
Academic			
Hamilton Health Sciences Corporation	Hamilton	2,293	2,228
Hôpital Régional de Sudbury Regional Hospital Corporation	Sudbury	1,962	1,957
Hotel Dieu Hospital	Kingston	1,819	2,290
London Health Sciences Centre	London	223	196
Mount Sinai Hospital	Toronto	1,300	1,271
St. Joseph's Healthcare Hamilton	Hamilton	2,518	2,512
St. Michael's Hospital	Toronto	1,613	1,637
Sunnybrook & Women's College Health Sciences Centre	Toronto	754	751
The Ottawa Hospital	Ottawa	9,493	9,360
Thunder Bay Regional Health Sciences Centre	Thunder Bay	2,221	2,215
University Health Network	Toronto	2,387	2,428
Community			
Algonquin Health Services	Huntsville	266	266
Bluewater Health	Sarnia	755	754
Brant Community Healthcare System	Brantford	1,719	1,725
Brockville General Hospital	Brockville	1,303	1,296
Cambridge Memorial Hospital	Cambridge	988	978
Chatham-Kent Health Alliance	Chatham	1,143	1,148
Cornwall Community Hospital	Cornwall	1,352	1,344
Credit Valley Hospital	Mississauga	1,189	1,164
Grey Bruce Health Services	Owen Sound	1,882	1,887
Guelph General Hospital	Guelph	1,102	1,101
Halton Healthcare Services Corporation	Oakville	1,813	1,795
Headwaters Health Care Centre	Orangeville	490	484
Hotel Dieu Grace Hospital	Windsor	5,522	5,494
Hotel Dieu Health Sciences Hospital, Niagara	St. Catharines	1,720	1,673
Humber River Regional Hospital	Toronto	3,366	3,188
Huron Perth Healthcare Alliance	Clinton	486	473
Huron Perth Healthcare Alliance	Stratford	467	467
Joseph Brant Memorial Hospital	Burlington	1,563	1,562
Kirkland and District Hospital	Kirkland Lake	291	285
Lakeridge Health Corporation	Oshawa	4,124	4,015
Markham Stouffville Hospital	Markham	1,265	1,241
Montfort Hospital	Ottawa	1,228	1,197
Niagara Health System	Fort Erie	2,667	2,604
Norfolk General Hospital	Simcoe	474	458
North Bay General Hospital	North Bay	1,661	1,643
North Simcoe Health Alliance	Midland	707	697
North York General Hospital	Toronto	2,804	2,307
Northumberland Hills Hospital	Cobourg	420	415
Orillia Soldiers' Memorial Hospital	Orillia	1,459	1,437
Pembroke Regional Hospital	Pembroke	107	106
Peterborough Regional Health Centre	Peterborough	2,013	2,003
Quinte Healthcare Corporation	Trenton	1,815	1,806
Ross Memorial Hospital	Lindsay	1,449	1,445
Rouge Valley Health System	Toronto	1,149	1,176
Royal Victoria Hospital of Barrie	Barrie	1,551	1,543
Sault Area Hospital	Sault Ste. Marie	1,380	1,381
South Muskoka Memorial Hospital	Bracebridge	193	189
Southlake Regional Health Centre	Newmarket	1,332	1,310
St. Joseph's General Hospital	Elliot Lake	319	318
St. Joseph's Health Centre	Toronto	1,880	1,733
St. Mary's General Hospital	Kitchener	2,852	2,849
St. Thomas-Elgin General Hospital	St. Thomas	690	687
Strathroy Middlesex General Hospital	Strathroy	488	484
Temiskaming Hospital	New Liskeard	164	162

Hospital Corporation	City	Number of Procedures in OHIP	Number of Procedures in CIHI
The Scarborough Hospital	Toronto	3,956	3,899
Tillsonburg District Memorial Hospital	Tillsonburg	175	166
Timmins & District Hospital	Timmins	204	203
Toronto East General Hospital	Toronto	3,199	3,167
Trillium Health Centre	Toronto	3,300	3,278
West Parry Sound Health Centre	Parry Sound	109	108
William Osler Health Centre	Brampton	2,315	2,291
Winchester District Memorial Hospital	Winchester	106	101
Woodstock General Hospital	Woodstock	817	803
York Central Hospital	Richmond Hill	1,119	1,102
Small			
St. Joseph's Health Care London	London	4,341	4,361
Alexandra Hospital	Ingersoll	183	171
Stevenson Memorial Hospital	Alliston	110	110
Weeneebayko General Hospital†	Moose Factory	–	13
Other:			
Unknown		2,259	–
Don Mills Surgical Unit Limited	Toronto	407	401
Unspecified		403	–
TOTAL		**111,194**	**107,311**

– zero value † Weeneebayko General Hospital – associated with Queen's University and Kingston General Hospital

NOTES:

1. CIHI procedures have been extracted using procedure code 1CL89; "abandoned" procedures (96) and out-of-hospital procedures (5) were deleted.
2. Method to assign counts of procedures by hospital: for inpatient procedures, institution number was used from the CIHI-DAD 2004 database; for same day surgery procedures, ambulatory care institution number (aminst) from CIHI-NACRS 2004 database was used.
3. "Teaching" has been changed to "academic" and the Thunder Bay and Sudbury hospitals moved to "academic" as hospital type has now changed (new medical school) since last year's ICES Atlas was produced.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 4.11

- Seventy hospitals reported performing cataract surgeries in 2004/05.
- In general, larger community and academic hospitals performed more procedures.
- The Ottawa Hospital performed the most cataract surgeries in the province.
- Forty-three hospitals performed more than 1,000 procedures each.

4.12 Estimated post-operative adverse events from cataract surgery in Ontario, 2002/03–2004/05

Year	Number of Cataract Surgeries	Combined Number of Adverse Events*	Adverse Event Rate %
2002/03	99,102	390	0.39
2003/04	102,644	395	0.38
2004/05	111,194	407	0.37

* Composite outcome of vitrectomy and vitreous injections or aspirations occurring between one and 14 days after surgery

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 4.12

- Post-operative adverse events were documented by identifying procedures (vitrectomy and vitreous injections or aspirations) performed between one and 14 days after cataract surgery. These procedures capture complications from cataract surgery including suspected endophthalmitis, lost lens/lens fragments and retinal detachment.
- The adverse event rate (just less than 0.4 per cent) is almost identical each year for the past three years. This is similar to findings in other jurisdictions.[7-13]

Discussion

There was a larger relative increase in the number of cataract surgery procedures performed in Ontario last year compared to previous years. Notably, the estimated median wait of 15 weeks for cataract surgery in the province is the same as it was in the previous two years.

There were slight differences in rates and waits between men and women. Although there was a difference in rates according to neighbourhood income, there was no difference in waits. An almost two-fold variation in rates by Local Health Integration Network (LHIN) was found, as well as considerable difference in waits by LHIN. Consideration should be given to preferentially providing extra resources to regions with low rates of cataract surgery and long waits for surgery because this combination suggests poor access to care. Bellan[14] indicated that additional resources in Manitoba has led to a decrease in the wait list.

Wait times for cataract surgery are now posted on many provincial websites.[15-21] These reports indicate that most patients are waiting less than a year for cataract surgery. Large variations in waits exist throughout the country.[15-22] Patients who are presented with a wait time in excess of one year need to be made aware of opportunities where there are shorter waits. Conner-Spady and colleagues[23] have noted that, compared to physicians, patients express a preference for a lower maximum acceptable wait time.

Models to determine the priority sequence in which patients waiting for cataract surgery are to be treated continue to be developed, modified,[24, 25] challenged[26] and implemented.[27, 28] The experiences of other provinces and countries will continue to provide valuable information for policy decision-makers in Ontario.

Ontario has recently adopted a priority classification with four priority levels and associated wait time targets[1] (see Introduction). Many Ontario residents continued to wait longer than the Recommended Maximum Wait Time of 16 weeks (used to produce last year's ICES Atlas) for their cataract surgery. While median wait times have not increased, the supply of services will have to exceed the rate of increase in demand if waiting times in Ontario are to drop significantly in the future.

Appendix 4.A

How the research was done

Data sources

Patients aged 20 years and older who had cataract surgery between April 1, 1994 and March 31, 2005 were identified using the Ministry of Health and Long-Term Care—Ontario Hospital Insurance Plan (MOHLTC-OHIP) database (fee code E140). The physician-specialty code for ophthalmologists (specialty code 23) was obtained from MOHLTC-OHIP.

Regional and residential information for cataract surgery was obtained from the Canadian Institute for Health Information—Discharge Abstract Database (CIHI-DAD) for the same dates for all patients.

The MOHLTC Registered Persons Database (MOHLTC-RPDB) was used to determine a patient's postal code when a record was unavailable from CIHI-DAD. The number of surgeries was tabulated according to patient postal code and grouped by the newly defined Local Health Integration Networks (LHINs).

Hospital-specific data were obtained by comparing MOHLTC-OHIP and CIHI-DAD procedures by patient and day of procedure. We used CIHI-DAD information to ascribe the facility at which the procedure was performed. If CIHI-DAD information was unavailable, we used facility information from MOHLTC-OHIP.

Wait times for cataract surgery were estimated using the algorithm devised for last year's ICES Atlas.[29] We used a composite outcome of post-operative adverse events from cataract surgery that included billing claims for vitrectomy (OHIP code E148), vitreous aspiration or injection of medication (OHIP code E149) performed by any ophthalmologist between one and 14 days after cataract surgery. These procedures capture the outcomes of retinal detachment, lost lens or lens fragment, and suspected endophthalmitis.

Analyses

Statistics Canada 2001 Postal Code Conversion Files, 2001 Census information, as well as each year's population estimates from 2002–2004, were used to calculate rates. Individual-level postal codes from CIHI-DAD and MOHLTC-RPDB were used to link with neighbourhood-level income for analyses related to income. Hospital-specific data and CIHI-DAD resident code and MOHLTC-RPDB postal code were used for analyses specific to Local Health Integration Networks (LHINs).

Limitations

The estimate of wait time for surgery is likely an underestimate of the true wait for some cases and may be an overestimate for others (a detailed explanation can be found in the previous ICES Atlas[30]). The composite outcome of post-operative adverse events from cataract of vitrectomy, vitreous aspiration or injection of medication capture the outcomes of retinal detachment, lost lens or lens fragment, and suspected endophthalmitis. This method may overestimate the number of potential cases of endophthalmitis, retinal detachment, and lost lens/lens fragments. It was not possible to independently separate the three complication rates.

The wait time data are different from data in all the provincial wait time registries for two reasons: (1) they are based on administrative data rather than clinical reports, and (2) they are based on findings up to March 2005, whereas the registries are more current. The calculation of cataract surgery rates and wait times in the Southeast Local Health Integration Network (LHIN) may be underestimated because some ophthalmologists are part of an alternate funding plan at Queen's University and do not bill MOHLTC-OHIP directly. This may also have affected estimates of wait times, but it cannot be ascertained if this is an under- or over-estimate.

Appendix 4.B: Validation

In last year's ICES Atlas, administrative data were compared to the patient registry data from St. Joseph's Health Care Centre in London, Ontario. The estimates for wait times were similar for the two methods up to 24 weeks, after which there was less agreement between the two methods.

In this year's Atlas, administrative wait time data were compared with Clinical Patient Registry data from the Ottawa Eye Institute (Ottawa General Site) and the Ottawa Eye Centre (Civic and Riverside sites).

Wait time from the patient registry was defined as the difference between the date of decision for surgery and date of surgery. Each patient's wait time from the registry was compared with the wait time estimates using the administrative data.

From January 1, 2005 to November 30, 2005, there were 9,044 surgeries in the Clinical Patient Registry and 8,835 found in the administrative database. Matching by birthdate, sex, and date of procedure resulted in 8,295 agreements.

The wait time was identical for the two methods in 60 per cent (4,999 patients) of the sample. Our estimate of wait time using administrative data *underestimated* the median wait time (14 vs. 18 weeks). The proportion of patients who received surgery within the Recommended Maximum Wait Time of 16 weeks (used to produce last year's Atlas) was 55 per cent according to the estimated wait time in the administrative data, and 46 per cent according to the Clinical Patient Registry. Surgery was completed for 90 per cent of the sample in 50 weeks, according to the estimated wait time with administrative data, and in 54 weeks according to the Clinical Patient Registry.

ICES would like to thank the University of Ottawa for sharing their data with us.

Table 4.1 Comparison of administrative data vs clinical patient registry for wait times

	Wait Time Estimates Using Administrative Data	Wait Time Using Clinical Patient Registry
Median Wait	14 weeks	18 weeks
Percentage Seen Within 16 Weeks	55%	46%
90% of Surgeries Completed Within (Weeks)	50 weeks	54 weeks

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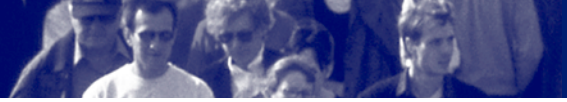

INSIDE

5

Chapter

Total Hip and Knee Replacement

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Executive Summary

Issue

Given both the effectiveness and cost-effectiveness of total joint replacements, there is concern that Ontarians have insufficient access to these procedures.

Study

Information for this report was taken from the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD) and the Ministry of Health and Long-Term Care Ontario Health Insurance Plan (MOHLTC-OHIP) database. Data for Ontarians aged 20 years and older were used to describe:

- the number of total hip replacements and total knee replacements performed in Ontario during the last decade
- the rate of total joint replacement and variation in total joint replacement rates according to age, sex, socioeconomic status, and place of patient residence
- the length of time patients waited to receive scheduled total joint replacement surgery
- the percentage of total joint replacements that failed within ten years of the initial operation

Key findings

- Between 1994/95 and 2004/05, the annual number of total hip replacements grew by over 50 per cent, while the annual number of total knee replacements grew by over 100 per cent.
- Age- and sex-adjusted procedure rates increased nearly 20 per cent in the last three years alone.
- Regional variation and socioeconomic gradients in procedure rates persist.
- Over the last three years, approximately one-half of patients received their scheduled total joint replacements within six months.
- Over the last decade, an estimated 15 per cent of all total hip replacements and about eight per cent of all total knee replacements were revisions.
- About four per cent of initial total joint replacements required revision within five years; about eight per cent required revision within ten years.

Implications

Though the number of total joint replacements in Ontario increased markedly in 2004/05 due to increased funding for joint replacement surgery, wait times have remained essentially unchanged. More time is needed to assess the impact of this additional funding on wait times.

ICES' estimates for revision burden (the percentage of all total joint replacements that are revisions) and total joint replacement survival (how long joint replacements last before revision surgery is required) are consistent with international benchmarks.

Introduction

Total hip replacements and total knee replacements are among the most commonly performed surgical procedures in Ontario.[1-3] When non-surgical measures fail to adequately control arthritis symptoms, total joint replacement can relieve pain and improve function.[4-6] This surgery is also performed urgently to manage damage caused by trauma, fractures and cancers (referred to here as "unplanned total joint replacement"), and to replace previous joint replacements that have failed (referred to here as "revision total joint replacement").

This second report on *Access to Health Services in Ontario: ICES Atlas*:[1]

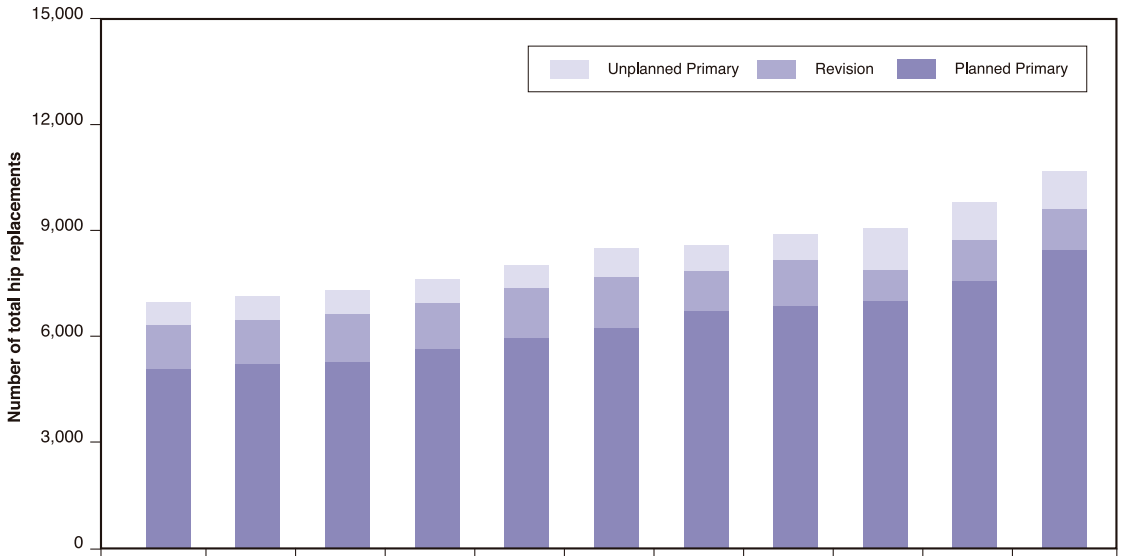
- updates trends in total joint replacement
- describes variation in surgery rates according to age, sex, socioeconomic status and place of patient residence
- updates wait time estimates by age, sex, socioeconomic status and Local Health Integration Network (LHIN)
- estimates the percentage of total joint replacements that fail within five and ten years after the initial surgery

Note: Wait time for planned primary total joint replacement is defined as the time between a patient's last surgical consultation and the date the surgery was performed (see Appendix 5.A).[1,7] International data on total joint replacement survival (how long total joint replacements last before revision surgery is required) and revision burden (the percentage of all total joint replacements that are revisions) are presented for comparison.

Chapter 5 – List of Exhibits

Exhibits and Findings

5.1a Annual number of total hip replacements for the population aged 20 years and older, by type, in Ontario, 1994/95–2004/05



	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Unplanned Primary	672	660	689	668	665	806	734	710	1,190	1,086	1,087
Revision	1,248	1,265	1,345	1,314	1,418	1,454	1,148	1,324	907	1,139	1,156
Planned Primary	5,049	5,199	5,269	5,628	5,932	6,227	6,697	6,844	6,982	7,567	8,438

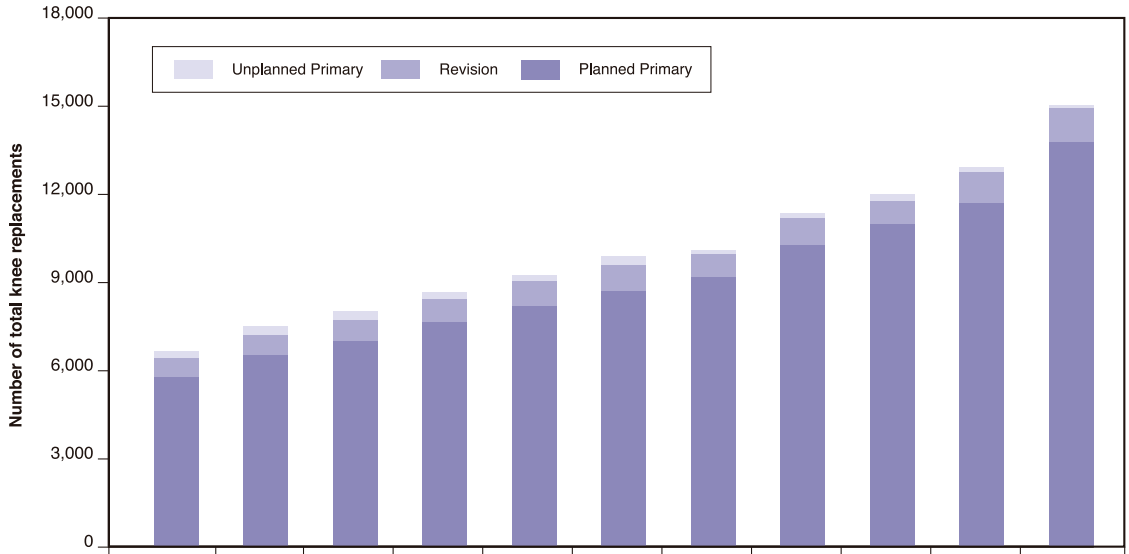
Fiscal year

Data source: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD)

For Exhibits 5.1a and 5.1b

- The annual number of total knee replacements surpassed the number of total hip replacements in 1995/96. Now knee replacement procedures outnumber hip replacements by more than 4,000 annually.
- Relative to the average annual growth in total joint replacement over the preceding five years (approximately four per cent for hip replacement and seven per cent for knee replacement), the increase between 2003/04 and 2004/05 was substantially greater: approximately nine per cent for hip replacement and about 16 per cent for knee replacement.
- During the study period, approximately 15 per cent of all hip replacements and about eight per cent of all knee replacements were revisions. The percentage of all total joint replacements that were done as revisions (revision burden) appears to be declining, although the absolute annual number of knee replacement revisions continues to grow.

5.1b Annual number of total knee replacements for the population aged 20 years and older, by type, in Ontario, 1994/95–2004/05



	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Unplanned Primary	240	286	317	221	203	314	128	175	221	166	130
Revision	617	685	685	797	860	869	797	920	801	1,053	1,134
Planned Primary	5,776	6,520	7,002	7,638	8,179	8,707	9,162	10,251	10,974	11,712	13,782

Fiscal year

Data source: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD)

5.2a Number and age- and sex-adjusted rate of total hip replacement per 100,000 population aged 20 years and older, by Local Health Integration Network, in Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Total Hip Replacements	Rate per 100,000 Population	Number of Total Hip Replacements	Rate per 100,000 Population	Number of Total Hip Replacements	Rate per 100,000 Population
1. Erie St. Clair	579	117	561	113	623	124
2. South West	809	111	970	132	1,148	154
3. Waterloo Wellington	470	101	536	112	534	110
4. Hamilton Niagara Haldimand Brant	1,219	112	1,368	125	1,410	126
5. Central West	279	67	309	72	344	77
6. Mississauga Oakville	606	101	686	111	715	111
7. Toronto Central	739	83	763	85	833	92
8. Central	955	97	937	92	1,098	103
9. Central East	1,039	97	1,124	103	1,173	106
10. South East	494	122	542	134	632	153
11. Champlain	846	99	868	100	951	108
12. North Simcoe Muskoka	352	114	358	113	418	129
13. North East	448	96	521	111	568	120
14. North West	239	131	238	130	225	123
All Ontario	**9,079**	**101**	**9,792**	**107**	**10,681**	**115**

SARV summary statistics for 2004/05	Value	P-value
Extremal Quotient [EQ]	2.0	
Coefficient of Variation (%) [CV]	17	
Systematic Component of Variation [SCV]	29	
Adjusted Chi-Square (likelihood ratio)	293	<0.0001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibits 5.2a and 5.2b

- Over the last three years, the Toronto Central Local Health Integration Network (LHIN) and the Central West LHIN had among the lowest rates of total hip replacement in the province, while the South East and North West LHINs had among the highest.
- Despite the increasing number of procedures performed, regional variation in total joint replacement rates remains large—roughly two-fold for both procedures in 2004/05.

