

# **Waiting Times for Surgery: 1997/98 and 1998/99 Update**

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Health Policy and Evaluation**  
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This report was prepared as part of the contract between the University of Manitoba and Manitoba Health. The results and conclusions are those of the authors, and no official endorsement by Manitoba Health was intended nor should be inferred.

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## Executive Summary

The objective of this document is to update the waiting times analysis that the Manitoba Centre for Health Policy and Evaluation first published in 1998: *Surgical Waiting Times in Manitoba*, by DeCoster, Carriere, Peterson, Walld, and MacWilliam. Since its publication, interest in waiting times for health care has if anything increased, yet the rhetoric far outweighs the data. This research provides one of the few examples of actual measurement of a waiting period, using data derived from the experience of all patients who underwent surgery in a specified time period.

Administrative data were used to estimate waiting times for selected elective surgical procedures; a pre-operative visit to the surgeon was the marker for the beginning of the wait. The original paper used data for five years from 1992/93 to 1996/97 (except coronary procedures which used 1990/91 to 1996/97); this report adds data for 1997/98 and 1998/99, and makes comparisons with the earlier findings. As in the original report, the procedures studied have been grouped into three areas: coronary procedures, cataract surgery, and eight routinely-performed elective procedures.

Waits that were statistically different are marked with an asterisk. However, what is *statistically* significant may not be *clinically* significant. The clinical relevance of shorter or longer waits is a subject of great controversy. Little is known about the impact of a delay for discretionary surgery; some patients will improve or decide they do not want surgery, whereas others will suffer continual pain, dysfunction or anxiety. The evidence in this area is inconclusive: a systematic literature review of the effect of delay on breast cancer outcome was performed for the General Surgery panel of the Western Canada Waiting List project; of the 30 papers reviewed, delay was found to have a negative impact on survival in 14 papers, and no impact on survival in 16 papers. Therefore, the clinical significance of a change in waiting times is uncertain. Despite this uncertainty, because waiting times have assumed such significance in the discussions on our health care system, we have emphasized changes that were seven or more days.

We also made no assessment as to the appropriateness of these procedures. Several of the elective procedures reviewed may be considered highly discretionary, meaning that there is no general agreement about when surgery is indicated. Discretionary procedures include, for example, tonsillectomy, and varicose vein repair.

### **Coronary procedures – key findings**

- Coronary procedures studied were coronary artery bypass surgery (CABS) and percutaneous transluminal angioplasty (PTCA).
- Between 1996/97 and 1998/99, the standardized rate of CABS increased 16% and the rate of PTCA increased 6%.
- Median waits for scheduled (elective) CABS were 15 and 22 days shorter in 1997/98 and 1998/99, respectively, compared with the previous seven-year median of 48 days.
- A previously reported trend to a higher proportion of scheduled patients receiving surgery within 90 days continued.
- The median wait for scheduled PTCA was not significantly different from the 90/91-96/97 median. The wait for 90/91-96/97 was 32 days, for 97/98 it was 37 days, and for 98/99 it was 31 days.

### **Cataract surgery – key findings**

- Cataract surgery is performed in both public hospitals and privately-owned clinics. Until January 1999, patients who had cataract surgery in a private clinic were required to pay a tray or facility fee of approximately \$1000; since then, Manitoba Health has covered all costs.
- There was a 12 week difference in waits between public- and private-sector surgery for 97/98 and 98/99. The public-sector waiting time was 17 weeks, and the private-sector 5 weeks. These were both significantly longer than the previous five-year medians of 13 and 4 weeks.
- Public-sector waits for 97/98 and 98/99 did not increase compared to 96/97. The rate of performing public-sector cataract surgery increased 13% since 96/97.



- About 75% of cataract surgery was in the public sector, and about two-thirds of public-sector cataract surgery was performed by surgeons who practised in both sectors.
- There continued to be a difference in waits in the public sector according to surgeon practice-type. Waits for public-sector surgery if the surgeon operated *only* in the public sector were 10 weeks in both 97/98 and 98/99; waits for public-sector surgery for surgeons who had *both* public and private practices were 21 and 26 weeks in 97/98 and 98/99, respectively.
- Median waits were similar according to region of residence and by neighbourhood income level.
- Almost 65% of cataract surgery is performed on women, and women had median waits about three weeks longer than men.
- About 20% of patients from the lowest and lower-middle income neighbourhoods had surgery privately, compared to 32% of patients from the highest-income neighbourhoods.