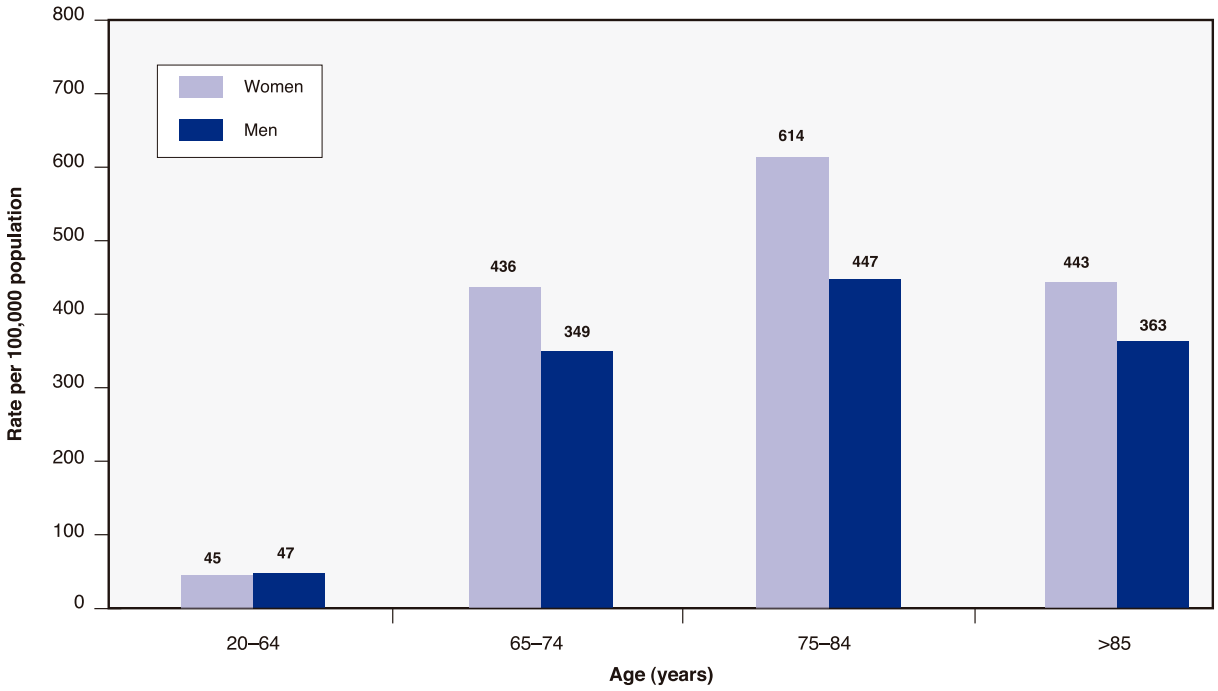
5.2b Number and age- and sex-adjusted rate of total knee replacement per 100,000 population aged 20 years and older, by Local Health Integration Network, in Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of Total Knee Replacements	Rate per 100,000 Population	Number of Total Knee Replacements	Rate per 100,000 Population	Number of Total Knee Replacements	Rate per 100,000 Population
1. Erie St. Clair	719	147	748	151	897	180
2. South West	1,117	155	1,250	171	1,426	193
3. Waterloo Wellington	561	121	683	144	724	151
4. Hamilton Niagara Haldimand Brant	1,620	149	1,747	160	1,994	181
5. Central West	496	118	592	136	752	167
6. Mississauga Oakville	790	134	833	132	999	154
7. Toronto Central	743	83	763	85	865	96
8. Central	1,189	121	1,188	116	1,433	135
9. Central East	1,503	141	1,500	138	1,932	175
10. South East	675	168	789	194	859	209
11. Champlain	1,037	123	1,195	139	1,319	152
12. North Simcoe Muskoka	499	160	534	167	589	179
13. North East	677	145	757	161	877	186
14. North West	366	202	341	187	371	203
All Ontario	**11,996**	**134**	**12,931**	**142**	**15,046**	**162**

SARV summary statistics for 2004/05	Value	P-value
Extremal Quotient [EQ]	2.2	
Coefficient of Variation (%) [CV]	18	
Systematic Component of Variation [SCV]	30	
Adjusted Chi-Square (likelihood ratio)	517	<0.0001

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

5.3a Age- and sex-specific rate of total hip replacements per 100,000 population aged 20 years and older, in Ontario, 2004/05

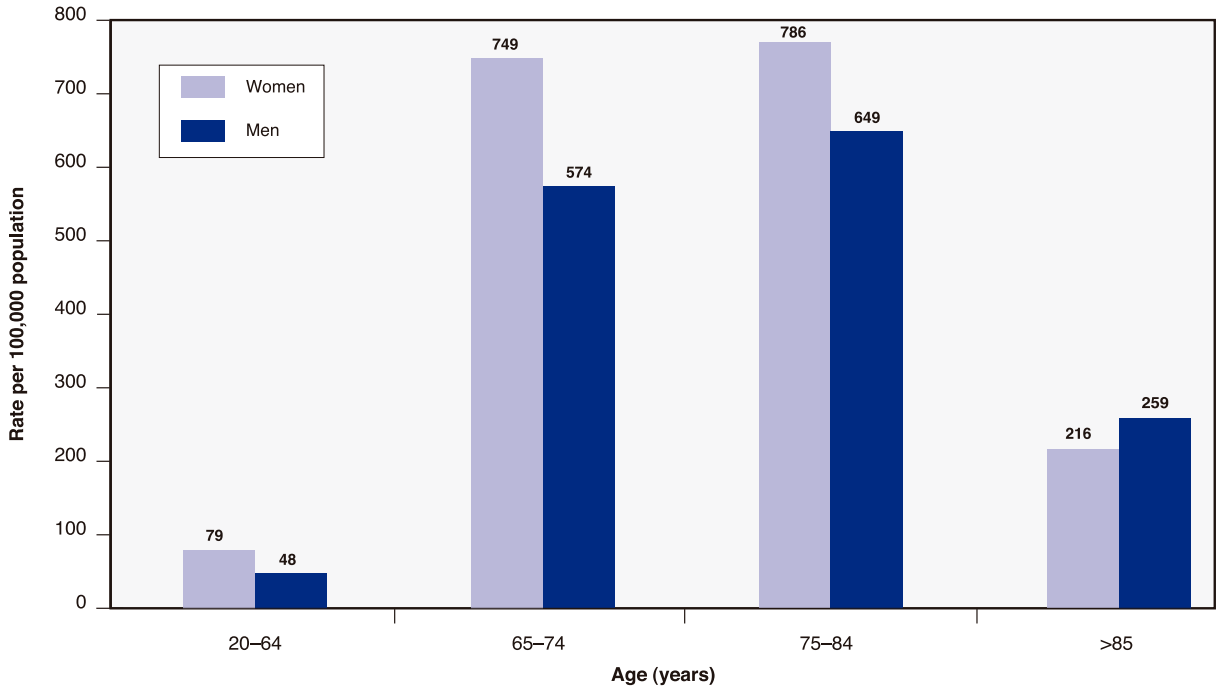


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – Postcensal population estimates

For Exhibits 5.3a and 5.3b

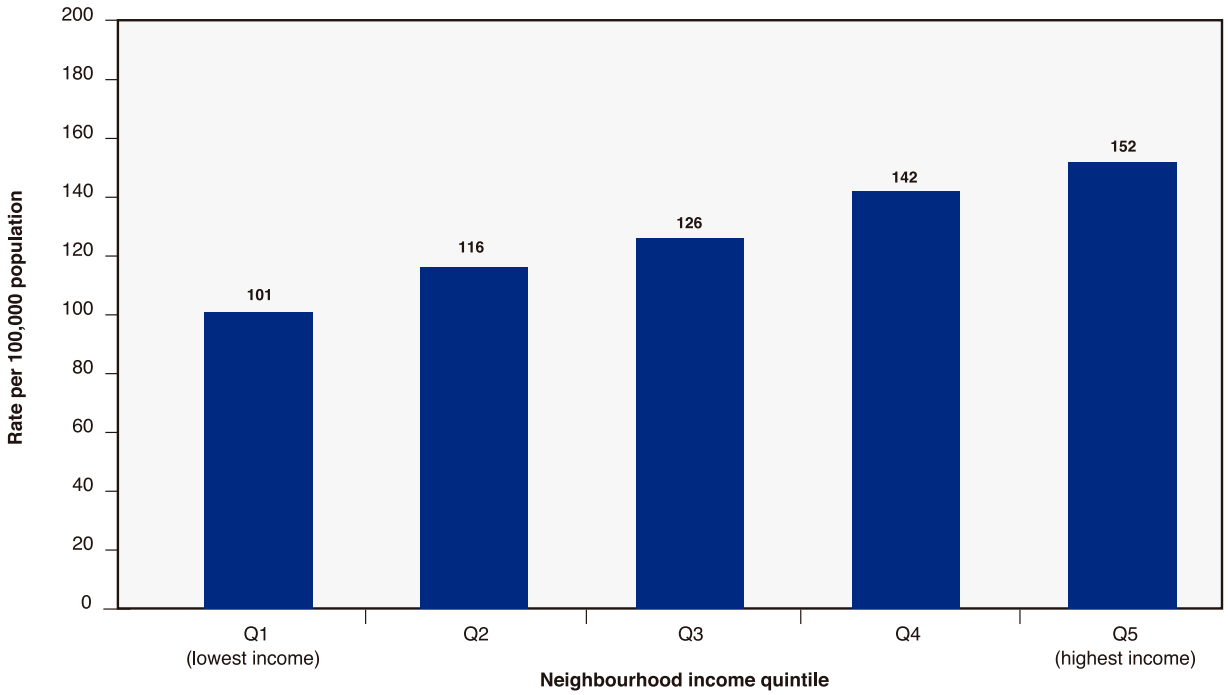
- For both total hip and total knee replacement, rates were low for those under 65 years of age. The surgeries peaked among persons aged 65 to 84 and declined among those aged 85 years and older.
- Overall, more women than men received total joint replacements, and age-specific rates were higher for women in all age categories except 85 and older, where men had a higher rate of total knee replacement surgery.

5.3b Age- and sex-specific rate of total knee replacements per 100,000 population aged 20 years and older, in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – Postcensal population estimates

5.4a **Age- and sex-adjusted rate of total hip replacements per 100,000 population aged 20 years and older, by neighbourhood income quintile, in Ontario, 2004/05**

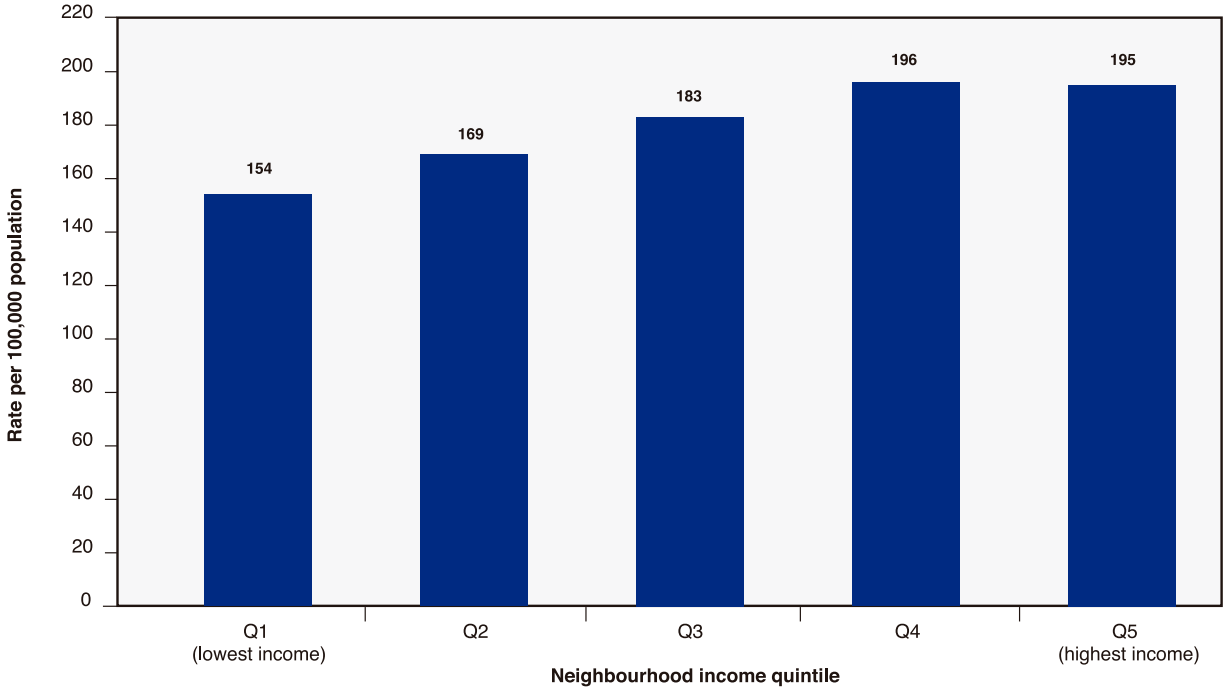


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibits 5.4a and 5.4b

- In 2004/05, as in 2003/04, rates of total hip and total knee replacement remained lowest in Ontario's poorest neighbourhoods (lowest quintile, Q1) and highest in the wealthiest neighbourhoods (highest quintile, Q5).
- Although this relationship was present for both procedures, the gradient was steeper for total hip replacement than for total knee replacement.

5.4b Age- and sex-adjusted rate of total knee replacements per 100,000 population aged 20 years and older, by neighbourhood income quintile, in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Statistics Canada – 2001 Census and Postal Code Conversion File

5.5a Number of total hip replacements by hospital corporation, and type of surgery, in Ontario, 2004/05

Hospital Corporation Name	City	Number of Planned Primary Total Hip Replacements	Number of Revision Total Hip Replacements	Number of Unplanned Primary Total Hip Replacements
Academic				
Hamilton Health Sciences Corporation	Hamilton	399	75	28
Hôpital Régional de Sudbury Regional Hospital Corporation	Sudbury	137	16	29
Kingston General Hospital	Kingston	245	33	50
London Health Sciences Centre	London	323	67	38
Mount Sinai Hospital	Toronto	123	50	23
St. Joseph's Health Care London	London	86	29	9
St. Joseph's Healthcare Hamilton	Stoney Creek	125	18	9
St. Michael's Hospital	Toronto	272	39	20
Sunnybrook & Women's College Health Sciences Centre	Toronto	461	111	49
The Ottawa Hospital	Ottawa	398	79	38
Thunder Bay Regional Health Sciences Centre	Thunder Bay	175	38	10
University Health Network	Toronto	222	49	43
Community				
Bluewater Health	Sarnia	139	8	9
Brant Community Healthcare System	Brantford	123	16	39
Brockville General Hospital	Brockville	60	6	*
Cambridge Memorial Hospital	Cambridge	98	6	7
Chatham-Kent Health Alliance	Chatham	79	6	24
Collingwood General and Marine Hospital	Collingwood	–	*	15
Cornwall Community Hospital	Cornwall	48	*	–
Credit Valley Hospital	Mississauga	127	11	20
Grand River Hospital Corporation	Kitchener	280	29	12
Grey Bruce Health Services	Wiarton	223	6	12
Guelph General Hospital	Guelph	134	16	6
Halton Healthcare Services Corporation	Oakville	179	10	39
Hotel Dieu Grace Hospital, Windsor	Windsor	220	24	19
Hotel Dieu Health Sciences Hospital, Niagara	St. Catharines	121	18	6
Humber River Regional Hospital	Downsview	190	23	25
Huron Perth Healthcare Alliance (Stratford)	Stratford	49	*	*
Joseph Brant Memorial Hospital	Burlington	153	14	43
Lake of the Woods District Hospital	Kenora	–	–	*
Lakeridge Health Corporation	Oshawa	142	*	18
Markham Stouffville Hospital	Markham	102	9	36
Montfort Hospital	Ottawa	137	7	16
Niagara Health System	Fort Erie	130	22	20
North Bay General Hospital	North Bay	47	–	7
North York General Hospital	Toronto	192	28	44
Orillia Soldiers' Memorial Hospital	Orillia	20	*	–
Perth & Smiths Falls District Hospital	Smiths Falls	66	8	7
Peterborough Regional Health Centre	Peterborough	174	13	31
Queensway-Carleton Hospital	Nepean	186	11	12
Quinte Healthcare Corporation	Belleville	157	10	*
Riverside Health Care Facilities	Emo	–	–	*
Ross Memorial Hospital	Lindsay	30	10	10
Rouge Valley Health System	Scarborough	169	28	23
Royal Victoria Hospital of Barrie	Barrie	240	20	14
Sault Area Hospital	Sault Ste. Marie	88	*	8
Southlake Regional Health Centre	Newmarket	145	23	9
St. Joseph's Health Centre (Toronto)	Toronto	123	16	23
St. Mary's General Hospital	Kitchener	9	–	*
St. Thomas-Elgin General Hospital	St. Thomas	68	7	*
The Scarborough Hospital	Scarborough	231	32	38
Timmins & District Hospital	Timmins	46	–	*
Toronto East General Hospital	Toronto	146	21	17
Trillium Health Centre	Mississauga	198	31	43
William Osler Health Centre	Etobicoke	221	31	21
Windsor Regional Hospital	Windsor	23	6	19
Woodstock General Hospital	Woodstock	41	–	9
York Central Hospital	Richmond Hill	118	12	20

– indicates zero procedures * indicates between one and five procedures, suppressed to protect confidentiality

Data source: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD)

5.5b Number of total knee replacements by hospital corporation, and type of surgery, in Ontario, 2004/05

Hospital Corporation Name	City	Number of Planned Primary Total Knee Replacements	Number of Revision Total Knee Replacements	Number of Unplanned Primary Total Knee Replacements
Academic				
Hamilton Health Sciences Corporation	Hamilton	618	71	*
Hôpital Régional de Sudbury Regional Hospital Corporation	Sudbury	285	35	*
Kingston General Hospital	Kingston	317	45	6
London Health Sciences Centre	London	461	104	*
Mount Sinai Hospital	Toronto	115	48	11
St. Joseph's Health Care London	London	112	19	*
St. Joseph's Healthcare Hamilton	Stoney Creek	178	19	*
St. Michael's Hospital	Toronto	216	26	*
Sunnybrook & Women's College Health Sciences Centre	Toronto	625	102	6
The Ottawa Hospital	Ottawa	490	55	*
Thunder Bay Regional Health Sciences Centre	Thunder Bay	292	30	*
University Health Network	Toronto	271	44	*
Community				
Bluewater Health	Sarnia	191	7	*
Brant Community Healthcare System	Brantford	165	14	*
Brockville General Hospital	Brockville	86	*	*
Cambridge Memorial Hospital	Cambridge	126	7	*
Chatham-Kent Health Alliance	Chatham	140	–	*
Cornwall Community Hospital	Cornwall	85	8	*
Credit Valley Hospital	Mississauga	265	11	*
Grand River Hospital Corporation	Kitchener	382	36	7
Grey Bruce Health Services	Wiarton	334	7	*
Guelph General Hospital	Guelph	196	*	*
Halton Healthcare Services Corporation	Oakville	214	11	*
Hotel Dieu Grace Hospital, Windsor	Windsor	256	16	*
Hotel Dieu Health Sciences Hospital, Niagara	St. Catharines	214	25	*
Humber River Regional Hospital	Downsview	386	17	*
Huron Perth Healthcare Alliance (Stratford)	Stratford	78	*	*
Joseph Brant Memorial Hospital	Burlington	253	14	*
Lakeridge Health Corporation	Oshawa	240	8	*
Markham Stouffville Hospital	Markham	178	6	*
Montfort Hospital	Ottawa	322	10	*
Niagara Health System	Fort Erie	320	21	*
North Bay General Hospital	North Bay	144	*	–
North York General Hospital	Toronto	322	12	*
Orillia Soldiers' Memorial Hospital	Orillia	34	–	–
Perth & Smiths Falls District Hospital	Smiths Falls	109	6	–
Peterborough Regional Health Centre	Peterborough	350	12	*
Queensway-Carleton Hospital	Nepean	256	13	*
Quinte Healthcare Corporation	Belleville	285	10	*
Ross Memorial Hospital	Lindsay	72	*	–
Rouge Valley Health System	Scarborough	292	16	*
Royal Victoria Hospital of Barrie	Barrie	354	24	*
Sault Area Hospital	Sault Ste. Marie	129	9	6
Southlake Regional Health Centre	Newmarket	222	16	*
St. Joseph's Health Centre (Toronto)	Toronto	173	15	*
St. Mary's General Hospital	Kitchener	13	*	*
St. Thomas-Elgin General Hospital	St. Thomas	66	10	*
The Scarborough Hospital	Scarborough	721	72	*
Timmins & District Hospital	Timmins	74	*	*
Toronto East General Hospital	Toronto	261	20	–
Trillium Health Centre	Mississauga	480	22	*
William Osler Health Centre	Etobicoke	506	19	*
Windsor Regional Hospital	Windsor	192	14	*
Woodstock General Hospital	Woodstock	71	*	–
York Central Hospital	Richmond Hill	198	8	*
Small				
Dryden Regional Health Centre	Dryden	47	–	–

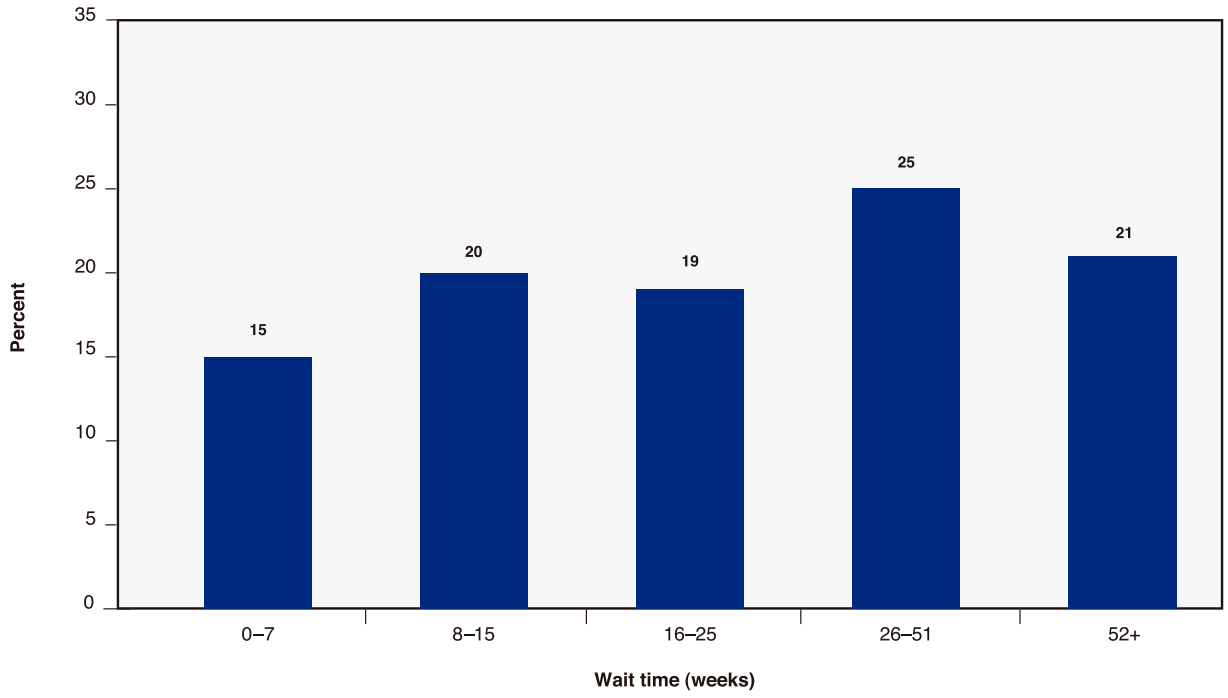
– indicates zero procedures * indicates between one and five procedures, suppressed to protect confidentiality

Data source: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD)

For Exhibits 5.5a and 5.5b (previous pages)

- In 2004/05, 58 Ontario hospitals performed total hip replacements, and 56 hospitals performed total knee replacements. Of these, one hospital performed only knee replacement surgery, and three performed only hip replacement surgery.
- As in the past, academic hospitals performed roughly one-third of the planned primary total joint replacements, but did almost half of the more complex procedures (i.e., revisions and unplanned surgeries).

5.6a Percentage of planned primary total hip replacements performed within specified wait time ranges, in Ontario, 2004/05

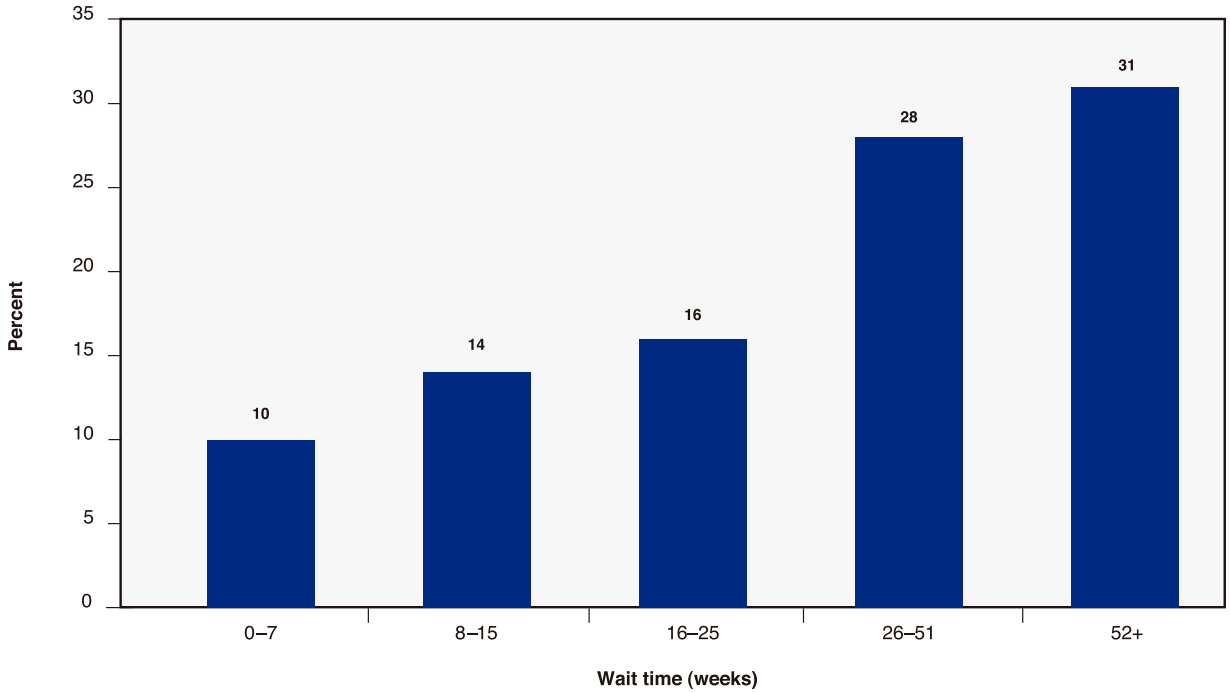


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibits 5.6a and 5.6b

- Just over half of total hip replacement patients and 41 per cent of total knee replacement patients waited less than 26 weeks for their scheduled procedures in 2004/05. Twenty-six weeks is the Ontario wait time target.
- About 20 per cent of total hip replacement patients and 30 per cent of total knee replacement patients waited more than a year.

5.6b Percentage of planned primary total knee replacements performed within specified wait time ranges, in Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

5.7a Median wait time for planned primary total hip replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03			2003/04			2004/05		
	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks
1. Erie St. Clair	14	68	69	16	64	72	16	59	70
2. South West	28	83	48	30	86	45	27	87	49
3. Waterloo Wellington	21	106	58	21	77	57	23	72	54
4. Hamilton Niagara Haldimand Brant	21	69	59	25	83	52	22	86	56
5. Central West	22	70	55	24	85	54	23	97	56
6. Mississauga Oakville	20	62	63	24	71	55	22	77	58
7. Toronto Central	21	92	57	20	90	60	22	98	55
8. Central	21	90	60	23	91	55	22	73	57
9. Central East	19	67	59	19	65	60	20	73	62
10. South East	31	131	46	28	75	46	26	88	51
11. Champlain	33	111	41	36	107	33	36	105	37
12. North Simcoe Muskoka	19	50	65	21	80	60	25	64	52
13. North East	28	123	46	34	111	38	27	107	48
14. North West	13	45	70	20	57	65	22	75	57
All Ontario	**22**	**80**	**57**	**24**	**84**	**53**	**23**	**84**	**54**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postal Code Conversion File

For Exhibits 5.7a and 5.7b

- Median wait times for total joint replacement surgery have remained virtually unchanged since 2003/04: 23 weeks for total hip replacement and 33 weeks for total knee replacement in 2004/05.
- For hip replacement patients, the median wait times in 2004/05 varied from 16 weeks in the Erie St. Clair Local Health Integration Network (LHIN) to 36 weeks in the Champlain LHIN. The low median wait time for total knee replacement was 23 weeks in the Central East LHIN; the high median wait time was 46 weeks in the North West LHIN.
- In general, LHINs with long waits for total hip replacement also had long waits for total knee replacement.

5.7b Median wait time for planned primary total knee replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03			2003/04			2004/05		
	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks
1. Erie St. Clair	21	97	57	26	106	49	27	100	49
2. South West	39	117	37	43	113	29	40	109	33
3. Waterloo Wellington	27	79	49	27	87	46	32	91	44
4. Hamilton Niagara Haldimand Brant	31	102	41	32	105	40	36	101	36
5. Central West	28	83	48	32	90	40	30	87	40
6. Mississauga Oakville	24	91	51	30	91	44	27	83	49
7. Toronto Central	27	105	49	31	118	44	31	115	44
8. Central	26	108	49	30	104	44	28	120	45
9. Central East	24	81	53	26	82	49	23	85	55
10. South East	38	156	38	36	113	34	34	125	38
11. Champlain	43	146	27	44	132	24	43	125	27
12. North Simcoe Muskoka	25	65	52	31	95	46	33	91	41
13. North East	35	159	33	46	145	30	45	136	29
14. North West	36	89	39	35	99	34	46	104	28
All Ontario	**30**	**106**	**45**	**33**	**105**	**40**	**33**	**105**	**41**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postal Code Conversion File

5.8a Median wait time for planned primary total hip replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by age and gender, and for the province of Ontario, 2002/03–2004/05

	Age Group	2002/03 Median Wait Time (Weeks)	2002/03 90% Completed Within (Weeks)	2002/03 % Completed Within 26 Weeks	2003/04 Median Wait Time (Weeks)	2003/04 90% Completed Within (Weeks)	2003/04 % Completed Within 26 Weeks	2004/05 Median Wait Time (Weeks)	2004/05 90% Completed Within (Weeks)	2004/05 % Completed Within 26 Weeks
WOMEN by age group	Age 20–64	23	87	55	24	104	53	26	102	50
	Age 65–74	20	74	59	23	79	53	23	77	55
	Age 75–84	20	75	62	23	72	55	20	66	61
	Age 85+	17	63	70	18	66	69	16	56	70
	All Ages	21	77	59	23	84	55	22	81	56
MEN by age group	Age 20–64	29	103	46	29	99	45	29	107	46
	Age 65–74	24	71	55	25	79	52	23	80	56
	Age 75–84	20	72	62	22	69	57	21	73	57
	Age 85+	19	84	62	21	50	66	19	54	59
	All Ages	24	85	53	26	84	51	25	89	52
All Ontario		**22**	**80**	**57**	**24**	**84**	**53**	**23**	**84**	**54**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibits 5.8a and 5.8b

- Throughout the study period, older patients generally waited less time for their procedures, and the percentage of patients receiving their total joint replacement surgeries within 26 weeks, the Ontario wait time target, increased with age.
- Though this relationship was present for both sexes and for both procedures, it was less strong for men.

5.8b Median wait time for planned primary total knee replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by age and gender, and for the province of Ontario, 2002/03–2004/05

		2002/03			2003/04			2004/05		
Age Group		Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks
WOMEN by age group	Age 20–64	35	117	39	36	121	36	37	112	38
	Age 65–74	28	93	46	32	95	41	32	102	41
	Age 75–84	26	95	50	31	93	44	29	91	45
	Age 85+	29	80	45	23	71	56	28	91	47
	All Ages	29	103	45	32	102	41	32	102	42
MEN by age group	Age 20–64	33	133	42	40	125	35	37	130	35
	Age 65–74	31	106	44	34	104	39	33	101	42
	Age 75–84	27	97	48	32	99	41	31	95	42
	Age 85+	20	102	59	31	87	40	32	95	39
	All Ages	30	112	45	34	108	38	33	109	40
All Ontario		**30**	**106**	**45**	**33**	**105**	**40**	**33**	**105**	**41**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

5.9a Median wait time for planned primary total hip replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks
Q1 (lowest income)	22	78	57	25	82	52	24	79	54
Q2	21	76	58	22	80	56	24	80	55
Q3	21	75	58	24	88	52	23	87	54
Q4	22	82	57	23	76	55	24	84	52
Q5 (highest income)	24	87	53	26	93	50	23	90	55
All Ontario	**22**	**80**	**57**	**24**	**84**	**53**	**23**	**84**	**54**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postal Code Conversion File

5.9b Median wait time for planned primary total knee replacement (in weeks) and percentage performed within the Ontario wait time target of 26 weeks, by neighbourhood income quintile, and for the province of Ontario, 2002/03–2004/05

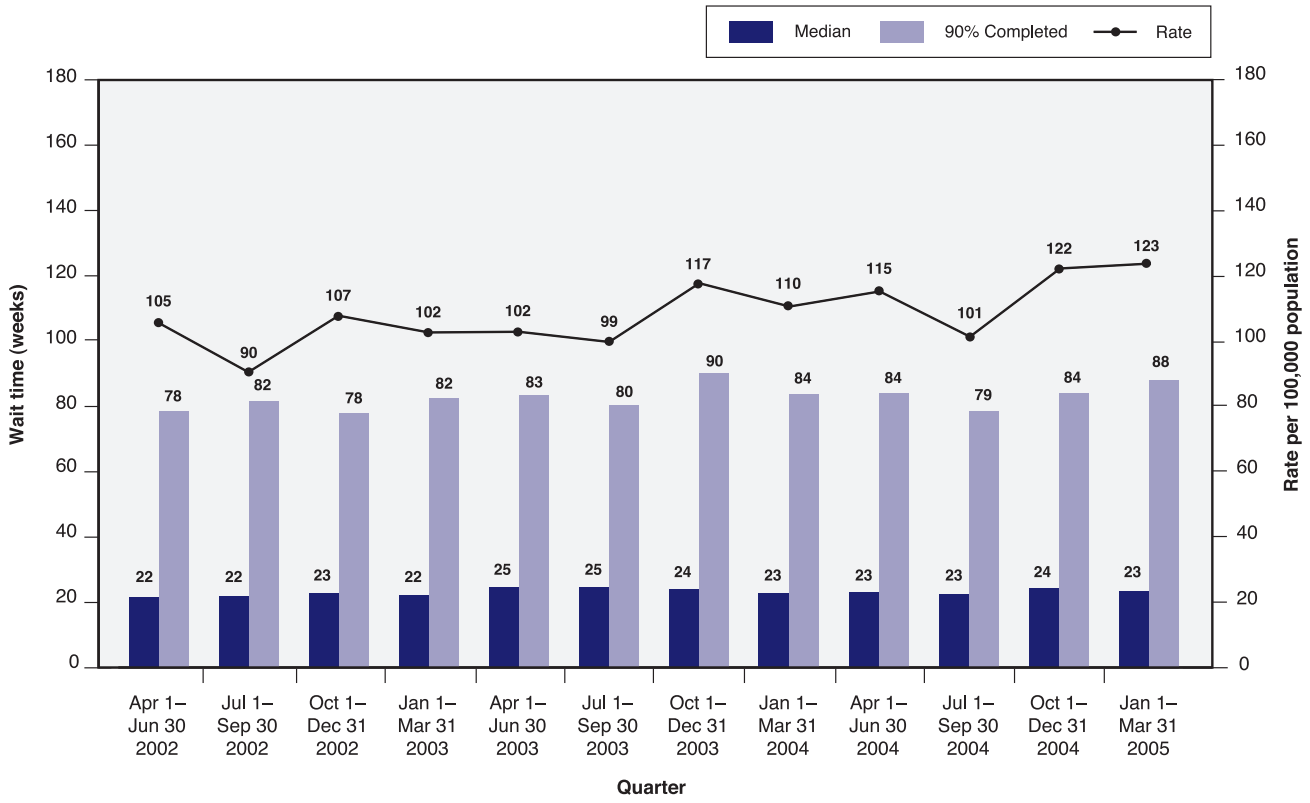
	2002/03			2003/04			2004/05		
Neighbourhood Income Quintile	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks	Median Wait Time (Weeks)	90% Completed Within (Weeks)	% Completed Within 26 Weeks
Q1 (lowest income)	30	112	45	33	98	40	32	96	42
Q2	29	92	46	32	102	41	32	103	42
Q3	29	107	45	33	115	39	33	104	41
Q4	30	104	45	34	101	40	34	116	39
Q5 (highest income)	30	114	44	33	103	40	32	108	41
All Ontario	**30**	**106**	**45**	**33**	**105**	**40**	**33**	**105**	**41**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postal Code Conversion File

For Exhibits 5.9a and 5.9b

- In contrast to the positive relationship between rate of total joint replacement surgery and neighbourhood income, there was no obvious relationship between neighbourhood income and median wait time for total joint replacement surgery.
- Similarly, there was no relationship between neighbourhood income and the percentage of patients receiving their procedures within the Ontario wait time target of 26 weeks.

5.10a Quarterly age- and sex-adjusted rates, median waits and 90 per cent of planned primary total hip replacement completed in Ontario, 2002/03–2004/05

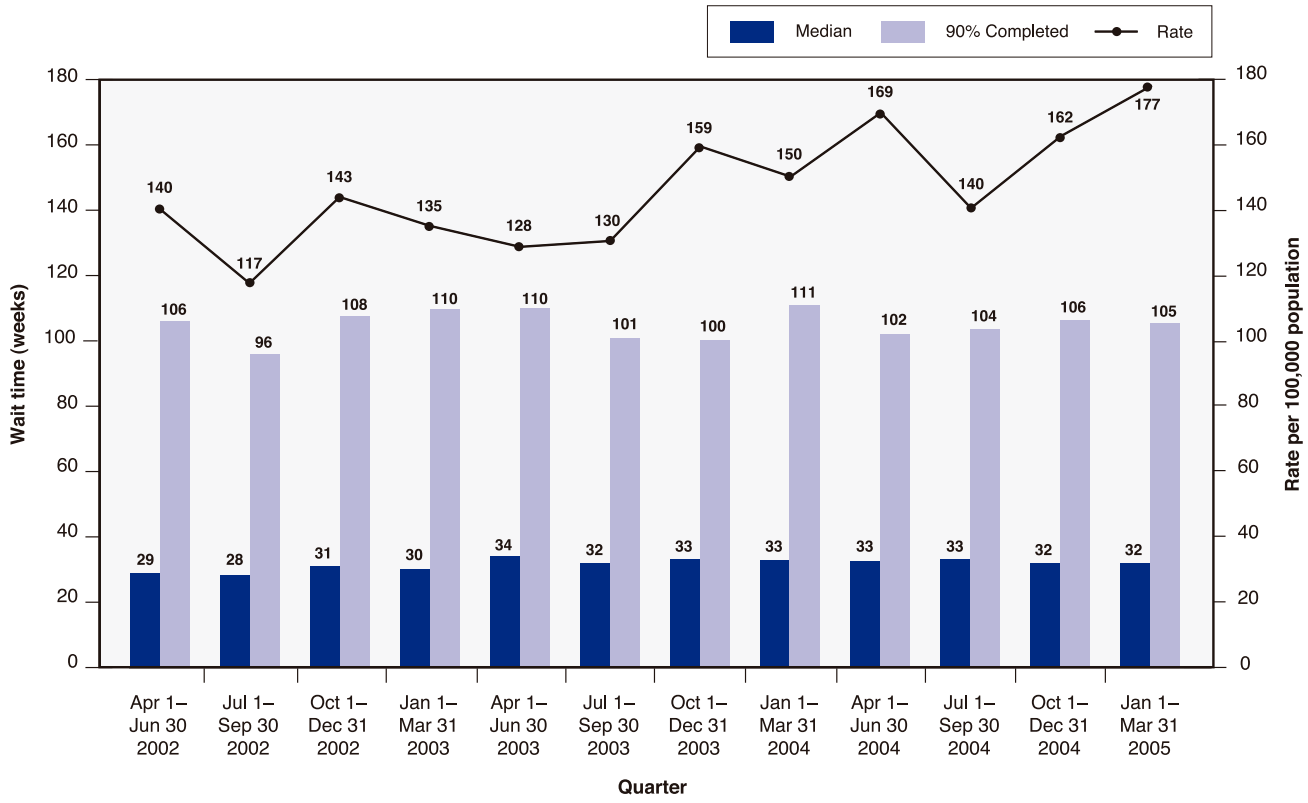


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibits 5.10a and 5.10b

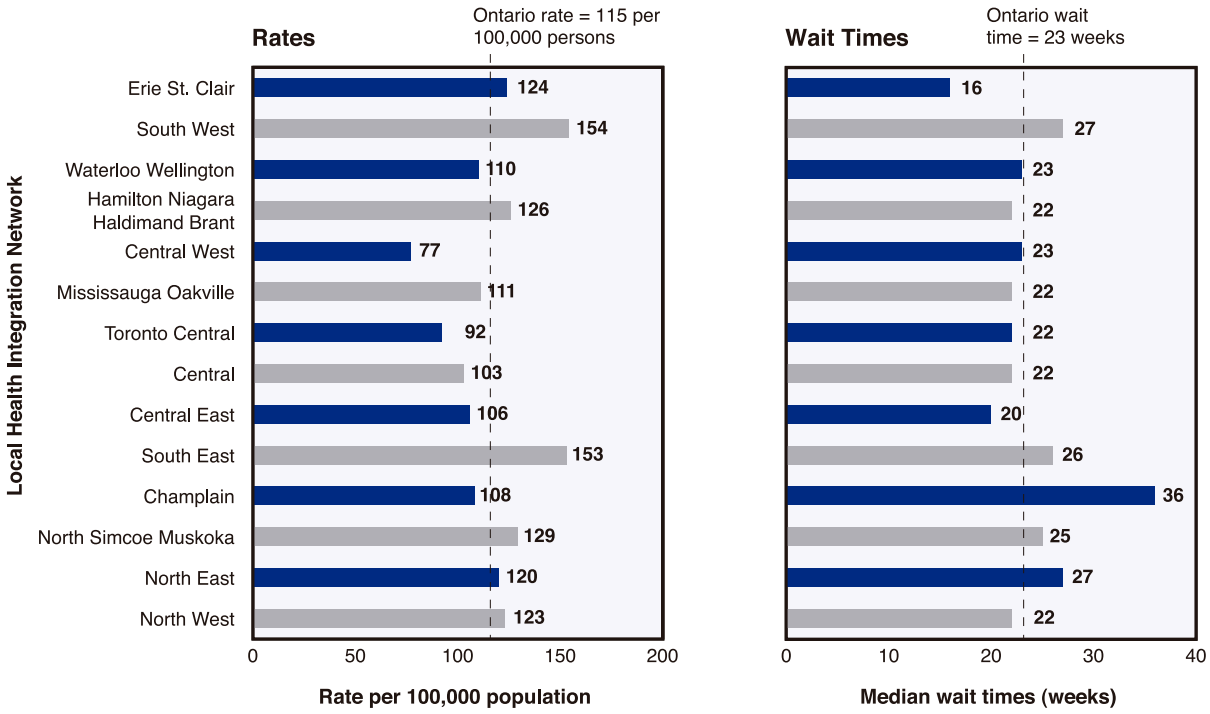
- Quarterly rates of planned primary total joint replacement surgery have increased substantially in the last three years. These rates have increased by approximately 20 per cent for total hip replacement and by about 30 per cent for total knee replacement.
- Over the same time period, wait times for planned primary total joint replacement have been relatively stable. The average quarterly median waits were 23 weeks (range: 22–25 weeks) for total hip replacement and 32 weeks (range: 28–34 weeks) for total knee replacement.

5.10b Quarterly age- and sex-adjusted rates, median waits and 90 per cent of planned primary total knee replacement completed in Ontario, 2002/03–2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

5.11a Relationship between age- and sex-adjusted rate of planned primary total hip replacement per 100,000 population aged 20 years and older and median wait time (weeks), by Local Health Integration Network, and for the province of Ontario, 2004/05

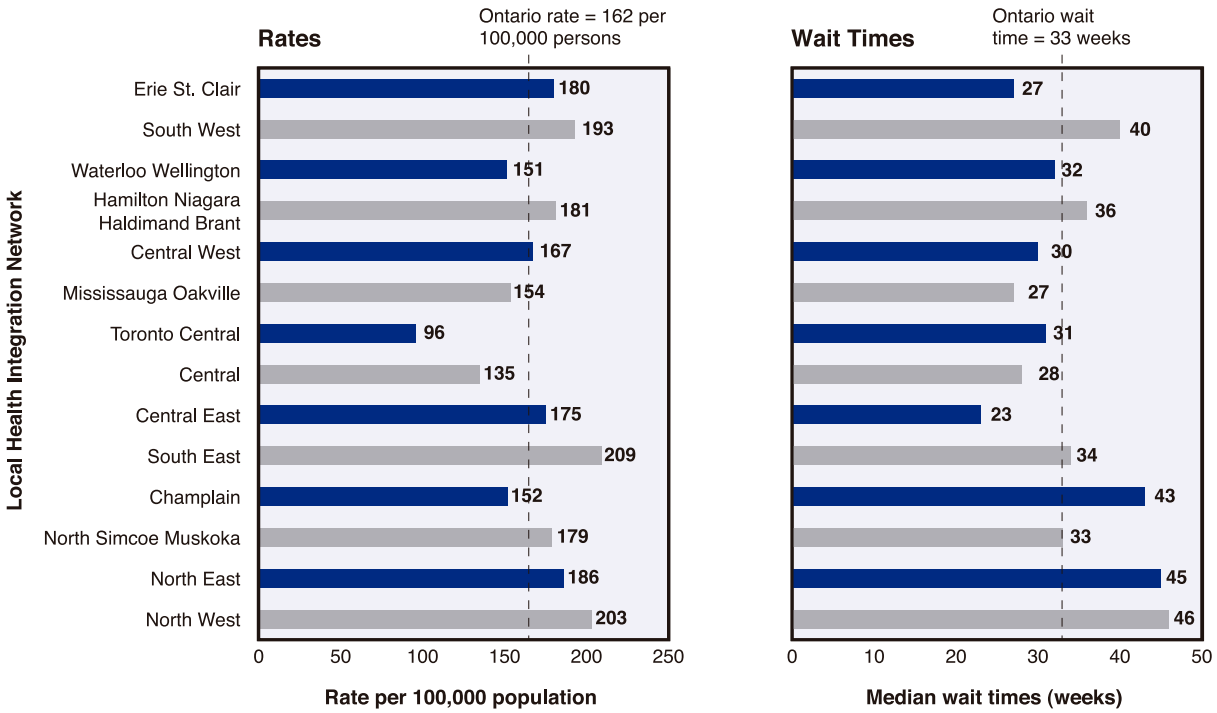


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibits 5.11a and 5.11b

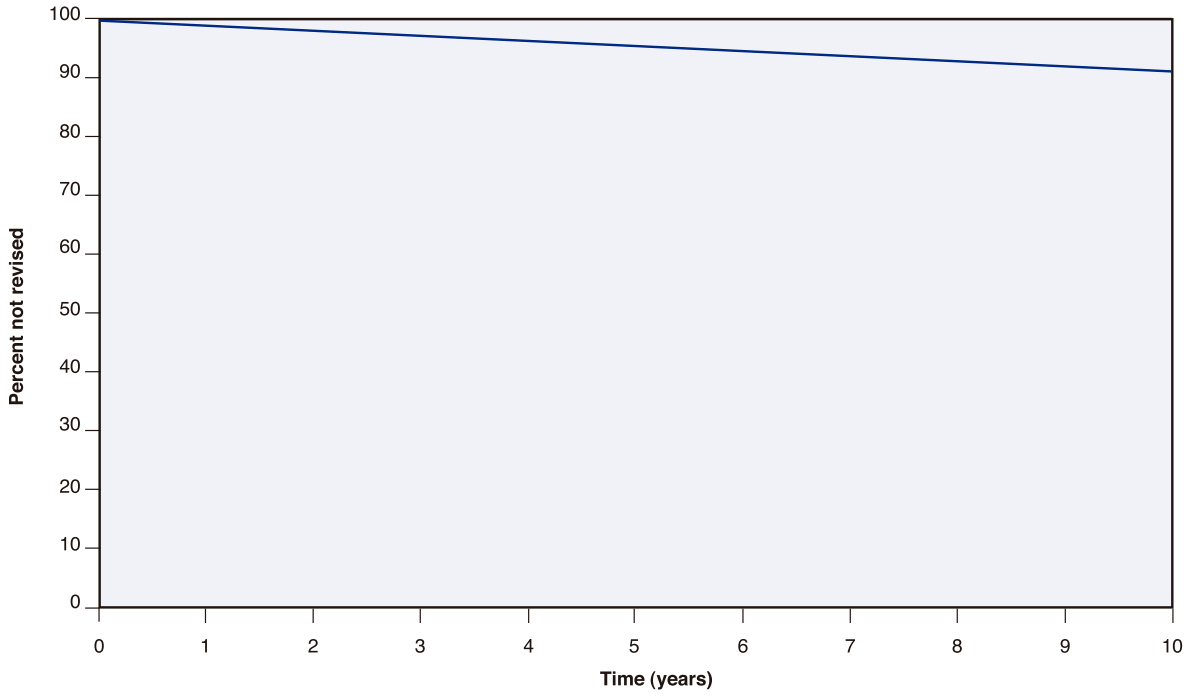
- While there appears to be little relation between population-based rates and median wait times for total hip replacement among Local Health Integration Networks (LHINs), a weak but statistically significant positive relationship does exist for total knee replacement. This may reflect high levels of underlying need or more aggressive surgical management in high-rate/long-wait regions, such as the North East and North West LHINs.