### **Selected routine procedures – key findings**

- We studied eight routinely-performed elective procedures: excision of breast lesions, carotid endarterectomy, cholecystectomy, carpal tunnel release, trans-urethral resection of prostate (TURP) (for benign disease), tonsillectomy, hernia repair, and stripping and ligation of varicose veins. Although all of these procedures are “elective” in the sense of being scheduled, they range in the degree to which indications for surgery are clear and undisputed, with excision of breast lesions and carotid endarterectomy being less discretionary, and tonsillectomy and varicose vein repair being more discretionary.
- Since 96/97, standardized rates for three of these procedures increased (excision of breast lesions (+29.7%), cholecystectomy (+8.6%), and tonsillectomy (+16.2%)), two decreased (carpal tunnel release (-7.3%), varicose vein repair (-5.6%)) and three stayed about the same.
- In 1998/99, waits for seven of the eight procedures were significantly longer compared to 92/93-96/97; only cholecystectomy was not significantly different.

- For five of the procedures, the wait was four to six days longer, for carpal tunnel release it was 17 days longer and for varicose vein repair it was 19 days longer in 98/99 compared to 92/93-96/97.
- For seven of the eight procedures (all except carotid endarterectomy), patients from either Winnipeg or the West (South Westman, North Westman and Brandon RHAs) had a significantly longer wait than the Manitoba median. Patients in the South (Central and South Eastman RHAs) had a shorter wait than the Manitoba median for four procedures. Patients living in other RHAs had waits similar to the Manitoba median.
- Median waits were similar by age, gender and neighbourhood income level. Whereas previously, older patients tended to have shorter waits than younger, in 97/98-98/99, there was no difference according to age.

## **Discussion**

This report provides a measure of the actual time that patients wait for a variety of surgical procedures. There is good news. For instance, the waits for coronary artery bypass surgery are decreasing and a bigger proportion of patients receive their surgery within 90 days. Also reassuring is that, whether male or female, wealthy or poor, young or old—Manitobans experience similar waiting times. For all procedures studied, except cataract surgery, waits were less than 60 days, and for several of them, the wait was around 30 days. Shortening waits more than this may in fact be inappropriate, since patients should have sufficient time to weigh carefully the risks and benefits that accompany any surgical procedure.

However our report raises some concerns also. There was a general pattern of increasing waiting times for elective surgery. For instance, the median wait for breast tumour surgery increased 25% in 98/99 compared to the 92/93-96/97 median, and the median wait for carotid endarterectomy increased 23%. Even though the median waits are generally less than 60 days, and the absolute increases are not large—4 days for breast tumour surgery and 6 days for carotid endarterectomy—it is the trend towards increasing waits that is of concern. Do they indicate that access to care is decreasing?

One of the usual, and indeed intuitive, responses to this kind of finding, is that we need more resources. It seems logical that if waits are increasing, then it must mean that supply is inadequate. But an increase in resources is not necessarily the answer. While an increase in the rate of coronary artery bypass was accompanied by a decrease in median waiting time, there is also conflicting evidence: increasing rates of cataract and prostate surgery were accompanied by increases in median waiting times.

The presence of a parallel private system also does not result in shorter waits in the public sector. Manitoba Health's decision to ban extra fees for private clinic cataract surgery reflects the recognition of this fact. We found that waiting times for cataract surgery in the public sector were longest for surgeons who also had a private practice. The reasons for this finding are unclear. It is not the case here that surgeons who operated in both sectors devoted less time to their public sector patients, since they made maximum use of the public-sector operating room time available to them. There is, however, an incentive for surgeons who operated in both sectors to have long public-sector waiting lists, and these surgeons might place their patients on waiting lists earlier than others, knowing that with the anticipated wait, patients will be ready for surgery when called. The potential discrepancies in dysfunction between patients waiting for the same procedure point to the need for better information.

What is needed to manage waits is a system that prioritizes patients based on defined criteria, such as severity of illness, activity limitation, urgency, and expected benefit. In addition, information on waiting times for individual surgeons should be readily available, to assist patients and primary care physicians when making referrals to specialists. A waiting list information system should flag patients whose waits seem excessively long, reprioritize patients based on their changing conditions, and remove patients from the list who are no longer waiting, either because they have moved, or their condition improved, or they decided against surgery. Finally, better information systems can contribute to research on outcomes, which can then feed back into improved management of waiting times.