5.11b Relationship between age- and sex-adjusted rate of planned primary total knee replacement per 100,000 population aged 20 years and older and median wait time (weeks), by Local Health Integration Network, and for the province of Ontario, 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

5.12a Kaplan-Meier survival curve for time to first revision total hip replacement for persons aged 20 and older, in Ontario, 1994/95–2004/05

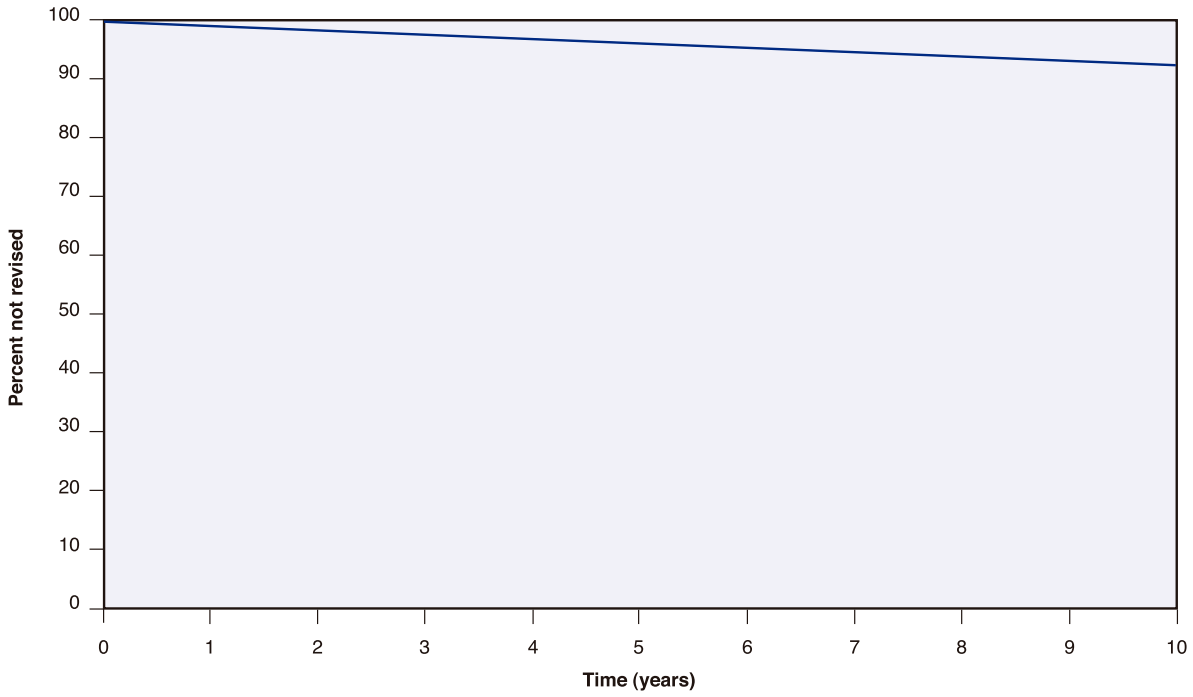


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP), Ontario Drug Benefit (ODB) Plan

For Exhibits 5.12a and 5.12b

- Approximately four per cent of initial total joint replacements required revision within five years; about eight per cent required revision within ten years.

5.12b Kaplan-Meier survival curve for time to first revision knee replacement for persons aged 20 and older, in Ontario, 1994/95–2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP), Ontario Drug Benefit (ODB) Plan

Discussion

Between 1994/95 and 2004/05, the annual number of total hip replacements grew by over 50 per cent and the annual number of total knee replacements increased by over 100 per cent. Age- and sex-adjusted procedure rates have increased nearly 20 per cent in the past three years alone.

At the same time, regional variation and socioeconomic gradients in procedure rates persist. Among those who received total joint replacement surgery last year, about half waited longer than the Ontario wait time target of 26 weeks to have their procedures. Over the last several years, the percentage of patients with excessive waiting times has remained virtually unchanged.

Though the number of total joint replacements in Ontario increased markedly in 2004/05 due to increased funding for joint replacement surgery, wait times have not changed. More time is needed to assess the impact of this additional funding upon wait times.

As Ontario's population ages and as the prevalence of total joint replacement surgery grows, information about how long initial joint replacements last will become increasingly important for quality assurance purposes and to predict need.

These results show an apparent small decline in revision burden (the percentage of all total joint replacement surgeries that were revisions) over the last decade. This may be due to changes in procedure coding or to actual improvements in surgical technique or implant technology. The estimates of revision burden for 1994/95–2004/05 (15 per cent for total hip replacement and eight per cent for total knee replacement) are comparable to those observed in the United States, Australia, New Zealand, Scotland, Scandinavia and elsewhere in Canada (see Table 5.1 on p.146).

Total joint replacement registries in Scotland and Scandinavia provide reliable estimates of how long initial joint replacements last. Estimated failure rates (in Ontario) of four per cent (after five years) and eight per cent (after ten years) also compare favourably with international benchmarks (see Table 5.2 on p.147). These findings are important. However, better reporting of operative data to the Canadian Joint Replacement Registry,[20] which captures more clinical detail than the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD), would improve what can be learned about total joint replacement surgery in Ontario and should be encouraged.

Appendix 5.A

How the research was done

Except for the assessment of total joint replacement survival, the methods are largely as described in the first edition of *Access to Health Services in Ontario: ICES Atlas.*[1] Briefly, key data included hospital discharge abstracts provided by the Canadian Institute for Health Information (CIHI), physician billings from the Ontario Health Insurance Plan (OHIP), and Statistics Canada population estimates for fiscal years 1991/92 to 2004/05.

Total joint replacements were identified from CIHI discharge abstracts by discharge date using specific ICD-9/CCP and ICD-10-CA/CCI procedure and diagnosis codes. Non-Ontario residents and persons under 20 years of age were excluded, as were procedures that were cancelled, previous, out-of-hospital, or "abandoned after onset."

Revision procedures were identified using three different methods: for procedures performed in 2002/03–2004/05, ICD-10-CA/CCI total joint replacement (TJR) procedure codes were used accompanied by the supplementary status attribute 'R'; for procedures performed in 2000/01–2001/02, ICD-9/CCP procedure codes were used specifically for revisions; and for procedures performed in 1991/92–1999/2000, ICD-9/CCP TJR procedure codes were used accompanied by one or more of the following diagnoses: osteomyelitis of joint (730.0–730.3, 730.8, and 730.9), mechanical complications of internal prosthetic device (996.4 and 996.7), dislocation of the joint (835.0 for hip, and 836.3 and 836.4 for knee), or post-operative infections (996.6, 998.5 and 998.6).

Primary TJRs for cancer, fractures or trauma were considered "unplanned." Procedures were deemed unplanned if a record identified a hospital admission as "Urgent," "Emergent," or "Entry from Emergency," or if it was accompanied by a diagnosis code listed in Table 5.3. All coded interventions were reviewed to identify the presence of total joint replacements, and all coded diagnoses were reviewed to determine whether or not the procedures were planned. In some hospitals, some planned primary procedures may have been coded as unplanned. In all hospital-level analyses, cells containing one to five procedures were suppressed to ensure confidentiality.

Wait times for planned primary total joint replacements were defined as the time between a patient's last surgical consultation and the date the surgery was performed. Recently, Shortt found that this approach underestimated the time from decision to surgery (for total hip replacement) by an average of 14 days (13 per cent).[7] The most likely explanation for this finding is that some patients had multiple consultations, and some of these individuals decided to proceed with surgery some time before their final consult. In this study, an estimated 72 per cent of patients had one surgical consultation in the two years preceding total joint replacement; 22 per cent had two consultations; and a further six per cent had more than two consults.

To assess joint survival, the duration of time from a primary total hip replacement or a primary total knee replacement (the incident event) to the date these procedures were first revised (the failure event) was estimated using Kaplan-Meier survival curves. Primary total hip/total knee replacements were analyzed separately. Incident total hip replacement was defined as any planned or unplanned surgery that was present in both the CIHI Discharge Abstract Database (DAD) and the OHIP Physician Claim Database (PCD), and that was specifically coded as a primary total hip replacement in the OHIP PCD. Failure events were defined as the first subsequent total hip replacement that was recorded in both the CIHI DAD and the OHIP PCD (with a code for revision total hip replacement), or the first subsequent total hip replacement in the CIHI DAD coded as a revision with no corresponding OHIP physician claim coded as a primary total hip replacement. Similar methods were used for total knee replacement surgery.

Because people have two hips and two knees, and because until recently the data sources did not specifically identify which hip/knee was replaced, two strategies were used to increase the likelihood that revision procedures were matched to the correct incident total joint replacement. For each individual, the first primary total hip/total knee replacement performed during the study accrual period (April 1, 1994 to March 31, 2005) was used as the index event. If a subsequent primary total hip/total knee replacement was performed prior to a revision procedure, follow-up for that individual stopped (this happened for about 16 per cent of incident

total hip replacements and about 23 per cent of incident total knee replacements). In addition, all persons who had had a prior total hip/total knee replacement procedure (primary or revision) between April 1, 1991 and March 31, 1994 were excluded. Given the lifespan of total joint replacements, a minimum look-back of three years is short, but this was the longest look-back possible using existing data.

Each incident total hip/total knee replacement was therefore followed until*:

- there was a subsequent revision surgery;
- there was a subsequent primary total joint replacement surgery;
- the individual died, became ineligible for OHIP coverage, or went six months without any contact with the health care system (as a proxy for emigration or death not captured in the OHIP Registered Persons Database); or
- the end of the follow-up period (March 31, 2005) was reached.

Tables 5.1 and 5.2 report crude, unstandardized international estimates for revision burden and primary total joint replacement survival, respectively. Though similar, these estimates were derived from different data sources and may incorporate different methods for estimation.

* whichever came first

Table 5.1 Percentage of total hip and total knee replacement procedures as revisions (revision burden) in several countries*

Country	Time Period	Hip %	Knee %
Canada	2002–2004[8]	13.3	6.2
Australia	1999–2004[9]	12.9	8.7
Denmark	1995–2004[10]	14.7	–
Finland	1990–2003[11]	17.8	7.8
New Zealand	1998–2005[12]	13.2	8.4
Norway	1996–2004[13]	14.4	8.6
Scotland	1992–2003[14]	15.3	7.3
Sweden	Hip,1992–2004[15]/ Knee, 1993–2002[16]	10.7	7.6
United States	1990–2002[17]	17.5	8.2

* Figures are based upon joint replacement registry data for all except the United States, where they are taken from an annual survey of community hospitals.

Note: Corresponding estimates for Ontario, 1994–2005 are: hip, 14.8%; knee, 8.3%.

Table 5.2 International comparison of survival rates for primary total hip replacements and primary total knee replacements at five years and ten years

		Hip %		Knee %	
Country	**Time Period**	**5 years**	**10 years**	**5 years**	**10 years**
Denmark	1995–2003[10]	96	93	–	–
Finland	1989–1993[18]	91	82	94	82
Norway	1994–1996[13]	96	91	94	91
Scotland	1994–2003[14]	96	91	96	92
Sweden	Hip,1992–2004[15]/ Knee, 1994–2002[16]	97	92	96	93
United States	1978–2000[19]	–	–	96	91

Note: Corresponding estimates for Ontario, 1994–2005 are:
hip, at 5 years – 96% and at 10 years – 91%;
knee, at 5 years – 96% and at 10 years – 93%.

Table 5.3 Diagnosis codes used to define primary total joint replacements as "unplanned"*

Condition	**ICD-9**	**ICD-10-CA**
Cancer		
Malignant neoplasm of bone, lower limb	170.7, 170.8, 170.9	C40.2, C40.3, C40.8, C40.9
Secondary malignant neoplasm, bone	198.5	C79.5
Injury		
Fracture of acetabulum	808.0, 808.1	S32.4
Fracture of femur, patella, tibia, fibula	820, 821, 822, 823, 827, 828	S72.x, S82.0, S82.1, S82.2, S82.4, S82.7, S82.9
External cause of injury		
Transport accident	E800–E848	V01.x–V99.x
Accidental fall	E880–E888	W00.x–W19.x

* if not in the presence of hospital admission category "Urgent," "Emergent," or "Entry from Emergency"

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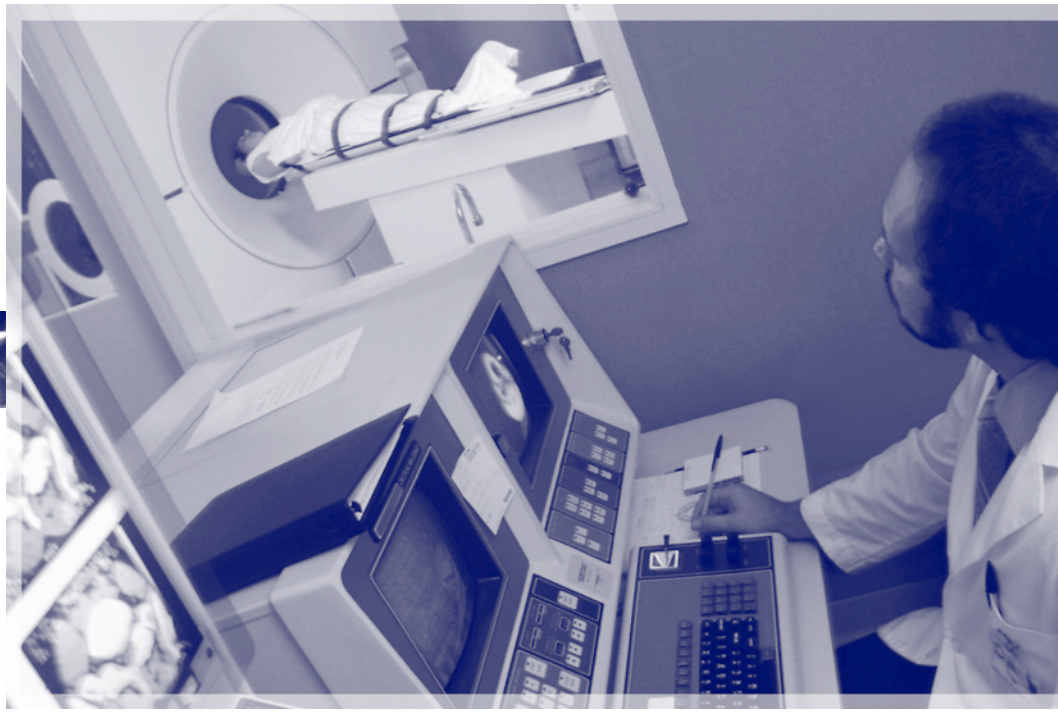
INSIDE

6

Chapter

CT and MRI Scanning

Andreas Laupacis, MD, MSc, FRCPC, Raymond Przybysz, MSc, and M. Anne Keller, MD, FRCPC



Executive Summary

Issue

There is some concern among clinicians and among the public in general that Ontarians do not have sufficient access to Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) scanning.

Study

Data from the Ontario Health Insurance Plan (OHIP) were used to describe the number of CT and MRI scans done in Ontario during the last decade. The data also provided details on the rate of scanning and variations in scanning rates according to age, sex, socioeconomic status and geographical location.

Key findings

- Between 1994/95 and 2004/05, the number of CT scans done in Ontario increased three-fold, while the number of MRI scans increased seven-fold.
- Between 2003/04 and 2004/05, the rate of CT scanning in Ontario increased by 12 per cent, while the rate of MRI scanning increased by 22 per cent.
- The Local Health Integration Network (LHIN) with the highest rate of CT scanning had a rate 1.5 times greater than the rate in the LHIN with the lowest rate.
- The LHIN region with the highest rate of MRI scanning had a rate 1.7 times higher than the rate in the LHIN with the lowest rate.
- Individuals living in the wealthiest neighbourhoods were 33 per cent more likely to receive an MRI scan than those living in the poorest neighbourhoods.
- No province-wide Ontario data are available to describe the length of time patients are waiting to receive a CT or MRI scan.

Implications

The marked increase in rates of CT and MRI scanning during the last few years means that it is important to:

- determine the appropriateness of the requests causing the increase in scanning
- routinely measure the length of time that Ontarians are waiting for CT and MRI scans
- ensure that Ontarians undergo scanning appropriately, and in a timely manner

Introduction

Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) scanning are non-invasive imaging techniques used to investigate a variety of symptoms. Canada has fewer CT and MRI scanners than most developed countries,[1] and there is public and clinician concern about access to these technologies.[2,3]

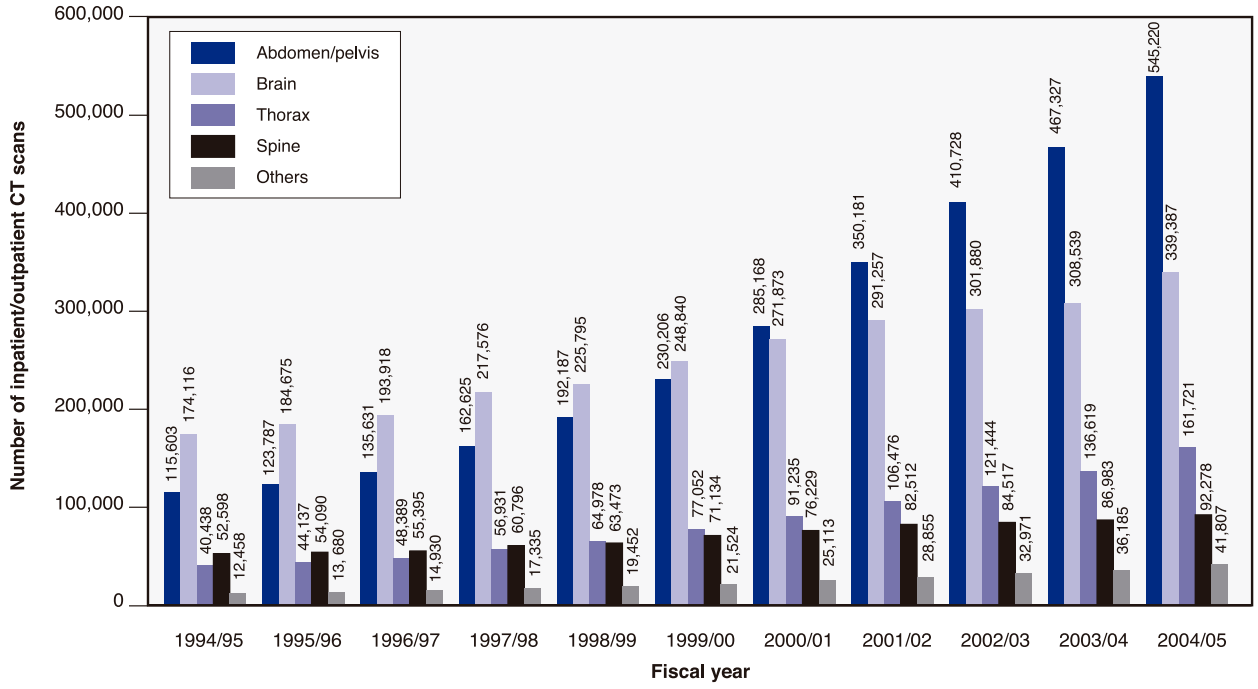
The purpose of this chapter is to describe the rates of CT and MRI scanning in Ontario during the last decade, and also to describe variations according to age, sex, socioeconomic status and geographical location.

Because of the way MRI scanning services are reimbursed in Ontario, the information is currently available for outpatient scans only. However, information regarding CT scanning services includes inpatient and outpatient scans. No province-wide data are available to accurately describe wait times, appropriateness, urgency or unmet needs for CT and MRI scanning.

Chapter 6 – List of Exhibits

Exhibits and Findings

6.1a Annual number of inpatient/outpatient CT scans, by type, in Ontario, 1994/95–2004/05

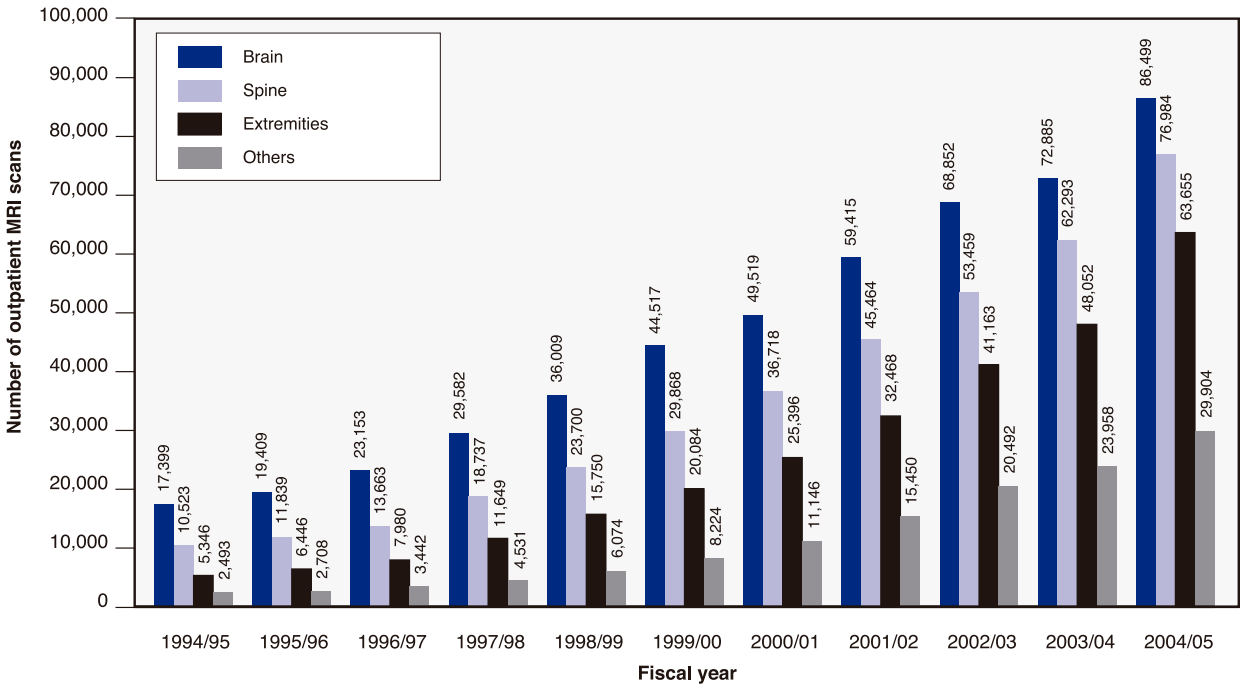


Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 6.1a

- During the last decade, the number of CT scans performed in Ontario increased three-fold.
- In 2004/05, a CT scan of the abdomen/pelvis was the most commonly performed type of scan. The CT scans that increased the most during the last year were scans of the thorax (18 per cent increase) and scans of the abdomen/pelvis (17 per cent increase).

6.1b Annual number of outpatient MRI scans, by type, in Ontario, 1994/95–2004/05



Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 6.1b

- During the last decade, the number of MRI scans performed in Ontario increased seven-fold.
- In 2004/05, an MRI scan of the brain was the most frequently performed type of scan. The MRI scan that showed the greatest increase over the previous year was a scan of the extremities (32 per cent increase).

6.2a Number and age- and sex-adjusted rate of inpatient/outpatient CT scans per 100,000 population, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of CT Scans	Rate per 100,000 Population	Number of CT Scans	Rate per 100,000 Population	Number of CT Scans	Rate per 100,000 Population
1. Erie St. Clair	50,110	7,692	55,735	8,432	61,712	9,223
2. South West	70,512	7,399	76,391	7,892	82,282	8,376
3. Waterloo Wellington	42,890	6,688	47,884	7,305	55,322	8,251
4. Hamilton Niagara Haldimand Brant	99,582	7,079	105,253	7,360	117,709	8,100
5. Central West	46,311	7,529	51,247	8,051	57,065	8,662
6. Mississauga Oakville	68,310	7,787	74,709	8,211	86,768	9,154
7. Toronto Central	97,809	8,471	99,384	8,547	112,576	9,637
8. Central	120,838	8,701	123,423	8,571	148,382	9,945
9. Central East	113,759	7,947	126,516	8,662	150,388	10,102
10. South East	40,986	7,884	46,383	8,762	51,544	9,586
11. Champlain	94,075	8,132	112,112	9,511	123,429	10,293
12. North Simcoe Muskoka	45,280	10,957	48,603	11,407	53,417	12,156
13. North East	44,881	7,262	50,739	8,132	55,977	8,896
14. North West	14,388	5,818	15,354	6,143	21,725	8,662
*Invalid	1,809	–	1,920	–	2,117	–
All Ontario	**951,540**	**7,863**	**1,035,653**	**8,375**	**1,180,413**	**9,354**

* Includes: out of province, missing age and postal code information

Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.2a

- In 2004/05, the rate of CT scanning was five times higher than the rate of MRI scans (see Exhibit 6.2b). The rates were calculated on the basis of where patients lived, not on the basis of where the scan was done.
- In 2004/05, the North Simcoe Muskoka Local Health Integration Network (LHIN) had the highest CT scanning rate. It was 1.5 times higher than the rate in the Hamilton Niagara Haldimand Brant LHIN, which had the lowest rate.

6.2b Number and age- and sex-adjusted rate of outpatient MRI scans per 100,000 population, by Local Health Integration Network, and for the province of Ontario, 2002/03–2004/05

Local Health Integration Network	2002/03		2003/04		2004/05	
	Number of MRI Scans	Rate per 100,000 Population	Number of MRI Scans	Rate per 100,000 Population	Number of MRI Scans	Rate per 100,000 Population
1. Erie St. Clair	8,113	1,266	9,030	1,395	10,001	1,530
2. South West	11,375	1,235	13,259	1,422	15,774	1,670
3. Waterloo Wellington	6,155	934	8,665	1,293	10,816	1,586
4. Hamilton Niagara Haldimand Brant	22,601	1,676	29,292	2,136	34,199	2,461
5. Central West	8,826	1,339	9,890	1,452	12,455	1,766
6. Mississauga Oakville	15,396	1,626	17,587	1,792	23,224	2,288
7. Toronto Central	21,076	1,848	22,181	1,940	29,151	2,546
8. Central	23,321	1,616	24,894	1,672	32,944	2,142
9. Central East	22,064	1,550	23,275	1,608	30,378	2,063
10. South East	5,644	1,153	6,729	1,358	8,593	1,708
11. Champlain	14,765	1,269	17,017	1,436	21,291	1,770
12. North Simcoe Muskoka	6,346	1,569	6,418	1,540	7,843	1,826
13. North East	12,550	2,104	12,782	2,136	13,805	2,300
14. North West	5,382	2,189	5,717	2,307	6,154	2,481
*Invalid	352	–	452	–	414	–
All Ontario	**183,966**	**1,520**	**207,188**	**1,680**	**257,042**	**2,047**

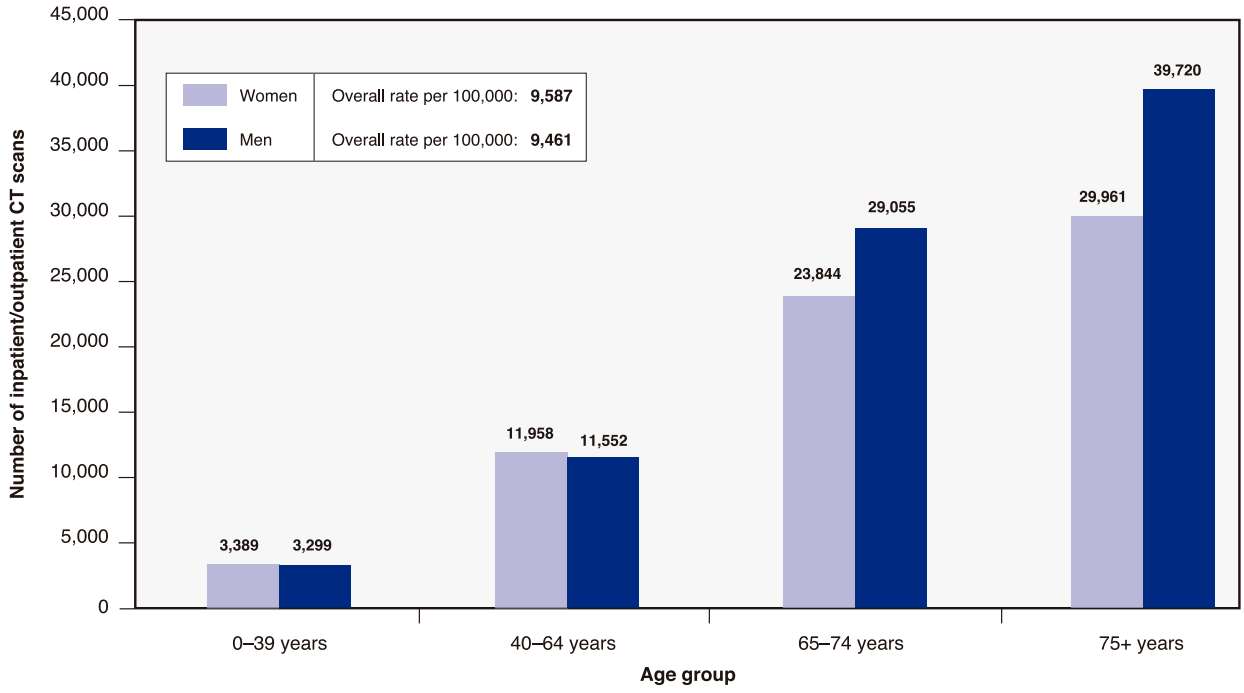
* Includes: out of province, missing age and postal code information

Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.2b

- In 2004/05, the rate of MRI scanning was five times lower than the rate of CT scanning (see Exhibit 6.2a). The rates were calculated on the basis of where patients lived, not on the basis of where the scan was done.
- In 2004/05, the Toronto Central Local Health Integration Network (LHIN) had the highest MRI scanning rate. It was 1.7 times higher than the rate in the Erie St. Clair LHIN, which had the lowest rate.

6.3a Age- and sex-specific rates of inpatient/outpatient CT scans per 100,000 population, in Ontario, 2004/05

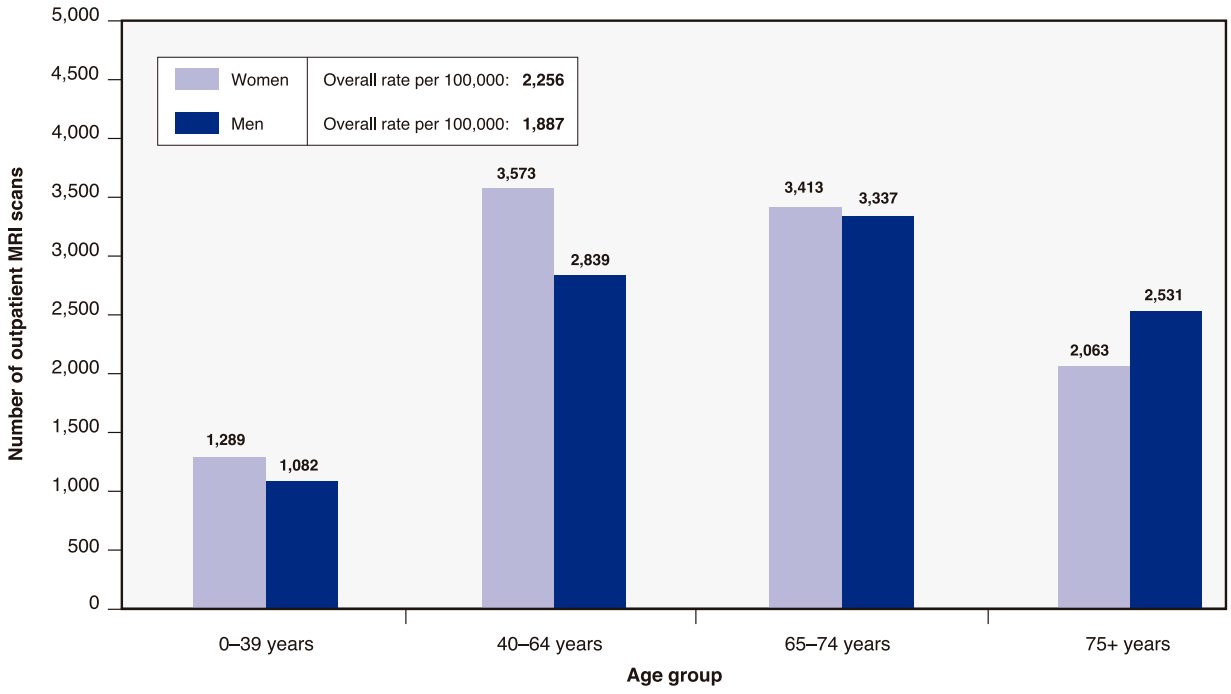


Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.3a

- In 2004/05, the highest rate of CT scanning was observed in those aged 75 years and older.
- Men and women under age 65 had virtually identical rates of CT scanning.
- Men aged 65 years and older had a higher rate of scanning than women in the same age group.

6.3b Age- and sex-specific rates of outpatient MRI scans per 100,000 population, in Ontario, 2004/05

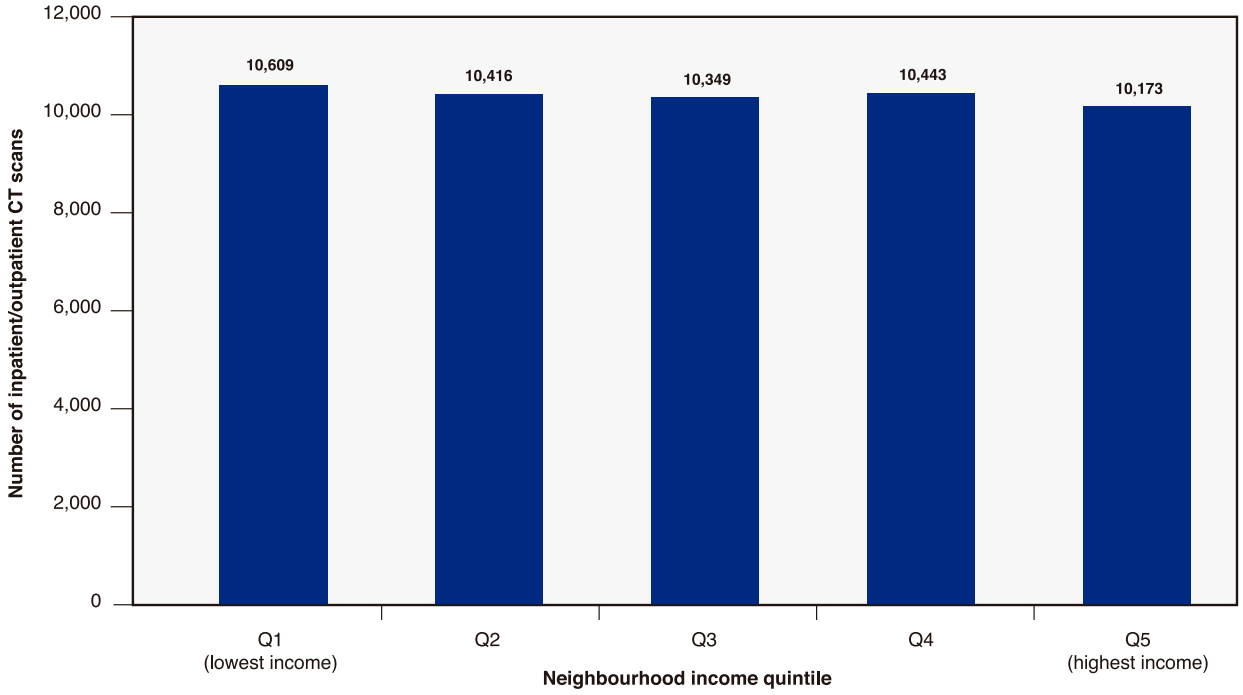


Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.3b

- In 2004/05, the highest rate of MRI scanning was observed in those aged 65 to 74 years.
- In 2004/05, women under 65 years of age had a higher rate of MRI scanning than men in the same age group.
- Men aged 75 years and older had a higher rate of scanning than women in the same age group.

6.4a Rate of inpatient/outpatient CT scans per 100,000 population, by neighbourhood income quintile, in Ontario, 2004/05

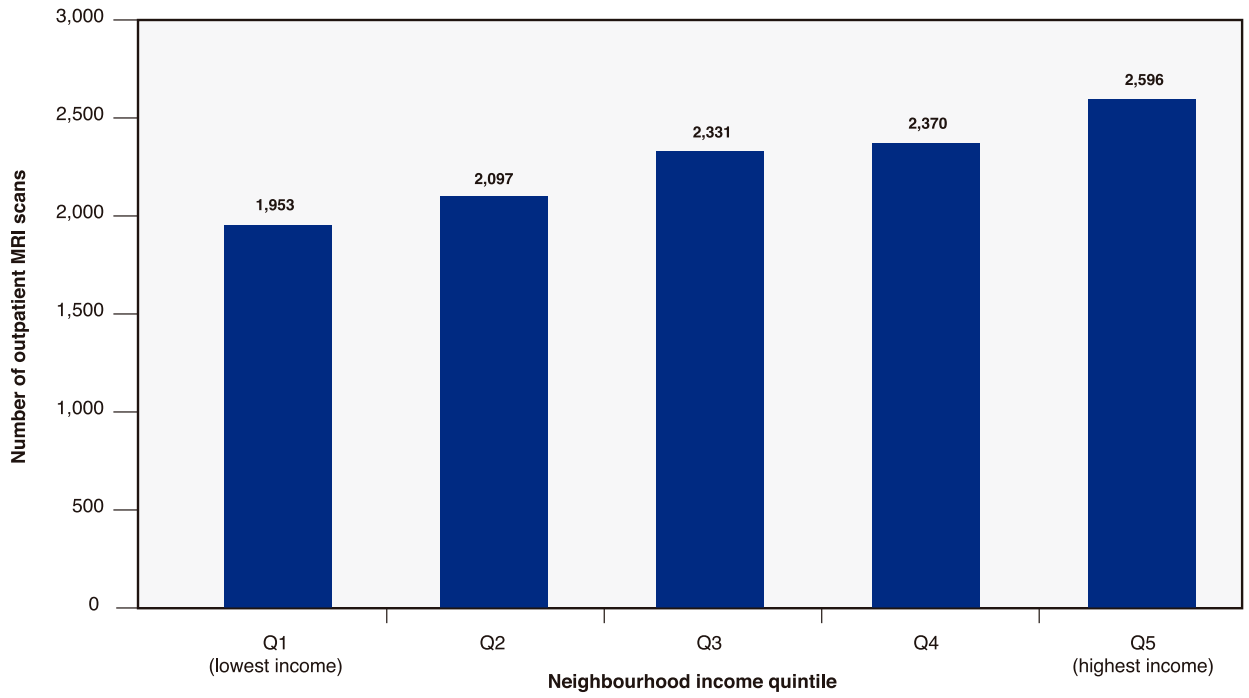


Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.4a

- In 2004/05, the wealth of the neighbourhood in which an individual resided had little impact upon the likelihood that the person would receive a CT scan. Those living in the poorest neighbourhoods were four per cent more likely to receive a CT scan than individuals living in the wealthiest neighbourhoods.

6.4b Rate of outpatient MRI scans per 100,000 population, by neighbourhood income quintile, in Ontario, 2004/05



Data sources: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database; Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 6.4b

- In 2004/05, individuals living in the poorest neighbourhoods were 33 per cent less likely to receive an MRI scan than those living in the wealthiest neighbourhoods. On average, individuals living in poor neighbourhoods are in poorer health than those living in wealthy neighbourhoods. Thus, if access to MRI scanning is based on "medical need" only, one would expect more, not less, MRI scanning for those living in poorer neighbourhoods.

Discussion

In the first edition of *Access to Health Services in Ontario: ICES Atlas* (2005), we reported a large increase in the annual number of CT and MRI scans performed in Ontario during the previous decade.[4] Since then, the rate of increase has grown: there was a 12 per cent increase in the rate of CT scanning between 2003/04 and 2004/05, and a 22 per cent increase in the rate of MRI scanning during the same period of time.

This increase is likely due to a number of factors, including increased funding which allowed expansion of the number of hours that MRI scanners can operate (starting in December 2004), and replacement of some old CT scanners with newer machines that complete scans more rapidly (starting in the summer of 2004).

The variation in the rate of scanning among Local Health Integration Networks (LHINs) decreased slightly in the last year. Individuals living in the LHIN with the highest rate of scanning were 1.5 times more likely to receive a CT scan and 1.7 times more likely to receive an MRI scan than individuals living in the LHIN with the lowest rates of these procedures.

Thus, it appears that access to CT and MRI scanning, based upon area of residence, is more equitable than access to some of the other services examined in this ICES Atlas. However, individuals living in poorer neighbourhoods were 33 per cent less likely to receive an MRI scan than those who lived in wealthier neighbourhoods. This increase in the income-related gap from the previous year raises concern.[4]

Interestingly, researchers in Manitoba recently found that people living in poorer neighbourhoods had fewer diagnostic imaging tests than people living in wealthier neighbourhoods.[5]

There is currently no province-wide system to collect data about waiting times for CT and MRI scanning according to the urgency of the scan. However, during the past year, the Ministry of Health and Long-Term Care (MOHLTC) has started to collect hospital-reported waiting times from selected Ontario hospitals. In January 2006, the MOHLTC reported a median waiting time of 13 days for outpatient CT scans and 32 days for MRI scans.[6] In December 2005, the Ministry of Health and Long-Term Care announced a target waiting time of four weeks for elective CT and MRI scans.[7]

Appendix 6.A

How the research was done

Data from the Ontario Health Insurance Plan (OHIP) were used to describe trends in CT and MRI use. Only services that were deemed valid and reimbursed by OHIP were included. The professional component of all OHIP claims for CT and MRI scans from April 1, 1994 to March 31, 2005 was identified. Because inpatient MRI scans are covered by hospital global budgets and are not billed to OHIP, inpatient MRI scans were excluded.

For CT scans, all professionally billed OHIP codes were grouped into "body part-specific" scans (regardless of whether they were done with or without I.V. contrast) (Table 6.1). Only one "body part-specific" CT scan per patient per day was counted, regardless of the number of physicians, institutions and fee codes that appeared in the OHIP files for that patient on that day.

For professionally billed outpatient MRI scans, a base code for a multi-slice sequence is available as well as an additional code for repeat sequences (another plane or different pulse sequence) (Table 6.2). MRI utilization was defined by counting the base multi-sequence codes, with or without repeats or additional related procedures. As in the approach to CT scans, only one "body part-specific" MRI scan was counted per patient per day.

The patient's sex, age and postal code at the time of the scan were obtained by linking with the Registered Persons Database (RPDB), which contains contact and administrative data for all OHIP beneficiaries. Postal codes were converted into Dissemination Areas (DA) using Statistics Canada conversion files, and then converted into Local Health Integration Networks.