In closing, while this research monitors waiting times, it cannot assist with managing them. The causes of waiting times—a complete discussion of which is beyond the scope of this

report—are complex. Consequently, their solutions are often elusive. But one thing seems clear—in order to have some impact on waiting times, more and more accurate information is needed.

## Introduction and Objectives

The objective of this document is to update the waiting times analysis that the Manitoba Centre for Health Policy and Evaluation first published in 1998: *Surgical Waiting Times in Manitoba* by (DeCoster C, Carriere KC, Peterson S, et al.). Since its publication, interest in waiting times for health care has if anything increased, yet the rhetoric far outweighs the data. This research provides one of the few examples of actual measurement of a waiting period, using data derived from the experience of all patients who underwent surgery in a specified time period.

As in the first report, administrative data were used to estimate waiting times for selected elective surgical procedures; a pre-operative visit to the surgeon was the marker for the beginning of the wait. The original paper used data from 1992/93 to 1996/97 inclusive (except coronary procedures which used 1990/91 to 1996/97); this report adds data for 1997/98 and 1998/99, and makes comparisons with the earlier findings. In this report, there will be a brief review of the methods, followed by updated results.

As for the original report, the procedures studied have been grouped into three areas:

1. Coronary procedures: coronary artery bypass surgery (CABS) and percutaneous transluminal angioplasty (PTCA)
2. Cataract surgery: this procedure is discussed separately because it has been performed both publicly and privately. Until January 1999, patients who had cataract surgery in a private clinic were required to pay a tray or facility fee of approximately \$1000; since January 1999, Manitoba Health covers all costs.
3. Selected routinely-performed elective procedures: excision of breast lesions, carotid endarterectomy, cholecystectomy, carpal tunnel release, trans-urethral retropubic prostatectomy (TURP) (for benign disease), hernia repair, tonsillectomy, and stripping and ligation of varicose veins. Although all of these procedures are “elective” in the sense of being scheduled, they range in the degree to which indications for surgery are clear and undisputed, with excision of breast lesions and carotid endarterectomy being less discretionary, and tonsillectomy and varicose vein repair being more discretionary (Gentleman, Vayda Parson, et al., 1996).

## Methods

The methods we used were described in detail in the original report. To recap, patients who had one of the procedures were selected from anonymous records in the Population Health Research Data Repository for the years 1997/98 and 1998/99. We restricted the analysis to elective (scheduled) procedures. When the procedures had been identified, we searched the physician claims for a pre-operative visit to the surgeon who performed the surgery. If there were several visits, we used the one closest to the procedure. The estimated waiting time was the time between the pre-operative visit and the date of surgery.

There were a few exceptions to the above method:

- For cataract surgery patients, if there was more than one visit, and the visit closest to surgery was coded as an ultrasound measurement, we used the visit prior to that for calculating the waiting time.
- For the coronary procedures, we analyzed both scheduled and urgent cases.<sup>1</sup>
- For CABS, we looked not only for a pre-op visit to the surgeon, but also for a pre-operative angiogram. For PTCA, an angiogram flagged the beginning of the waiting period.
- For the routine elective procedures, we required that the pre-op visit to the surgeon be more than three days prior to surgery; we did this to exclude patients who were possibly more urgent.

Diagnostic restrictions applied to some of the procedures. For cholecystectomy and TURP, we excluded malignancies. Hernia repair referred only to inguinal or femoral hernia without gangrene. Excision of breast lesions did not include simple biopsies. Stripping and ligation of varicose veins referred to lower limb surgery and excluded oesophageal or gastric varices.

It was noted during the course of this analysis that in the first waiting times report, patients having coronary artery bypass surgery included those having concomitant valve

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<sup>1</sup> The hospital abstract includes an admission status code: urgent, emergent, elective or day. For elective, or scheduled, patients, we included elective or day codes. Cases coded as urgent or emergent were grouped as urgent.

replacements. Since patients having both procedures might represent sicker and hence more urgent patients, we have now excluded patients having concomitant valve replacement from all analyses. We found it made very little difference to the results.

### **How comparisons were made**

The purpose of this update is to monitor whether waiting times changed in 1997/98 and 1998/99 compared with the earlier report, which used data from 1992/93 to 1996/97 inclusive. Therefore, for most of the tables and charts following, we compare data for 97/98 and 98/99 with the previous five-year median waits (seven years for coronary procedures).

As in the previous report, we calculated 95% confidence intervals, adjusting for multiple comparisons. The confidence interval (CI) is a statistical measure, giving us a range within which we are 95% confident that the true value lies. The CI is significantly different in a statistical sense from the previous five-year median when the interval does not overlap the five-year value.<sup>2</sup> For instance, the five-year (92/93-96/97) median wait for hernia repair was 29 days. In 1997/98, it was 35 days, with a 95% CI of 33, 36. That means that we are 95% confident that the true median for 97/98 is between 33 and 36 days, a range which does not overlap the previous median of 29 days. Therefore, the wait was significantly longer in 97/98 compared to the 92/93-96/97 median.

Waits that were statistically different are marked with an asterisk. However, what is *statistically* significant may not be *clinically* significant. The clinical relevance of shorter or longer waits is a subject of great controversy. Little is known about the impact of a delay for discretionary surgery: some patients will improve or decide they do not want surgery, whereas others will suffer continual pain, dysfunction or anxiety. The evidence in this area is inconclusive: a systematic literature review of the effect of delay on breast cancer outcome was performed for the General Surgery panel of the Western Canada Waiting List project; of the 30 papers reviewed, delay was found to have a negative impact on survival in 14 papers, and no impact on survival in 16 papers (Martin, Roman-Smith and Hadorn, 2000).

Therefore, the clinical significance of a change in waiting times is uncertain. Despite this

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<sup>2</sup> There are no confidence intervals for the five-year median; since so many procedures are included, the confidence interval is so small as to be non-existent.

uncertainty, because waiting times have assumed such significance in the discussions on our health care system, we have emphasized changes that were seven days or more.

We report on the median waiting time, the time it took for half of all patients to obtain their surgery. To illustrate, if the median waiting time for cholecystectomy in 1997/98 was 30 days, it means that half of all patients who had cholecystectomy in 1997/98 had surgery within 30 days of seeing their surgeon, and half waited longer. We report the median rather than the mean because the median is uninfluenced by extreme values. (Mean values are reported in Appendix A.)

Analyses were conducted not only by year of surgery, but also by various sub-groups: region of residence, gender, age, and by neighbourhood income quintile. For sub-group analyses, the 97/98 and 98/99 data were combined. In analyzing waits according to the region in which the patient lived, we noted that in some Regional Health Authorities (RHAs), there were small numbers of procedures; hence, the eleven Manitoba RHAs were combined into five areas as follows:

- Winnipeg
- West: Brandon, South Westman, Marquette
- South: South Eastman, Central
- Mid-North: Parkland, Interlake, North Eastman
- Far North: Burntwood, Norman, Churchill

Age was categorized into two groups—younger than 65 years, or 65 years or older—at the time of surgery. Neighbourhood income quintile applied to residents of Winnipeg only; Statistics Canada data on average income in an enumeration area were used to rank neighbourhoods into five income quintiles, labelled: lowest, lower-middle, middle, upper middle, and highest.



## Coronary Procedures

### KEY POINTS

- Between 1996/97 and 1998/99, the standardized rate of CABS increased 16% and the rate of PTCA increased 6%.
- Median waits for scheduled (elective) CABS were 15 and 22 days shorter in 1997/98 and 1998/99, respectively, compared with the previous seven-year median of 48 days.
- A previously reported trend to a higher proportion of scheduled patients receiving surgery within 90 days continued.
- The median wait for scheduled PTCA was not significantly different from the 90/91-96/97 median. The wait for 90/91-96/97 was 32 days, for 97/98 it was 37 days, and for 98/99 it was 31 days.

### Coronary Artery Bypass Surgery

As mentioned in the Methods section, it was noted during the course of this analysis that in the first waiting times report, patients having coronary artery bypass surgery included those having concomitant valve replacements. Patients having both procedures might be sicker and therefore more urgent, so for this analysis, we excluded patients having concomitant valve replacement, both for the original seven years and the most recent two. This resulted in excluding about 7.5% of all cases and 8.5% of scheduled cases, but did not change the median waits appreciably.