Table 6.1 Professional billing codes in Ontario Health Insurance Plan (OHIP) for inpatient/outpatient CT scans

Body Part	OHIP Code		Description
Abdomen	X126	CTT	Abdomen – with/without I.V. contrast
	X409	CTT	Abdomen – without I.V. contrast
	X410	CTT	Abdomen – with I.V. contrast
Extremities	X127	CTT	Extremities (one or more) – with/without I.V. contrast
	X412	CTT	Extremities (one or more) – without I.V. contrast
	X413	CTT	Extremities (one or more) – with I.V. contrast
Head	X188	CTT	Head – with/without I.V. contrast
	X400	CTT	Head – without I.V. contrast
	X401	CTT	Head – with I.V. contrast
	X402	CTT	Complex head – without I.V. contrast
	X405	CTT	Complex head – with I.V. contrast
	X408	CTT	Complex head – with/without I.V. contrast
Neck	X124	CTT	Neck – with/without I.V. contrast
	X403	CTT	Neck – without I.V. contrast
	X404	CTT	Neck – with I.V. contrast
Pelvis	X231	CTT	Pelvis – without I.V. contrast
	X232	CTT	Pelvis – with I.V. contrast
	X233	CTT	Pelvis – with/without I.V. contrast
Spine	X128	CTT	Spine – with/without I.V. contrast
	X415	CTT	Spine – without I.V. contrast
	X416	CTT	Spine – with I.V. contrast
Thorax	X125	CTT	Thorax – with/without I.V. contrast
	X406	CTT	Thorax – without I.V. contrast
	X407	CTT	Thorax – with I.V. contrast

Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

Table 6.2 Professional billing codes in Ontario Health Insurance Plan (OHIP) for outpatient MRI scans

Body Part	OHIP Code		Description
Abdomen	X451	Mag. Res. Im.	Abdomen – multi-slice S.E. (1 or 2 echos)
Extremities	X471	Mag. Res. Im.	Extremities – multi-slice S.E. (1 or 2 echos)
	X488	Mag. Res. Im.	Multiple extremities multi-slice sequence
Head	X421	Mag. Res. Im.	Head – multi-slice S.E. (1 or 2 echos)
Neck	X431	Mag. Res. Im.	Neck – multi-slice S.E. (1 or 2 echos)
Pelvis	X461	Mag. Res. Im.	Pelvis – multi-slice S.E. (1 or 2 echos)
Spine	X490	Mag. Res. Im.	Limited spine (1 segment) – multi-slice S.E. (1 or 2 echos)
	X493	Mag. Res. Im.	Intermediate spine (2 adjacent segments) – multi-slice S.E.
	X496	Mag. Res. Im.	Complex spine (2 or more non-adjacent segments) – multi-slice S.E.
Thorax	X441	Mag. Res. Im.	Thorax – multi-slice S.E. (1 or 2 echos)

Data source: Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

References

1. Canadian Institute for Health Information. *Medical Imaging in Canada 2004*. Ottawa: 2004; 38–9.
2. IBM Business Consulting. Health Insider, Survey No. 9. Toronto: Spring/Summer 2003.
3. Ontario Association of Radiologists. *The Wait Goes On: Ontario's Radiology Waiting List Crisis Update 2004*. Oakville: September 2004. Accessed January 9, 2006 at http://www.oar.info/pdf/WebWaitReport.pdf
4. Laupacis A, Keller MA, Przybysz R. CT and MRI Scanning. In: Tu JV, Pinfold SP, McColgan P, Laupacis A, editors. *Access to Health Services in Ontario: ICES Atlas.* Toronto: Institute for Clinical Evaluative Sciences; 2005.
5. Demeter S, Reed M, Lix L, MacWilliam L, Leslie WD. Socioeconomic status and the utilization of diagnostic imaging in an urban setting. *CMAJ* 2005; 173(10): 1173–1177.
6. Ministry of Health and Long-Term Care Wait Times website. Accessed January 7, 2006 at www.ontariowaittimes.com
7. McGuinty government making progress on wait times. Ontario sets wait times access targets in five key areas. Accessed January 7, 2006 at http://www.health.gov.on.ca/english/media/news_releases/archives/nr_05/nr_121605.html

INSIDE

Comparisons of selected procedures

- Annual number of procedures
- Rates of procedures
- Variation in procedure rates
- Wait times for procedures

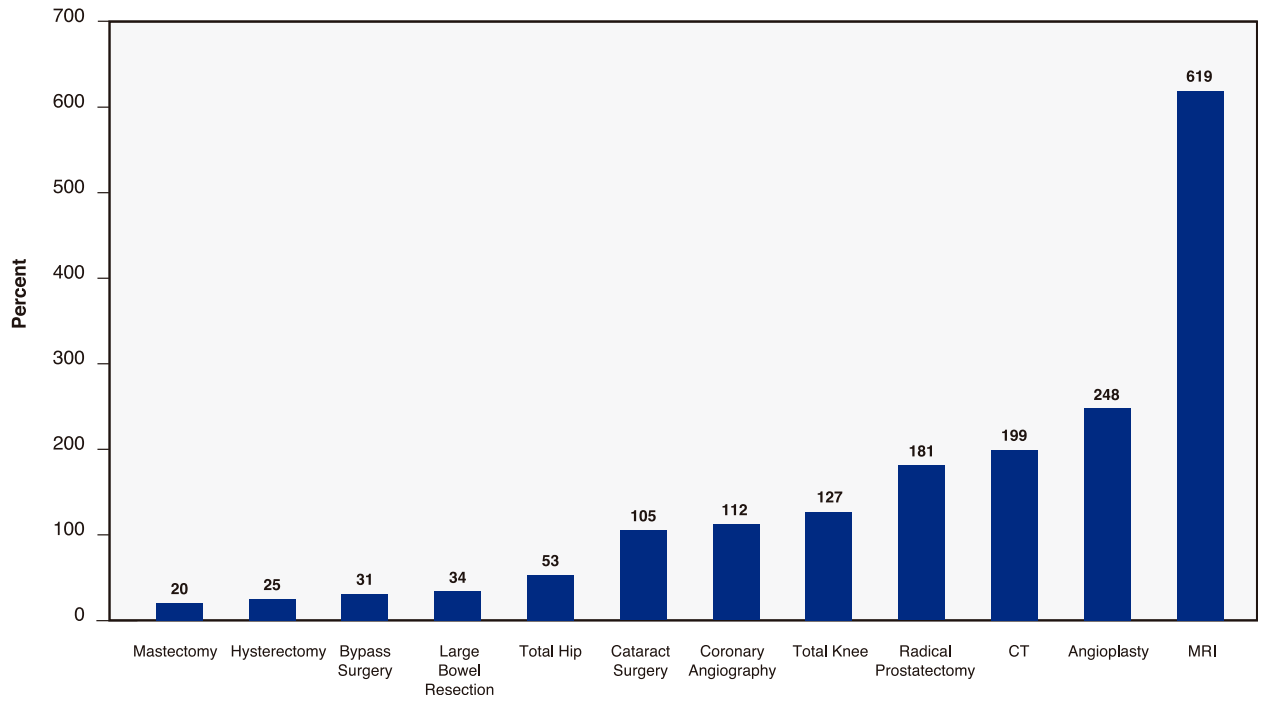
7

Chapter

Summary of Findings

Chapter 7 – List of Exhibits

7.1 Percentage change in the annual number of procedures in Ontario, 1994/95 vs. 2004/05

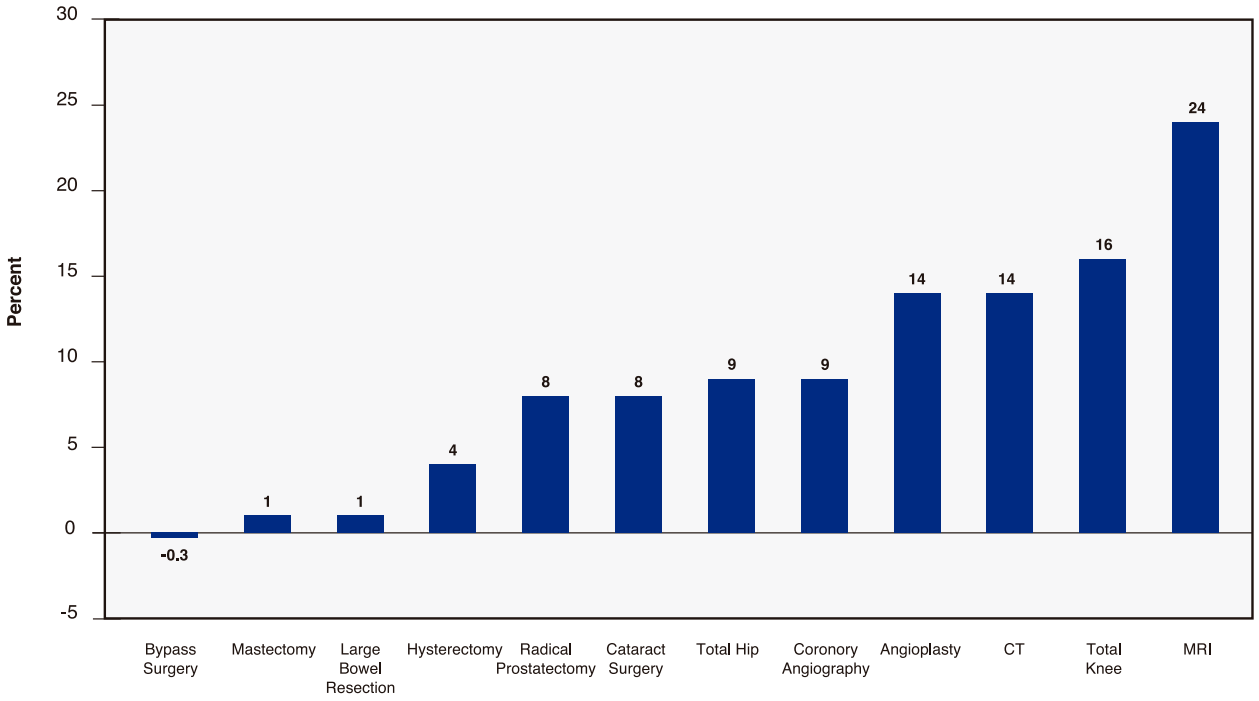


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 7.1

- Between 1994/95 and 2004/05, there was an increase in all the procedures and diagnostic tests discussed in this ICES Atlas.
- The greatest increases occurred in the number of Magnetic Resonance Imaging (MRI) scans (619 per cent increase); coronary angioplasties (248 per cent increase); Computerized Tomography (CT) scans (199 per cent increase); and radical prostatectomies for prostate cancer (181 per cent increase).
- The smallest increases occurred in mastectomy for breast cancer (20 per cent increase); hysterectomy for uterine cancer (25 per cent increase); coronary bypass surgery (31 per cent increase); and, large bowel resection for colon cancer (34 per cent increase).
- The relatively small increases seen for mastectomy, hysterectomy and large bowel resection likely reflect small increases in the number of patients with breast, uterine and colon cancer in the Ontario population over the past decade, and also the relatively stable indications for recommending these procedures.
- The large increase in the number of radical prostatectomies may reflect an increase in the use of Prostate-Specific Antigen (PSA) screening, as well as a trend toward more aggressive treatment of prostate cancer.
- The relatively large increase in the number of coronary angioplasties, and the relatively small increase in the number of coronary bypass surgeries are similar to what has been seen in other jurisdictions. This likely reflects an expansion in the reasons for performing angioplasty.

7.2 Percentage change in the annual number of procedures in Ontario, 2003/04 vs. 2004/05

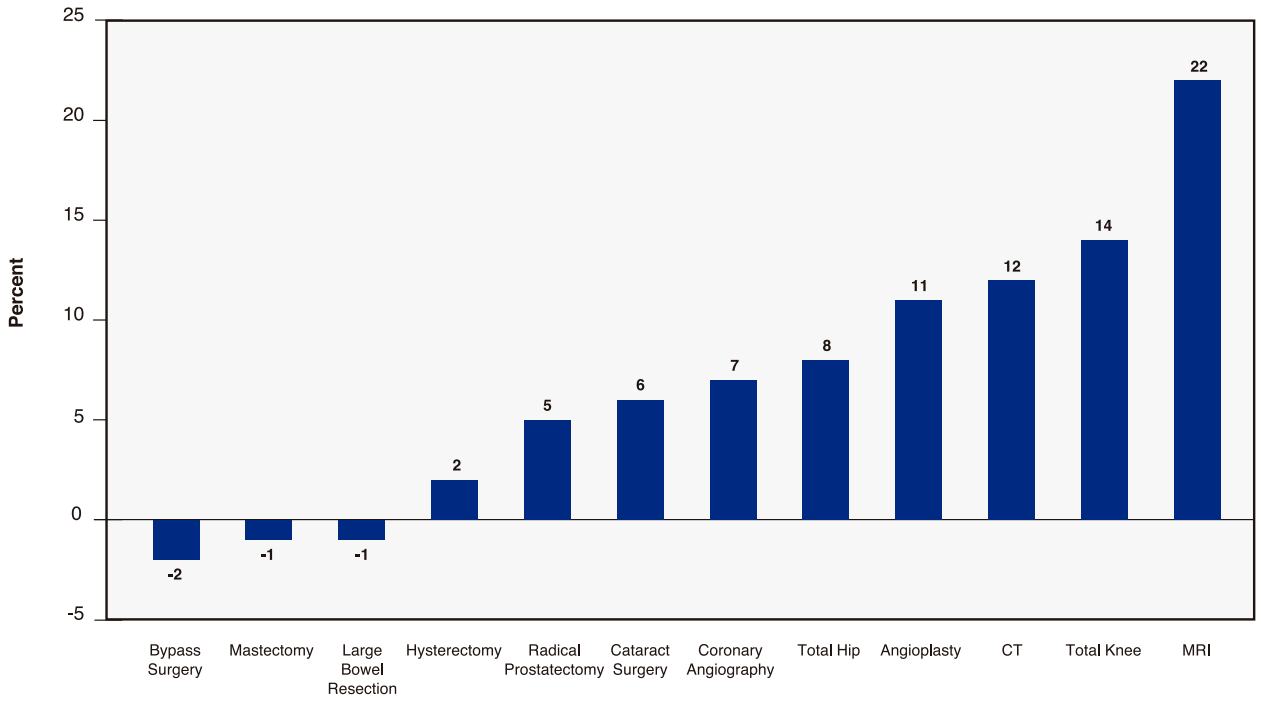


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 7.2

- The changes in the number of procedures seen during the last year are similar to those seen during the last decade.
- However, during the last year, the number of coronary bypass surgeries decreased slightly (0.3 per cent decrease) while the number of angioplasties increased (14 per cent increase).
- In addition to angioplasties, between 2003/04 and 2004/05, the largest increases occurred for Magnetic Resonance Imaging (MRI) scanning (24 per cent increase); for total knee replacements (16 per cent increase); and for Computerized Tomography (CT) scanning (14 per cent increase).

7.3 Percentage change in the rate of procedures per 100,000 population in Ontario, 2003/04 vs. 2004/05

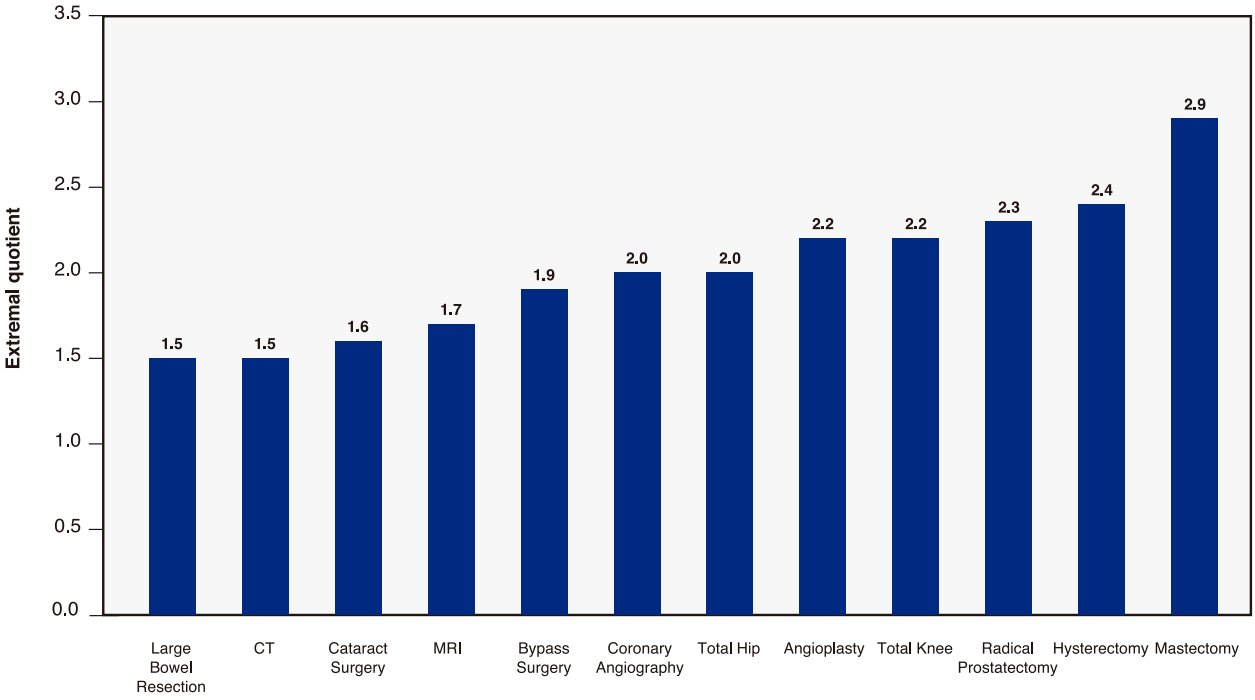


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI–NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates

For Exhibit 7.3

- The rate of procedures reflects the average number of procedures per 100,000 population. This number is "adjusted" for changes in the age and sex of the population from year to year. Thus, an increase in the rate of a procedure over time means that it is being used more intensively than before, while a decrease in the rate means that it is being used less intensively.
- Since 2003/04, the largest increase in rates occurred for Magnetic Resonance Imaging (MRI) scanning (22 per cent); for total knee replacement (14 per cent); for Computerized Tomography (CT) scanning (12 per cent); and for coronary angioplasty (11 per cent).
- During the same period of time, there was a decrease in the rate of coronary bypass surgery (two per cent); mastectomy (one per cent); and large bowel resection (one per cent). The decrease in the rate of mastectomies likely occurred because more women with breast cancer are having lumpectomies. The decrease in the rate of large bowel resections may reflect a small decrease in the frequency of colon cancer due to screening for the disease, or it may simply be due to chance.

7.4 Variation in procedures across Local Health Integration Networks in Ontario, 2004/05

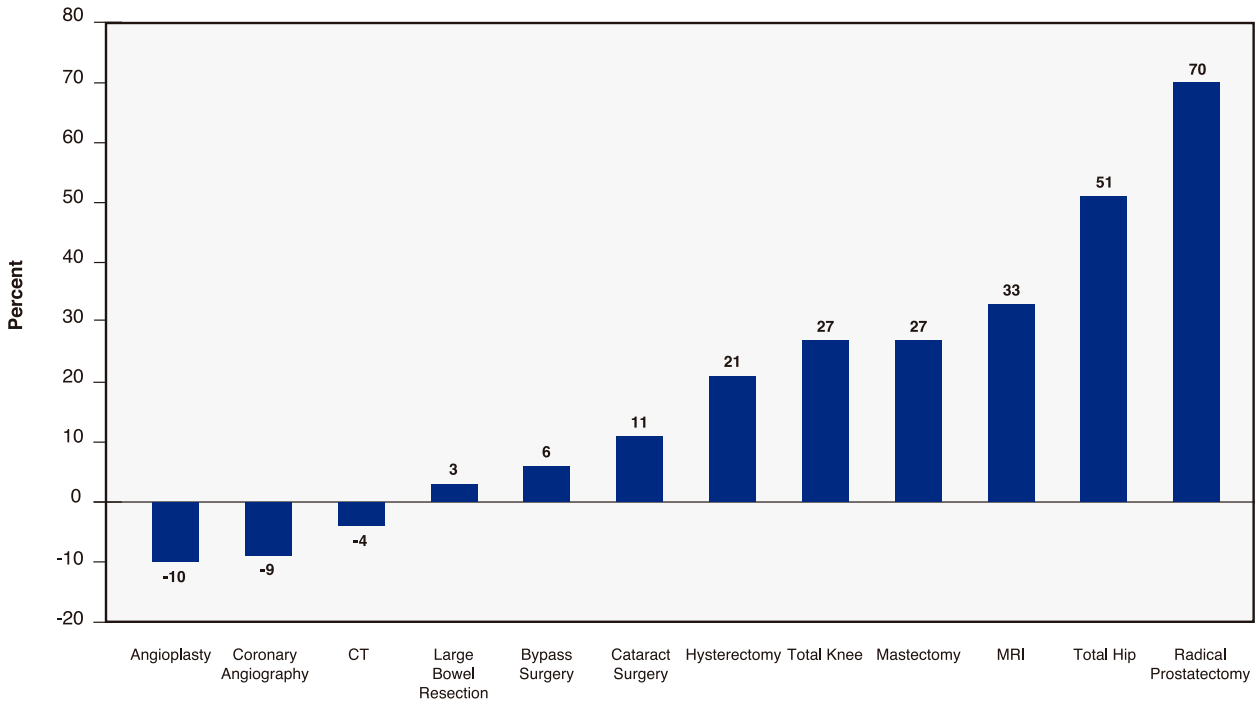


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI–DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 7.4

- There was considerable variation in procedure rates across Local Health Integration Networks (LHINs), even when the analysis adjusted for differences in the age and sex of the population. The largest variations occurred for mastectomy; individuals living in the LHIN with the highest rate were 2.9 times more likely to receive the procedure than individuals living in the LHIN with the lowest rate. This ratio is called the extremal quotient (EQ). The EQ for hysterectomy was 2.4 and the EQ for radical prostatectomy was 2.3.
- The relatively large extremal quotient for mastectomy (2.9) may reflect variations across LHINs in the performance of mastectomy vs. lumpectomy. The variation in the frequency of radical prostatectomy (2.3) may be due to different approaches to the management of prostate cancer in terms of aggressive surgery vs. watchful waiting.
- These analyses of regional variation have not taken into account differences in the frequency of disease (other than those associated with age and sex) and cannot determine the impact of patient preference or clinician practice style on the rate of procedures.

7.5a Percentage difference in rate of procedures between lowest and highest neighbourhood income quintiles in Ontario, 2004/05

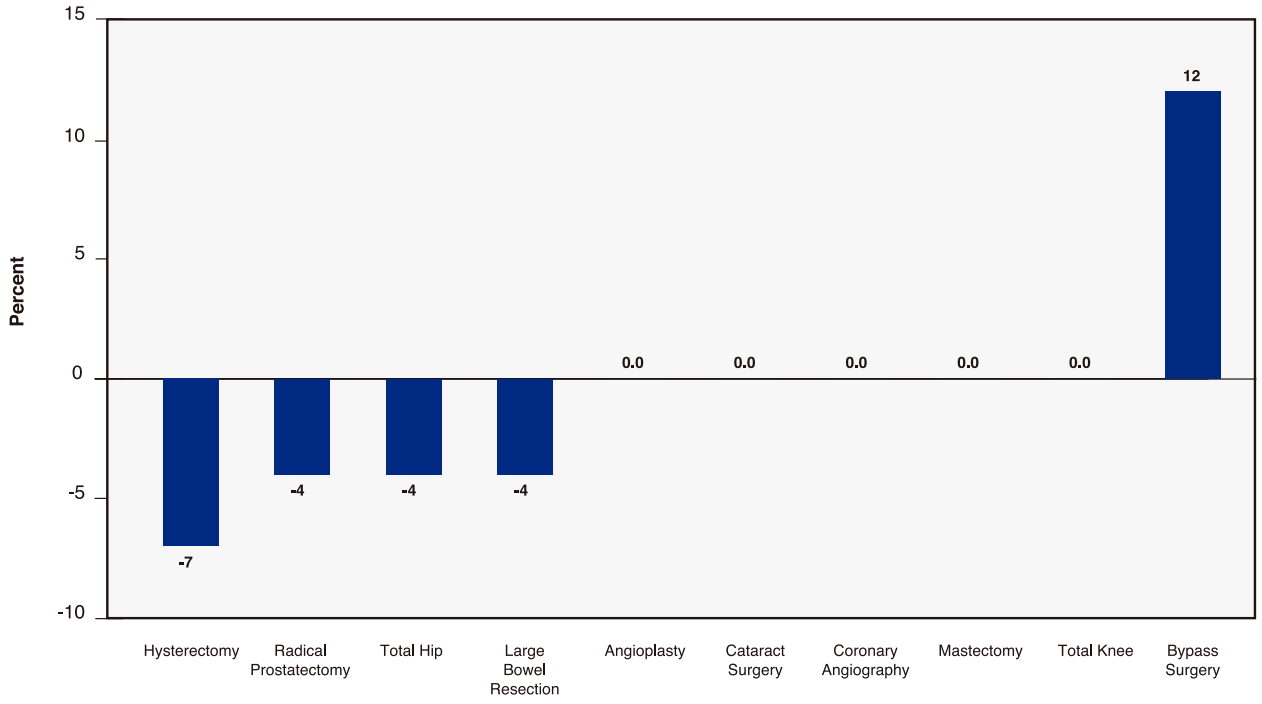


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates, 2001 Census and Postal Code Conversion File

For Exhibit 7.5a

- Positive values indicate that individuals in the highest neighbourhood income quintile are more likely to receive the procedure, while negative values indicate that individuals in the lowest income quintile are more likely to receive the procedure.
- In general, individuals living in low-income neighbourhoods have poorer health than those living in wealthier neighbourhoods. Thus, one would expect the rate of procedures and diagnostic tests to be at least as great or greater in low-income neighbourhoods compared to high-income neighbourhoods. This was the case for coronary angioplasty, coronary angiography and Computerized Tomography (CT) scans.
- However, individuals living in wealthier neighbourhoods in Ontario were more likely to receive radical prostatectomies, total hip and knee replacements, Magnetic Resonance Imaging (MRI) scans, mastectomies and hysterectomies than those living in poorer neighbourhoods.