Our initial analysis included all patients, those who were urgent/emergent, and those who were elective, that is, scheduled. The rate of CABS increased by 15.7% between 96/97 and 98/99, from 0.66 to 0.76 per 1000 population.<sup>3</sup> For urgent/emergent cases, waiting times were not significantly different in 97/98 or 98/99 from the previous seven-year median: all were 3 or 4 days (Table 1).<sup>4</sup> For scheduled patients, waiting times in 1997/98 and 1998/99 were significantly shorter than previously, that is, the confidence intervals for 1997/98 and 1998/99 did not overlap the 90/91-96/97 median value. The median wait for 90/91-96/97

<sup>3</sup> All rates were age- and sex-adjusted to the 1992 Manitoba population using the direct method of adjustment.

<sup>4</sup> For coronary procedures, the earlier report used seven years of data, 90/91-96/97, whereas for all other procedures, the comparator years are 92/93-96/97.

was 29 days, and the waits for 97/98 and 98/99 were 19 and 15 days, respectively—10 and 14 days shorter.

**Table 1: Median waits in days (with 95% confidence intervals) for CABS, 97/98 and 98/99 compared with 90/91-96/97, excluding patients with concomitant valve replacement**

	90/91-96/97	97/98	98/99
Urgent/Emergent	4	3 (3, 4)	4 (3, 4)
Scheduled, all patients	29	19* (13, 22)	15* (13, 20)
Scheduled, excluding waits under 4 days	48	33* (23, 39)	26* (20, 32)

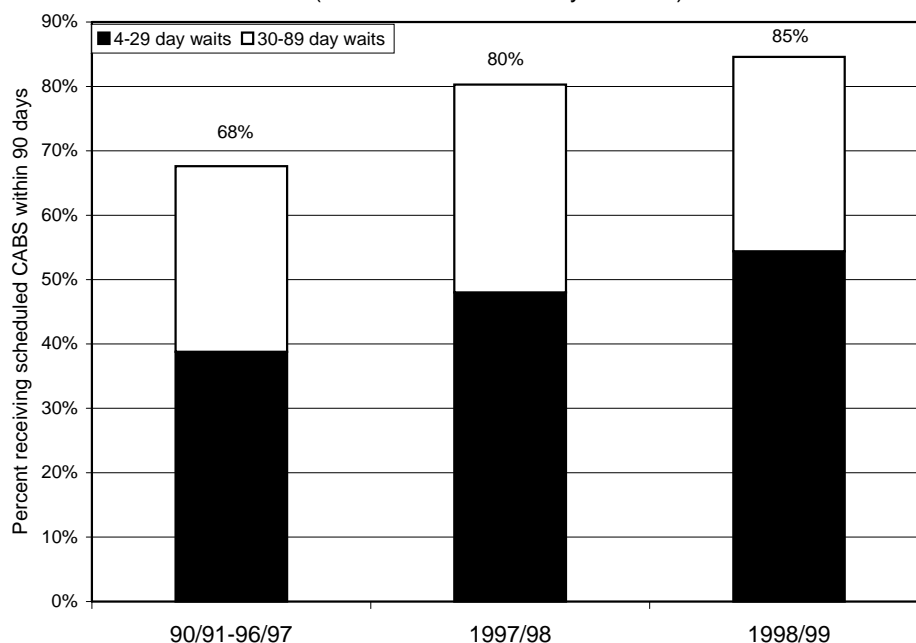
#### *Scheduled CABS*

For the next set of analyses, we excluded urgent/emergent patients, as well as scheduled patients who had a pre-op visit or angiogram within three days of surgery.<sup>5</sup> The median waits for these patients in 97/98 and 98/99 were 33 and 26 days, respectively (Table 1); both medians were significantly shorter than the 90/91-96/97 median of 48 days.

One of the indicators used previously was the proportion of scheduled patients who had their CABS within 90 days; patients who waited more than 90 days for elective CABS were considered delayed (Carroll, Horn, Soderfeldt, et al., 1995). We had found a trend towards a higher proportion of patients undergoing surgery within 90 days: in 90/91, 60% of scheduled patients had CABS within 90 days, and in 96/97, 76%. This trend continued in 97/98 and 98/99 when 80% and 85% of patients, respectively, received their CABS within 90 days (Figure 1).

<sup>5</sup> Approximately 20% of scheduled patients had an angiogram or pre-op visit within three days of surgery.

**Figure 1: Scheduled coronary artery bypass surgery  
Manitoba, 90/91-96/97 vs 97/98-98/99**  
Percent of patients receiving surgery within 90 days  
(excludes waits of 3 days or less)



### *Gender, region, income*

About 3½ times the number of males than females had CABG in both time periods.

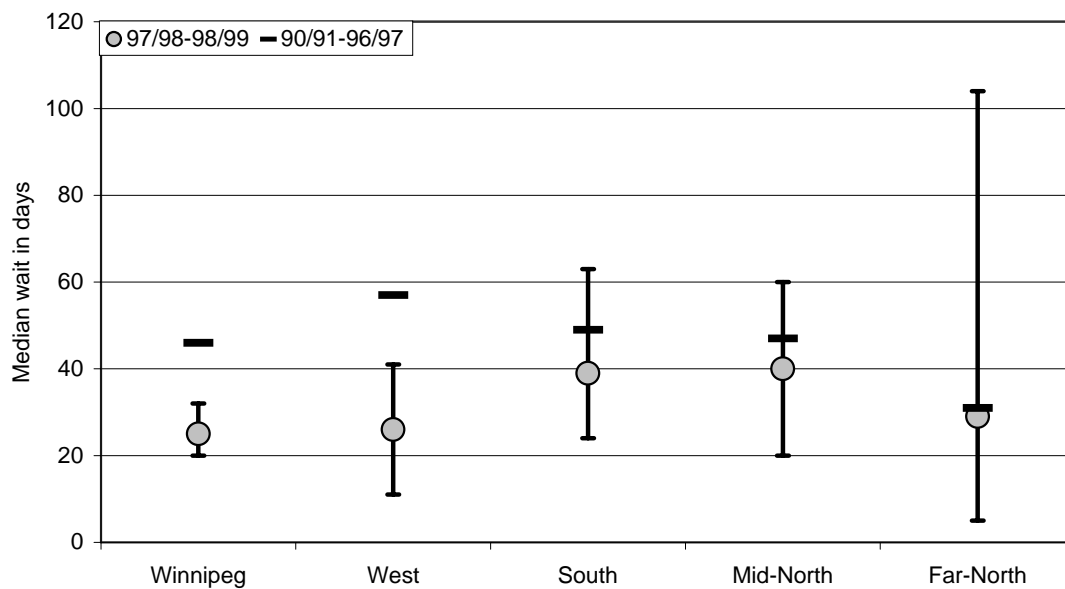
Compared to 90/91-96/97, waiting times were shorter for both males and females in 97/98-98/99.<sup>6</sup> In 90/91-96/97, males waited 50 days, compared to 30 days (95% CI: 26, 34) for 97/98-98/99. For females the waits were 47 days and 26 days (95% CI: 20, 37), respectively.

Residents of every area of the province experienced generally shorter median waits in 97/98 and 98/99 compared with the 90/91-96/97 median. However, the only areas that had statistically significant shorter waits were Winnipeg and the West (for definitions of regions, see page 10), as can be seen in Figure 2. In this chart, the horizontal bar represents the median wait from 92/93-96/97, and the dot is the median wait for 97/98-98/99. The whiskers on either side of the dot illustrate the 95% confidence interval. When the whiskers do not

<sup>6</sup> For all subgroup analyses, 97/98 and 98/99 were combined.

overlap the bar, then the 97/98-98/99 median is significantly different than the 92/93-96/97 median. Winnipeg residents waited 21 days less and Brandon residents 31 days less in 97/98-98/99 compared to 90/91-96/97. Having shorter waits in the West is good news, since residents of the West had noticeably longer waits compared to the rest of the province in 90/91-96/97. Wait times were not significantly different between regions for 97/98-98/99.

**Figure 2: Median wait in days for scheduled CABS, by region of residence Manitoba 90/91-96/97 to 97/98-98/99 (excluding waits of 3 days or less)**



The trend to shorter median waits for scheduled CABS was evident in the waits for patients living in different income neighbourhoods in Winnipeg. Median waits were statistically shorter in 97/98-98/99 for patients from the middle- and highest-income neighbourhoods (Table 2), however waits generally decreased across all income groups. Remember that this is in comparison to the 90/91-96/97 median. Compared to the *Winnipeg* median for 97/98 and 98/99, which was 25 days, none of the neighbourhoods were significantly different (data not shown); in other words, regardless of neighbourhood income level, all Winnipeg patients had similar waits for scheduled coronary bypass surgery.