7.5b Percentage difference in median wait times for selected procedures between lowest and highest neighbourhood income quintiles in Ontario, 2004/05

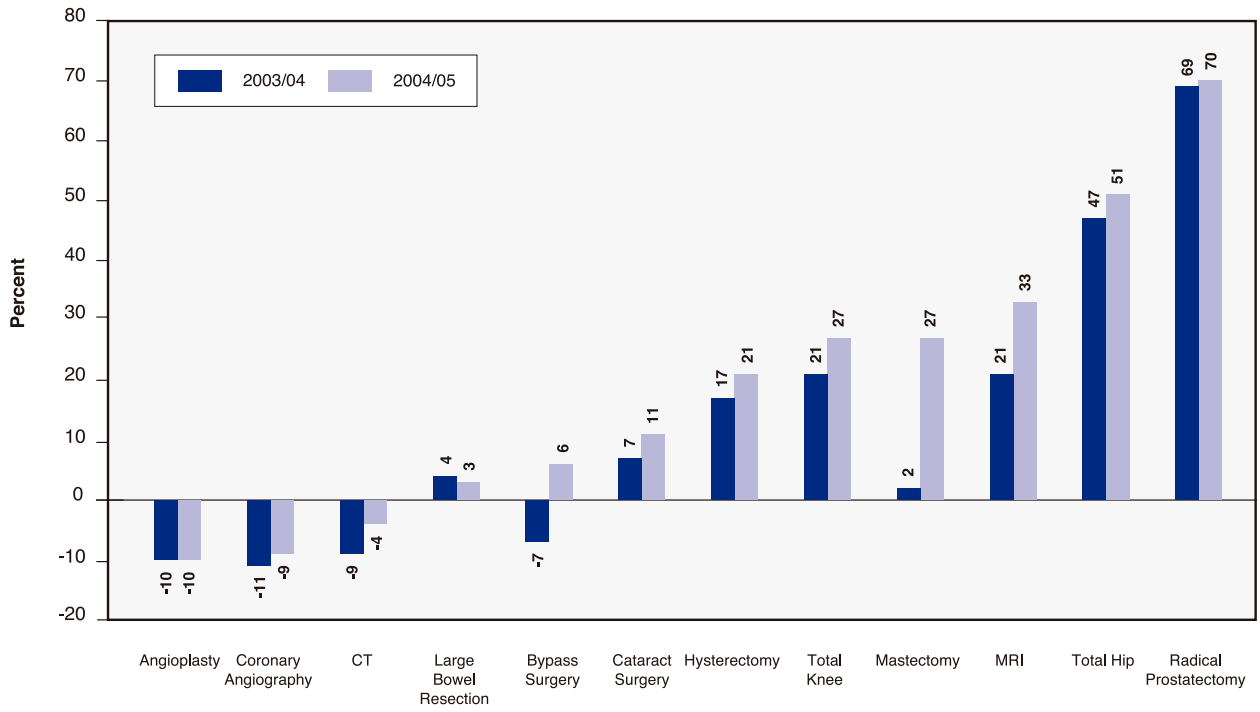


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 7.5b

- In this Exhibit, negative values indicate that individuals in the highest neighbourhood income quintile are more likely to have shorter wait times for their procedure, while positive values indicate that individuals in the lowest neighbourhood income quintile are more likely to have shorter wait times.
- In contrast to the data regarding rates of procedures (Exhibit 7.5a), there were no meaningful differences in median wait times according to neighbourhood income quintile. The marginally shorter median wait times for bypass surgery among patients in the lowest vs. the highest neighbourhood income quintile may reflect greater illness severity or urgency levels.
- Taken together, Exhibits 7.5a and 7.5b suggest that wealthier individuals in Ontario are better able to access services than poorer individuals. However, once services are accessed (i.e., the person is put on a waiting list), wait times are similar regardless of income.

7.6 Percentage difference in the age- and sex-adjusted rate of procedures between lowest and highest neighbourhood income quintiles in Ontario, 2003/04 vs. 2004/05

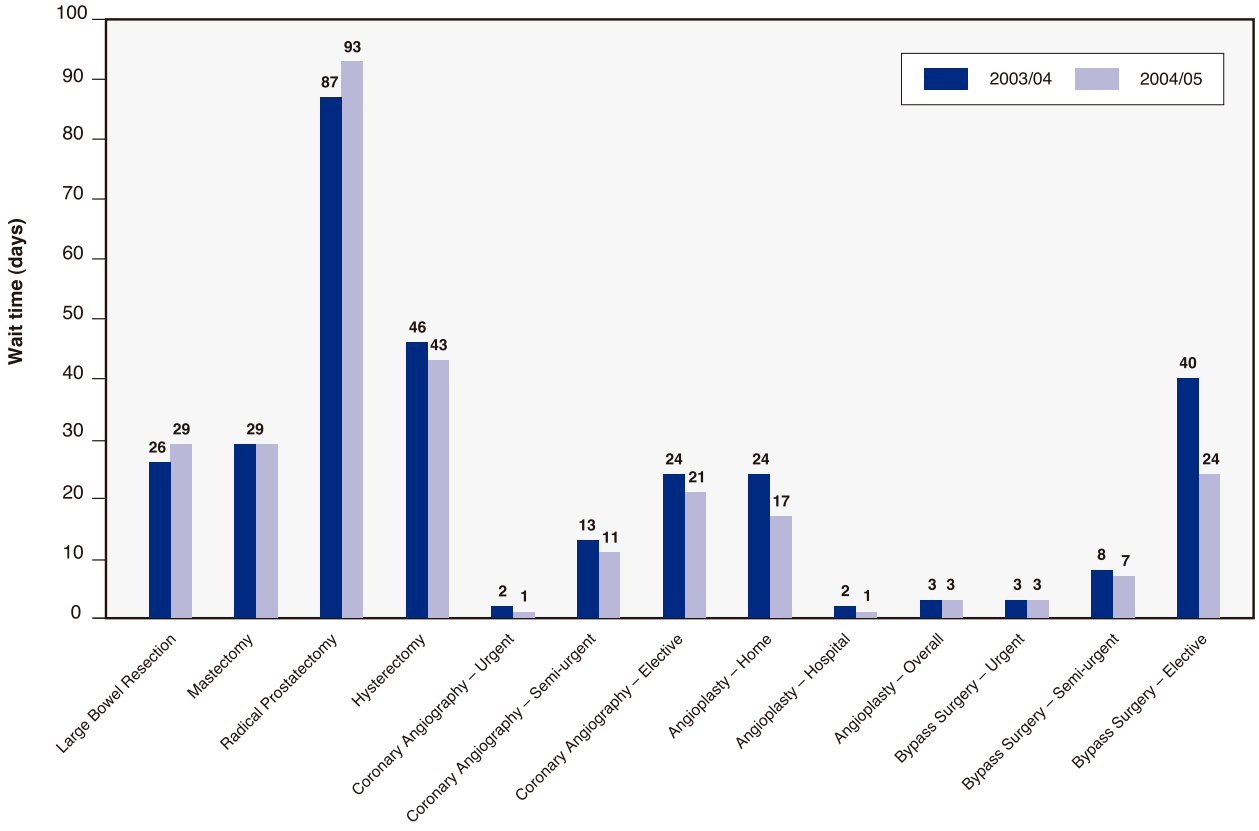


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates, 2001 Census and Postal Code Conversion File

For Exhibit 7.6

- Positive values indicate that individuals in the highest neighbourhood income quintile are more likely to receive the procedure, while negative values indicate that individuals in the lowest income quintile are more likely to receive the procedure.
- Compared to 2003/04, individuals from wealthier neighbourhoods were more likely to access services in 2004/05.

7.7a Comparison of median wait times (days) for cancer and cardiac procedures in Ontario, 2003/04 vs. 2004/05

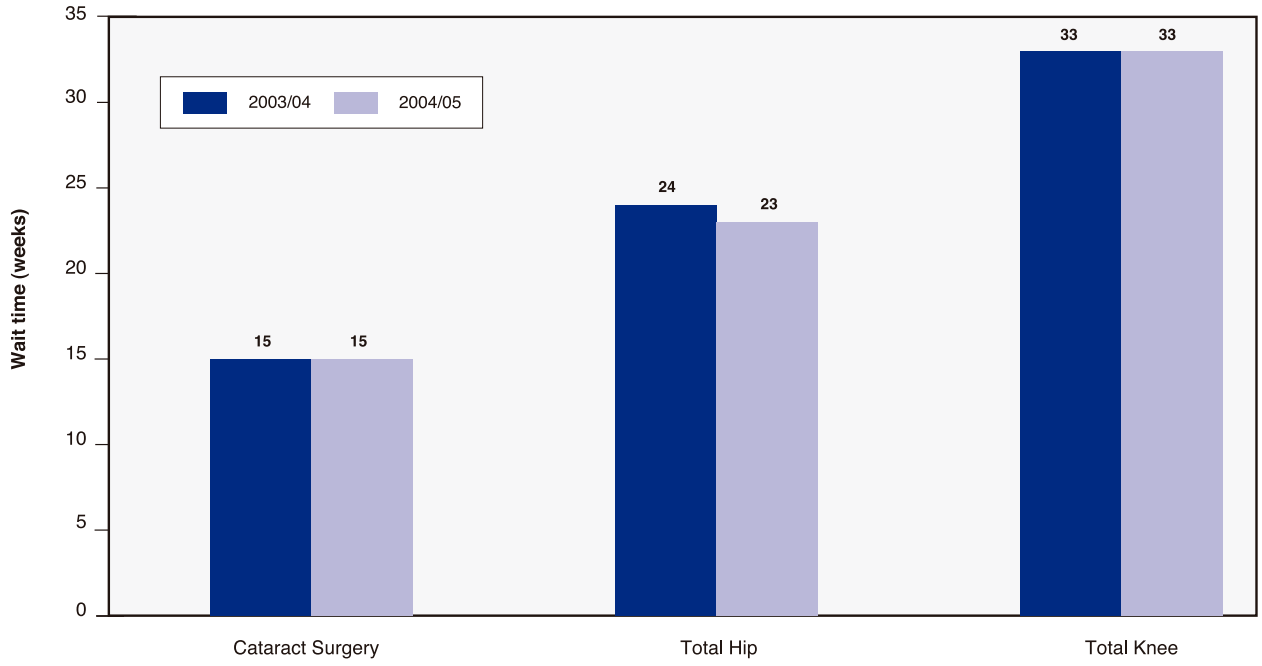


Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Cardiac Care Network of Ontario (CCN); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 7.7a and 7.7b

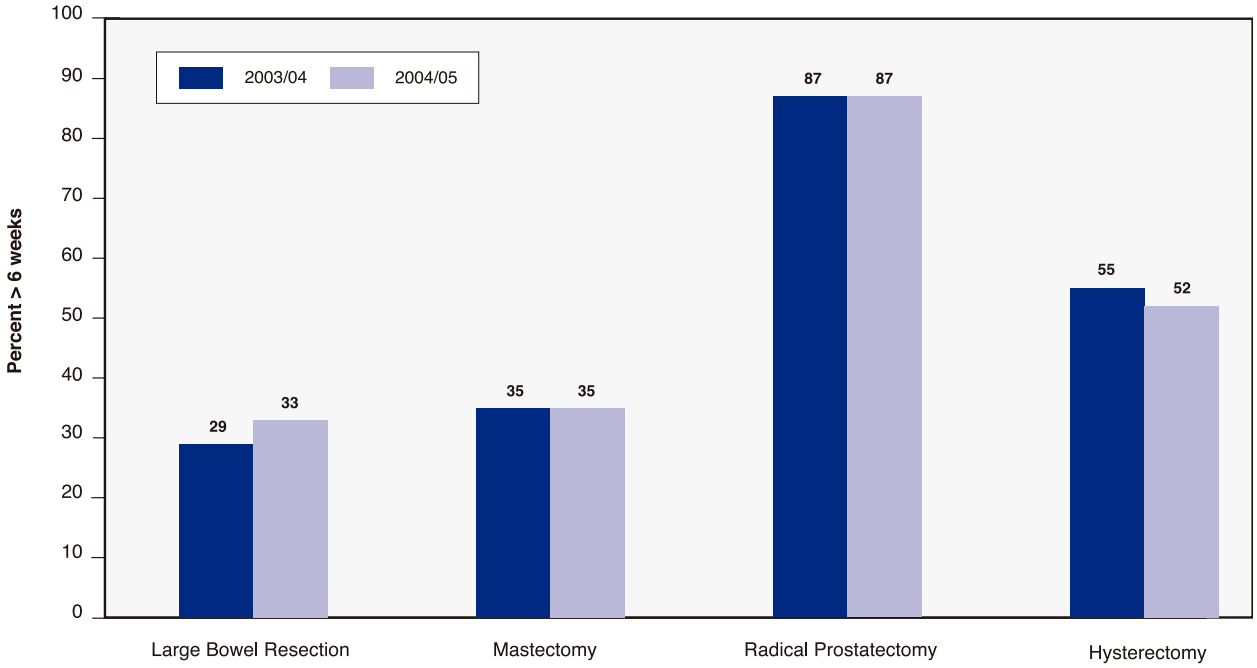
- Median wait times varied considerably depending upon the procedure. From 2003/04 to 2004/05, there were decreases in median wait times for cardiac procedures and total hip replacement surgery.
- Wait times for mastectomy, cataract surgery and total knee replacement were the same.
- There was a small increase in wait times for large bowel resection and radical prostatectomy. Changes in median wait times for prostatectomy should be interpreted cautiously, since the interval studied may include the time required for biopsy results to confirm the diagnosis of cancer. Also, because radical prostatectomy is rarely considered urgent, patients may take time considering non-surgical alternatives prior to surgery.

7.7b Comparison of median wait times (weeks) for cataract and joint replacement procedures in Ontario, 2003/04 vs. 2004/05



Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

7.8a Percentage of patients waiting longer than the Recommended Maximum Wait Time (RMWT)* for selected cancer surgeries, 2003/04 vs. 2004/05



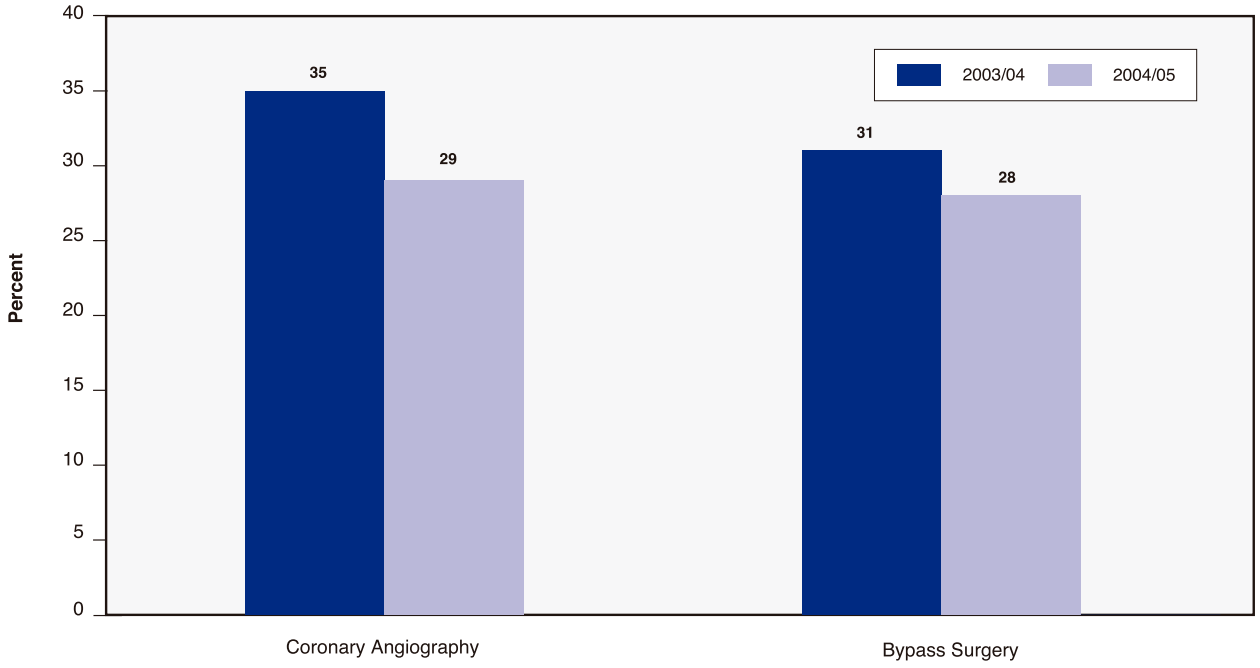
* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four-week period from "decision to treat" to surgery, for a total of six weeks.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – 2001 Census and Postal Code Conversion File

For Exhibit 7.8a

- In 2004/05, as in 2003/04, 35 per cent of women having mastectomy and 87 per cent of men having radical prostatectomy in Ontario waited longer than the Recommended Maximum Wait Time (RMWT) of six weeks* for patients categorized as Priority III.
- In 2004/05, similar to 2003/04, just over half of hysterectomy patients and 33 per cent of patients receiving large bowel resection waited longer than six weeks from the date of consultation to the date of surgery.

7.8b Percentage of urgent patients waiting longer than the Recommended Maximum Wait Time (RMWT) for coronary angiography and longer than the Ontario wait time target for bypass surgery, 2003/04 vs. 2004/05

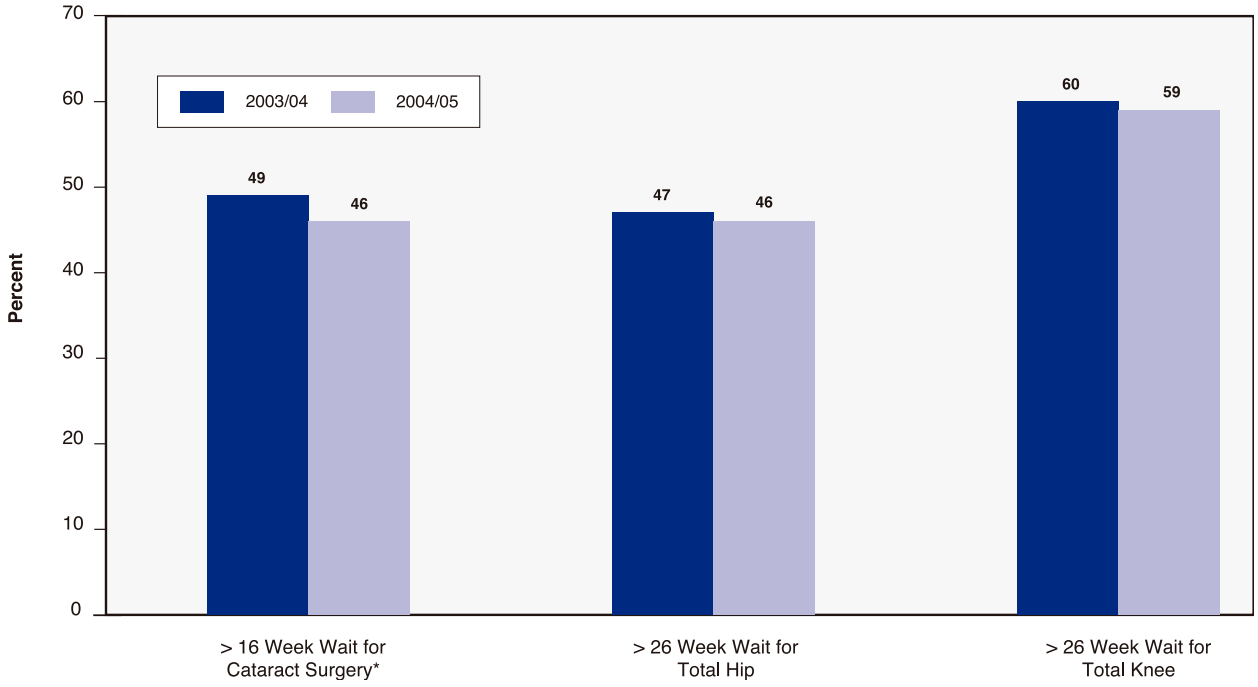


Data sources: Cardiac Care Network of Ontario; Statistics Canada – Postal Code Conversion File

For Exhibit 7.8b

- Twenty-nine per cent of urgent coronary angiographies were not completed within the RMWT of seven days, as defined by the Cardiac Care Network of Ontario. Wait time targets for coronary angioplasty have not been adopted in Ontario, or nationally.
- Twenty-eight per cent of urgent bypass surgeries were not completed within the Ontario wait time target of two weeks.

7.8c Percentage of urgent patients waiting longer than the Recommended Maximum Wait Time (RMWT)* for cataract surgery and longer than the Ontario wait time target for joint replacement surgery, 2003/04 vs. 2004/05



* It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. However, the Recommended Maximum Wait Time of 16 weeks is being used to allow for comparison with findings in last year's Atlas and because existing administrative data do not distinguish patient priority levels.

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP)

For Exhibit 7.8c

- Similar to last year, nearly half (46 per cent) of persons having cataract surgery in Ontario waited longer than the Recommended Maximum Wait Time (RMWT) of 16 weeks used in producing last year's ICES Atlas.
- Just under half of total hip replacement patients and 59 per cent of total knee replacement patients waited longer than 26 weeks, the Ontario wait time target, for their surgery in 2004/05.

7.9 Median wait times for selected procedures by age and gender in Ontario, 2004/05

Procedures	Median Waits Among Men		Median Waits Among Women		Median Waits	
	Youngest	Oldest	Youngest	Oldest	Overall Women	Overall Men
Large bowel resection (days)	29	33	27	30	28	29
Mastectomy (days)	n/a	n/a	30	29	29	n/a
Radical prostatectomy (days)	93	n/a	n/a	n/a	n/a	93
Hysterectomy (days)	n/a	n/a	43	44	43	n/a
Coronary angiography – Urgent (days)	1	2	1	2	2	1
Coronary angiography – Semi-urgent (days)	4	9	6	9	11	11
Coronary angiography – Elective (days)	15	19	20	19	20	21
Angioplasty – Referred from home (days)	13	16	18	17	18	16
Angioplasty – Referred from in-hospital (days)	0	1	1	1	1	1
Angioplasty – Overall (days)	1	3	1	3	3	3
Coronary bypass surgery – Urgent (days)	1	3	1	3	3	3
Coronary bypass surgery – Semi-urgent (days)	6	7	28	8	6	7
Coronary bypass surgery – Elective (days)	35	22	35	21	22	24
Cataract surgery (weeks)	12	15	13	16	15	14
Total hip replacement surgery (weeks)	29	19	26	16	22	25
Total knee replacement surgery (weeks)	37	32	37	28	32	33

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

For Exhibit 7.9

- In 2004/05, median wait times for older men and women undergoing large bowel resection and cataract surgery were longer than wait times for younger patients.
- Older women did not have a substantially longer median wait time for a mastectomy than younger women.
- There was no clear association between patient age and median wait time for hysterectomy.
- Younger men experienced longer median wait times for radical prostatectomy than older men. Reasons for this difference are not known.
- Although there was a tendency toward shorter wait times among younger patients, wait times for cardiac procedures were generally consistent across age and gender subgroups, once variations in urgency were taken into account.
- Overall, wait times for cataract surgery were similar for men (14 weeks) and women (15 weeks).
- Older men and women waited less time for total hip and knee replacements than younger patients.