**Table 2: Median waits in days (with 95% confidence intervals) for CABS scheduled procedures, Winnipeg, by neighbourhood income level, 97/98-98/99 compared with 90/91-96/97 (asterisk shows significant difference from 90/91-96/97 median)**

	90/91-96/97	97/98-98/99
Lowest	48	29 (15, 56)
Lower middle	48	24 (14, 48)
Middle	43	29* (14, 42)
Upper middle	53	30 (13, 60)
Highest	43	24* (13, 39)

### **Percutaneous transluminal coronary angioplasty**

The standardized rate of coronary angioplasty increased 6.4% between 1996/97 and 1998/99, from 0.61 to 0.65 per 1000 persons. Looking at all scheduled patients, including those who had an angiogram within three days of PTCA, median waits were shorter in 97/98 and 98/99, significantly so in 98/99, compared with the 90/91-96/97 median (Table 3). The dramatically shorter waits in 98/99—10 days shorter than for 97/98—for scheduled PTCA were explored further. We noted that the proportion of scheduled patients that received a pre-op angiogram within three days of surgery had been increasing over time: in 90/91, 4% of scheduled patients received an angiogram within three days of surgery, for the years 1995/96 through 1997/98, it was about 25%, but in 1998/99, it was 43%. This change in practice may help to account for the shorter median waits for all scheduled patients as shown in Table 3. It also means that there are fewer scheduled patients each year in the bottom row of Table 3, i.e., scheduled patients who waited more than three days, which contributes to some instability in the median.

**Table 3: Median waits in days (with 95% confidence intervals) for PTCA (asterisk shows significant difference from 90/91-96/97 median)**

	90/91-96/97	97/98	98/99
Urgent/Emergent	5	4 (2,5)	0* (0,1)
Scheduled, all patients	24	17 (10, 31)	7* (4, 9)
Scheduled, excluding waits under 4 days	32	37 (22, 49)	31 (19, 40)

In the first report it was noted that the proportion of patients having PTCA that were coded as urgent/emergent rather than scheduled was increasing over time; however, there was no increase in 97/98 and 98/99. The proportion that were urgent/emergent from 90/91 to 92/93 inclusive was around 45%, and from 93/94 to 96/97, it was around 60%. For 97/98 and

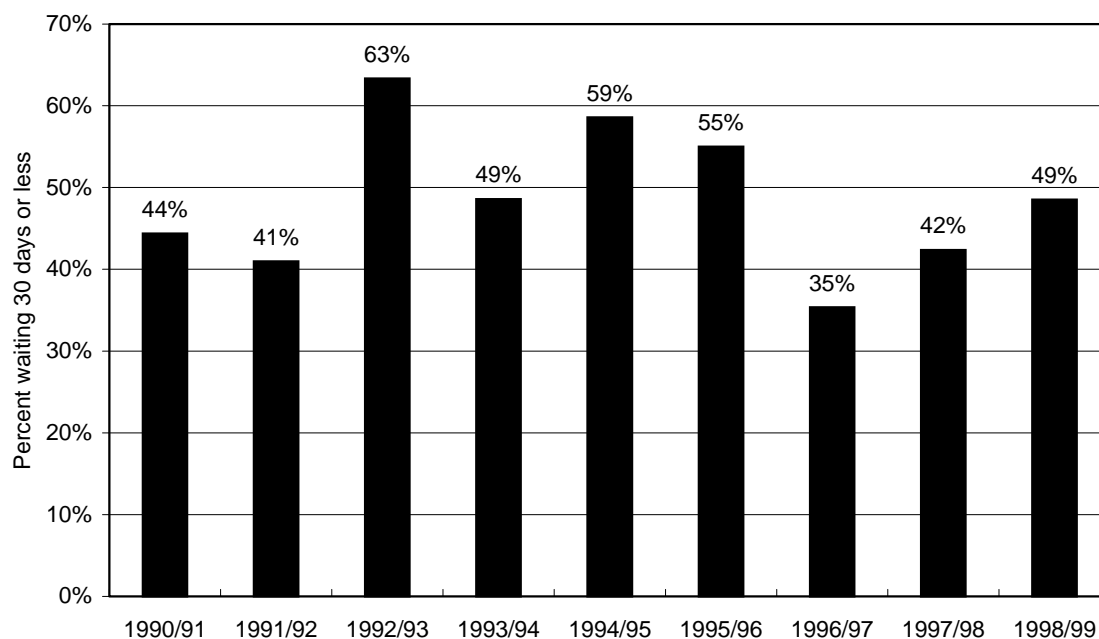
98/99, that proportion remained the same at about 60% of patients being coded as urgent/emergent and 40% being coded as scheduled PTCA patients.