7.10 Summary of service rates per 100,000 population, by type of procedure and Local Health Integration Network, in Ontario, 2004/05

	Cancer Surgery				Cardiac Procedures			Cataract Treatment	Total Joint Replacement		Diagnostic Scans	
Local Health Integration Network (LHIN)	**Large Bowel Resection**	**Mastectomy**	**Radical Prostatectomy**	**Hysterectomy**	**Coronary Angiography**	**Angioplasty**	**Coronary Bypass Surgery**	**Surgery**	**Total Hip**	**Total Knee**	**CT**	**MRI**
1. Erie St. Clair	113	115	110	57	504	138	82	1,417	124	180	9,223	1,530
2. South West	114	125	148	69	412	124	77	1,271	154	193	8,376	1,670
3. Waterloo Wellington	100	85	131	69	411	139	75	1,020	110	151	8,251	1,586
4. Hamilton Niagara Haldimand Brant	120	89	92	77	593	198	96	1,152	126	181	8,100	2,461
5. Central West	91	46	112	52	575	185	101	919	77	167	8,662	1,766
6. Mississauga Oakville	115	68	92	63	547	172	98	1,121	111	154	9,154	2,288
7. Toronto Central	90	70	78	58	495	160	58	901	92	96	9,637	2,546
8. Central	104	73	94	59	530	174	74	1,133	103	135	9,945	2,142
9. Central East	102	89	129	55	584	174	83	1,264	106	175	10,102	2,063
10. South East	110	79	65	47	733	277	106	1,261	153	209	9,586	1,708
11. Champlain	106	109	80	68	478	221	67	1,368	108	152	10,293	1,770
12. North Simcoe Muskoka	114	92	119	70	588	195	93	1,276	129	179	12,156	1,826
13. North East	134	132	92	67	754	276	82	1,368	120	186	8,896	2,300
14. North West	108	80	92	33	803	162	103	1,193	123	203	8,662	2,481
All Ontario	**109**	**90**	**103**	**63**	**556**	**185**	**83**	**1,185**	**115**	**162**	**9,354**	**2,047**
LHIN highest rate/ LHIN lowest rate	**1.5**	**2.9**	**2.3**	**2.4**	**2.0**	**2.2**	**1.9**	**1.6**	**2.0**	**2.2**	**1.5**	**1.7**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postcensal population estimates and Postal Code Conversion File

7.11 Summary of median wait times for services, by type of procedure and Local Health Integration Network, in Ontario, 2004/05

Local Health Integration Network (LHIN)	Cancer Surgery Median Wait Time (Days)				Cardiac Procedures Median Wait Time (Days)							Cataract Surgery Median Wait Time (Weeks)	Total Joint Replacement Median Wait Time (Weeks)	
	Large Bowel Resection	Mastectomy	Radical Prostatectomy	Hysterectomy	Coronary Angiography			Angioplasty	Coronary Bypass Surgery				Total Hip	Total Knee
					Urgent	Semi-Urgent	Elective	Overall	Urgent	Semi-Urgent	Elective			
1. Erie St. Clair	27	25	102	47	3	15	27	7	4	8	23	9	16	27
2. South West	31	23	98	49	2	11	21	2	4	8	27	19	27	40
3. Waterloo Wellington	36	38	90	47	1	12	30	1	3	7	37	20	23	32
4. Hamilton Niagara Haldimand Brant	28	29	88	42	2	22	30	3	3	9	37	16	22	36
5. Central West	31	39	99	62	1	14	23	2	3	7	24	15	23	30
6. Mississauga Oakville	30	30	95	36	2	14	27	2	3	8	29	14	22	27
7. Toronto Central	22	35	85	48	1	4	10	2	2	6	20	16	22	31
8. Central	26	37	95	48	1	7	13	3	2	6	22	16	22	28
9. Central East	29	27	89	48	1	7	14	3	2	6	20	13	20	23
10. South East	36	27	113	46	2	9	24	2	4	6	15	13	26	34
11. Champlain	23	27	114	35	2	33	61	4	1	5	21	15	36	43
12. North Simcoe Muskoka	32	29	76	46	2	7	14	3	3	6	23	10	25	33
13. North East	33	34	90	42	1	14	22	3	2	4	22	15	27	45
14. North West	37	41	93	29	2	14	38	7	6	7	33	14	22	46
All Ontario	**29**	**29**	**93**	**43**	**1**	**11**	**21**	**3**	**3**	**7**	**24**	**15**	**23**	**33**

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postal Code Conversion File

7.12 Summary of percentage of patients receiving procedures within the Ontario wait time targets, 2004/05

Local Health Integration Network (LHIN)	Cancer Surgery % Completed within RMWT of six weeks*				Cardiac Procedures						Cataract Surgery† % Completed within RMWT of 16 weeks	Total Joint Replacement % Completed within Ontario wait time target of 26 weeks	
	Large Bowel Resection	Mastectomy	Radical Prostatectomy	Hysterectomy	Coronary Angiography** % Completed within RMWT of:			Coronary Bypass Surgery % Completed within Ontario wait time target of:				Total Hip	Total Knee
	6 weeks	6 weeks	6 weeks	6 weeks	Urgent (0–7 days)	Semi-Urgent (8–28 days)	Elective (29 or more days)	Urgent (2 weeks)	Semi-Urgent (6 weeks)	Elective (26 weeks)			
1. Erie St. Clair	67	75	16	47	61	41	59	67	81	79	74	70	49
2. South West	63	75	10	43	61	48	65	58	85	76	43	49	33
3. Waterloo Wellington	63	54	11	45	80	48	60	74	80	64	40	54	44
4. Hamilton Niagara Haldimand Brant	66	65	17	49	55	31	59	69	75	75	51	56	36
5. Central West	61	51	11	27	78	41	71	81	85	87	52	56	40
6. Mississauga Oakville	66	60	13	56	73	44	68	61	82	88	56	58	49
7. Toronto Central	75	55	16	45	87	67	87	80	83	91	50	55	44
8. Central	74	55	15	41	80	59	84	75	85	88	50	57	45
9. Central East	69	67	10	41	78	61	91	82	86	94	57	62	55
10. South East	63	75	4	45	69	51	61	73	92	99	57	51	38
11. Champlain	74	70	2	64	61	36	28	83	90	97	54	37	27
12. North Simcoe Muskoka	64	61	23	48	70	58	85	69	81	84	73	52	41
13. North East	64	63	23	50	78	42	65	69	81	90	53	48	29
14. North West	53	53	5	86	70	44	48	58	76	78	54	57	28
All Ontario	**67**	**65**	**13**	**48**	**71**	**49**	**70**	**72**	**83**	**86**	**54**	**54**	**41**

* **Cancer surgery:** It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. Cancer Care Ontario's Recommended Maximum Wait Time (RMWT) from consult to "decision to treat" is two weeks. The RMWT from "decision to treat" to surgery for Priority III patients is four weeks. Similar to last year's ICES Atlas, cancer surgery wait times in this report are defined as the wait time from surgical consultation to surgery. Therefore, the RMWT used here includes the initial two-week period between consultation and "decision to treat" *plus* the four-week period from "decision to treat" to surgery, for a total of six weeks.

** **Coronary angiography:** As Ontario wait time targets have not been adopted for coronary angiography, the Cardiac Care Network of Ontario's Urgency Rating System, which is well established in Ontario, has been used above. Recommended Maximum Wait Times (RMWT) are: Urgent = RMWT of 0–7 days; Semi-Urgent = RMWT of 8–28 days; Elective = 29 days or greater

† **Cataract surgery:** It is recognized that Ontario has adopted a priority classification with four priority levels and associated wait time targets. However, the Recommended Maximum Wait Time of 16 weeks is being used to allow for comparison with findings in last year's ICES Atlas and because existing administrative data do not distinguish patient priority levels.

Note: There are currently no Ontario Recommended Maximum Wait Times for angioplasty

Data sources: Canadian Institute for Health Information – Discharge Abstract Database (CIHI-DAD) and National Ambulatory Care Reporting System (CIHI-NACRS); Ministry of Health and Long-Term Care – Ontario Health Insurance Plan (MOHLTC-OHIP) and Registered Persons Database (MOHLTC-RPDB); Statistics Canada – Postal Code Conversion File

INSIDE

Chapter 8

Reflections

Jack V. Tu, MD, PhD, FRCPC, Paula McColgan, MHA, CHE, Samuel Shortt, MPA, MD, PhD, and Andreas Laupacis, MD, MSc, FRCPC

A Year in Review

Following the launch of the Ontario government's Wait Times Strategy in November 2004,[1] ICES released its atlas, *Access to Health Services in Ontario* in April 2005. This report provided important baseline information, up to 2003/04, to guide efforts to improve access to the five key health care services identified in the Ontario Strategy, namely: selected cancer surgeries, selected cardiac procedures, cataract surgery, total hip and knee joint replacements, and Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) scans. In addition to providing baseline data, a series of recommendations was made to improve access to care in Ontario through better management of waiting lists.

Just prior to and since the release of the 2005 ICES Atlas, the Ontario government has made a number of funding announcements and undertaken a variety of provincial initiatives to support the Strategy. Exhibit 8.1 examines the progress made toward implementing the recommendations identified in the 2005 ICES Atlas.

Exhibit 8.1 A Year in Review

Recommendations from *Access to Health Services in Ontario*, 2005	Progress toward implementation of ICES' 2005 recommendations[1]
Targeted "one-time" queue-clearing funding infusions are needed to shorten prolonged and/or rapidly expanding waiting lists.	Targeted funding in 2004/05 (November 2004–March 2005) for an additional: ✓ 1,680 hip and knee joint replacements ✓ 2,000 cataract surgeries ✓ 19,500 MRI scans ✓ 1,700 cancer surgeries ✓ 805 cardiac procedures
	Targeted funding in 2005/06 (April 2005–March 2006) for an additional: ✓ 5,200 hip and knee joint replacements ✓ 14,000 cataract surgeries ✓ 58,500 MRI scans ✓ 2,900 cancer surgeries ✓ 7,000 cardiac procedures
	$50M in 2004/05 for four MRI scanners, 16 CT scanners, and five cardiac catheterization imaging units.
	Approximately $5M in annual operating funding for the Kensington Eye Institute which opened on January 9, 2006 and is expected to complete 6,700 cataract surgeries annually.
	$5.8M to support 18 education and 36 innovation projects focused on reducing wait times.
	$1.6M in 2004/05 and $10M in 2005/06 to increase capacity for in-home rehabilitation services to meet the growing demand arising from additional hip and knee total joint replacements.
Once waiting lists are stabilized, methods of allocating long-term funding should be developed using population-based regional target procedure rates.	Not applicable at this time, as waiting lists are not yet stabilized.
Funding is required for public education regarding waiting lists.	A public website (www.ontariowaittimes.com), focused on wait times, was launched on December 20, 2004. The site contains information for the public regarding waiting lists in Ontario.

Exhibit 8.1 A Year in Review (continued)

Recommendations from *Access to Health Services in Ontario*, 2005	Progress toward implementation of ICES' 2005 recommendations[1]
Publish annual provincial reports on access to health care in Ontario, initially for the five key services, but expand the reports over time to include other priority areas.	The ICES Atlas, *Access to Health Services in Ontario,* was published in April 2005. One year later, this 2nd edition of the Atlas has been published. Reports are currently limited to the five key services. The Ontario Health Quality Council, launched in September 2005, will report annually on health issues such as wait times.
Develop an electronic provincial wait list clinical registry.	For the five key services, the Wait Times Information Office (WTIO) is collecting a minimal wait time data set for completed cases, with information being publicly reported by hospital, by Local Health Integration Network (LHIN), and provincially on the Ministry of Health and Long-Term Care wait times website. The Wait Times Information System, that will include more detailed wait times data and tools to help doctors and hospitals better manage their wait lists, is in the pilot phase of implementation and is targeted to have more than 50 hospitals participating by December 2006.
Implement, with Ontario-specific modifications if necessary, existing patient urgency rating systems for selected services where feasible and appropriate.	Urgency rating systems exist and have proven to be critical in managing waiting lists for coronary artery bypass surgery and coronary angiography in Ontario. In December 2005, in consultation with Ontario expert panels, the government announced wait time targets based on a patient prioritization scheme for each of the other key services that are part of the Ontario Wait Times Strategy. Data on waits times by patient urgency will be collected in the Wait Times Information System.
Develop and implement Ontario-specific wait time benchmarks, using work completed in other jurisdictions.	Pan-Canadian wait time benchmarks were announced on December 12, 2005 for cataract surgery, hip and knee replacement surgery and cardiac bypass surgery. Ontario-specific wait time targets were announced on December 16, 2005 for the five key health care services.
Develop evidence-based guidelines for appropriate clinical indications for selected services.	To date, no progress has been made.
Develop a system to measure patient outcomes before and after procedures.	To date, the degree of disability prior to and following surgery is not being measured (e.g., visual acuity before and after cataract surgery) in the Ontario Wait Times Information System. Such data will be important to assess whether services are being appropriately delivered.
Develop computer simulation models to estimate future need for services.	ICES is beginning to undertake work, in collaboration with a number of partners, that will be used as a basis for developing models to project the future need for the key services.
Develop methods to measure other important wait time intervals.	The information required to assess other important wait times, such as the wait time from the primary care provider to the specialist, is not available across Ontario.
Measure access to other important components of the health system to ensure that these areas are not adversely affected.	There has been no public reporting, as yet, regarding services beyond the five identified in the Wait Times Strategy.
Investigate the causes of socioeconomic disparities in access to certain services.	To date, no progress has been made.

Discussion

Exhibit 8.1 indicates that there have been significant investments and notable progress toward implementing the recommendations set out in ICES' 2005 Atlas. However, due to time delays related to the receipt of administrative databases at ICES, with the most current year of data available being 2004/05, it is not possible, in this report, for ICES to evaluate the effectiveness of Ontario's efforts to reduce wait times.

This section of the report will reflect on the time period from 2002/03 to 2004/05, the majority of which precedes the November 2004 launch of Ontario's Wait Times Strategy and the implementation of its initiatives.

Trends in rates of service provision from 2002/03 to 2004/05

The findings in the preceding chapters indicate that the population-based rates for the five key services increased between 2002/03 and 2004/05, with particularly large increases in the rates of MRI scans, CT scans, hip and knee total joint replacements, and percutaneous coronary interventions (PCI) also known as coronary angioplasties. However, as was noted in the first edition of this Atlas, there continue to be significant variations in the rates of these procedures across Ontario, with some Local Health Integration Networks (LHINs) having rates that are twice as high as rates in other LHINs. Whether these geographical discrepancies in rates of service reflect differences in local practices, burdens of disease, or funding policies requires further examination.

As Ontario transfers funding, planning and decision-making authority to LHINs, it will be important to monitor access to health services across regions of the province to help ensure that all Ontarians receive similar levels of access. The information contained in this Atlas should assist LHINs in determining which services require additional funding in their region and which services might be sought from neighbouring LHINs, where feasible.

Trends in wait times from 2002/03 to 2004/05

With the exception of wait times for cardiac procedures, which declined significantly between 2002/03 and 2004/05, relatively little change was seen in wait times for other key services, despite increasing rates of service provision. It should be noted however, that in 2004/05, for the first time since 2001/02, median wait times for hip and knee replacements did not increase, although many patients continued to have wait times that exceeded the new Ontario wait time target of 26 weeks for hip and knee total joint replacements.[1]

Though there is an expectation that wait times will decrease with an increase in rates of service provision, several factors may help to explain why this was not the case in 2004/05.

1. **Absence of a provincial wait times strategy prior to November 2004.**

A key factor that may have contributed to the lack of progress on wait times in 2004/05 is that Ontario did not have a formal strategy in place until November 2004. The data in this Atlas largely reflect what happened to rates and wait times in the absence of a coordinated and dedicated effort to address the issue. The Ontario government has since committed considerable resources to this effort, as noted in Exhibit 8.1

2. **Rates of service increases were just sufficient to meet the current demand for services, but were not sufficient to deal with the backlog of cases in the queue.**

In general, waiting lists occur when the demand for services exceeds the available supply. Once waiting lists are well-established, as they are in Ontario, reducing wait times requires an increase in service capacity, above and beyond the current demand for services, to address those in the queue. For example, in spite of a 20 per cent increase in the rate of total knee replacements between 2002/03 and 2004/2005, the median wait time increased from 30 to 33 weeks. This finding suggests that the 20 per cent increase in service rate was insufficient to meet the demand, which is increasing from year to year, let alone to address the backlog of cases. To achieve a marked reduction in wait times for this procedure, there is a need to substantially increase the number of knee replacements performed in Ontario.

3. **Increases in service rates in 2004/05 were not allocated preferentially to those areas of the province with the greatest need.**

Prior to the publication of *Access to Health Services in Ontario* in April 2005, decision-makers had relatively little information on wait times which could be used to allocate funding for increased volumes of services. As a result, the distribution of initial funding under the Wait Times Strategy was based on a number of factors such as historical demand, hospital capacity and hospital efficiency, to name a few. With the public release of the 1st and 2nd editions of *Access to Health Services in Ontario*, as well as the collection of wait time information through the Wait Times Information Office, decision-makers now have additional information which can be used to allocate funding to those areas of the province with the greatest needs. In time, this will help provide all Ontarians with more timely access to these services.

4. The absence of a "real-time" clinical information system to guide waiting list management.

The only services that showed a marked decrease in wait times in 2004/05 were selected cardiac procedures. This finding is not surprising given that Ontario has made a long-standing investment in the Cardiac Care Network of Ontario's waiting list registry. This has enabled clinicians and policy makers to identify wait time issues, at the hospital level, in "real-time." The availability of this information has been invaluable in supporting informed decisions regarding resource allocation. As noted in Exhibit 8.1, Ontario is making progress toward establishing a "real-time" prospective provincial waiting list registry, the Wait Times Information System (WTIS), for the other four key services. While the WTIS is not expected to be fully functional until December 2006, the data contained within it will support informed resource allocation decisions and real-time waiting list management.

5. The clinical threshold for performing procedures may be changing.

It is well-recognized that an increase in supply often leads to an increase in demand, and that resource use is often more closely correlated with supply than with underlying disease.[2,3]

While the WTIS will contain some clinical information, including the reason each procedure was performed, there will not be sufficient information to determine the appropriateness of performing the procedure. As such, there is a need to collect additional data, perhaps through supplemental chart review or patient surveys, which will allow for appropriateness of service provision to be evaluated. By assessing appropriateness, it is possible to determine whether an increased rate of service is related to a change in the clinical threshold for performing the procedure or whether the increased rate is due to unmet need.

It is also possible that more patients are using the Internet to obtain information about clinical options relevant to their conditions. Some may visit their physicians requesting such services. When physicians respond to patients' requests for services, there is a rate-augmenting effect (i.e., the rate increases due to patient demand).

New clinical trials are also continually being published that will increase the clinical eligibility criteria for diagnostic tests and surgical procedures (i.e., the demand for services).

Addressing wait times is a complex and challenging issue that requires the coordination of many stakeholders in the health care system. It could be several years before marked progress is seen.

Socioeconomic differences in rates of service provision and waiting times

The 2005 ICES Atlas showed that, in 2003/04, there were important socioeconomic disparities in the rates of service provision, with higher rates for some procedures observed in wealthier neighbourhoods in Ontario. This edition of the Atlas shows that in 2004/05, there were even greater disparities in access to care associated with socioeconomic status, with strikingly higher rates of MRI scanning, hip and knee total joint replacements, and radical prostatectomy for those living in wealthier neighbourhoods.

In 2003/04, CT scans and cardiac procedures were performed with greater frequency in patients from poorer neighbourhoods, which is not surprising, since lower socioeconomic status is often associated with poorer health. However, in 2004/05, the frequency of such services was similar across all individuals, regardless of their socioeconomic status. These findings suggest that while the rate of key health services has increased, the services are being disproportionately accessed by wealthier people.

Encouragingly, the findings show that the wait times for those receiving services in 2004/05 were similar across socioeconomic groups in Ontario. This suggests that once patients are put on a waiting list, they are treated similarly, regardless of socioeconomic status. As well, wait times were found to be similar for patients of different ages and gender in Ontario. These results suggest a need for increased monitoring of access to health care services by socioeconomic status, as well as the need for additional research to determine why differences in procedure rates exist.

Future reporting on wait times

Future reporting on wait times should provide insight into the effectiveness of Ontario's Wait Times Strategy in reducing wait times and improving access to care. Data from 2005/06 will be available, covering the period during which significant investments were made to increase the volume of services provided. As well, hospitals are now required to submit real-time data on their respective wait times for the five key services. Hospital-specific results are available on the Ministry of Health and Long-Term Care (MOHLTC) wait times website (www.ontariowaittimes.com). It is possible that the increased focus on wait times by hospital boards, as well as by the media, will have a positive effect on wait times at these hospitals.

Differences in wait times information

It is recognized that the information on wait times in this Atlas is different than the information available on the Ontario MOHLTC wait times website. These discrepancies exist for a couple of reasons:

- First, wait times published in this report are based on data from April 1, 2002 to March 31, 2005, whereas the information on the MOHLTC website reflects wait times for procedures performed after July 2005.
- Second, this Atlas is based upon a retrospective analysis of population-based administrative data that cover all residents in Ontario. The wait times information on the MOHLTC website relies on data that is being collected prospectively from participating hospitals.

Both of these data sources have advantages and disadvantages. Wait times information in the ICES Atlas has the benefit of being based on the experiences of all patients in the province; the MOHLTC website information includes data on the majority of patients receiving procedures in participating hospitals (equaling approximately 80 per cent or more of the provincial cases, depending on the procedure).

The ICES Atlas uses a complex formula to estimate actual wait times (time between the last visit to the surgeon, according to the physician billing database, to service provision, based on the hospital discharge abstract database). On validation, this approach has been shown to be very good, but not perfect, for determining actual median wait times. On the other hand, the MOHLTC wait times website is based on self-reports from hospitals with limited validation by the Wait Times Information Office. There may be differences in how hospitals across the province are self-reporting wait times.

Neither of these data sources is as strong as the "gold standard" (a prospective clinical wait times registry). Hopefully, data from the new Wait Times Information System will be independently validated and available for use in future editions of the ICES Atlas, *Access to Health Services in Ontario*.

Notably, the discrepancy in wait times between the above-mentioned data sources is not an issue in the area of cardiac procedures, as data from the Cardiac Care Network of Ontario registry have been used by both sources. Differences between this report and the MOHLTC wait times website regarding wait times for cardiac procedures exist because different time periods were being reported on.

As well, there continues to be no other province-wide information collection on wait times for MRI and CT scans beyond the Wait Times Information Office, so the data on the MOHLTC website is all that is available.

Concluding Remarks

From 2002/03 to 2004/05, there has been a steady increase in the rates of service provision for the five key services identified in Ontario's Wait Times Strategy. Increased service rates cannot yet be associated with a reduction in wait times, with the exception of wait times for cardiac procedures, which dropped substantially. However, it should be noted that for the first time since 2001/02, median wait times for hip and knee replacements did not increase.

Due to the fact that province-wide administrative data are not yet available for the time period during which many of the investments were made through the Wait Times Strategy (i.e., fiscal 2005/06), it is premature for ICES to draw conclusions regarding the effectiveness of the Strategy.

The information contained within this report, *Access to Health Services in Ontario: 2nd Edition*, should be useful to policy makers and providers as they continue in their efforts to create a more equitable and responsive health care system in Ontario. In the future, particular attention should be focused on expanding the services for which valid data are collected. This should include measuring indicators of appropriateness; monitoring inequities in access by socioeconomic status, gender and region; and, tracking the impact of resource allocation decisions based on waits and rates. These issues are given added urgency in light of recent legal decisions concerning reasonable access to medical services.

References

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