### *Scheduled PTCA*

Next, patients who were coded as urgent/emergent were excluded, as well as those who had an angiogram within three days of PTCA. As previously noted, the proportion of scheduled patients who had an angiogram four or more days prior to PTCA declined in 1998/99. Once waits of three days or less were excluded, the median waits in the most recent two years for scheduled PTCA were not significantly different from the 90/91-96/97 median (Table 3). The median wait time for 90/91-96/97 was 32 days; for 1997/98, it was 37 days (95% CI: 22, 49) and for 1998/99, 31 days (95% CI: 19, 40).

In the first report, the proportion of scheduled patients who received angioplasty within 30 days seemed to be decreasing, and this was raised as a possible concern. However, in the most recent two years, this proportion increased (Figure 3). In 1996/97, only 35% of scheduled PTCA patients received the procedure within 30 days, but in 1997/98, it was 42% and in 1998/99, it was 49%.

**Figure 3: Scheduled PTCA - proportion of patients waiting 30 days or less  
(excluding waits of 3 days or less)  
Manitoba, 1990/91 to 1998/99**



The median wait for scheduled PTCA for 97/98 and 98/99 did not differ from the 90/91-96/97 median by gender, neighbourhood income level or region of residence. Also, there were no differences in waits between gender, between income levels or between region of residence.

## Cataract Surgery

### KEY POINTS

- Cataract surgery is performed in both public hospitals and privately-owned clinics. Until January 1999, patients who had cataract surgery in a private clinic were required to pay a tray or facility fee of approximately \$1000; since then, Manitoba Health has covered all costs.
- There was a 12 week difference in waits between public and private-sector surgery for 97/98 and 98/99. The public-sector wait was 17 weeks, and the private-sector wait was 5 weeks. These were both significantly longer than the previous five-year medians of 13 and 4 weeks.
- Public-sector waits for 97/98 and 98/99 did not increase compared to 96/97. The rate of performing public-sector cataract surgery increased 13% since 96/97.
- About 75% of cataract surgery was in the public sector, and about two-thirds of public-sector cataract surgery was performed by surgeons who practised in both sectors.
- There continued to be a difference in waits by the surgeon's practice-type. Waits for public-sector surgery if the surgeon operated *only* in the public sector were 10 weeks in both 97/98 and 98/99; waits for public-sector surgery for surgeons who had *both* public and private practices were 21 and 26 weeks in 97/98 and 98/99, respectively.
- Median waits were similar according to region of residence and by neighbourhood income level.
- Almost 65% of cataract surgery was performed on women, and women had median waits about three weeks longer than men.
- About 20% of patients from the lowest and lower-middle income neighbourhoods had surgery privately, compared to 32% of patients from the highest-income neighbourhoods.

As stated earlier, for the analysis of cataract surgery, we were interested in comparing waits between the public and private sectors.<sup>7</sup> For most of this study period, patients who had cataract surgery in a private clinic were required to pay a tray or facility fee of approximately \$1000; since January 1999, Manitoba Health has covered all costs, agreeing to fund 2000 additional procedures annually in the public sector. In other words, all cataract surgery is now publicly funded. Exploring the differences in waiting times for public and private cataract surgery may seem moot now; however, it seemed to be relevant in terms of its policy implications.

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<sup>7</sup> Cataract surgery at the Gimbal Clinic in Calgary was not included. Data from Manitoba Health show that the number of procedures performed at the Gimbal Clinic for calendar years 1997 and 1998 were 148 and 82, respectively.



It should be noted that the rate of performing cataract surgery in the public sector has increased 43% between 1992/93 and 1998/99; 12.6% between 1996/97 and 1998/99. An additional 2000 procedures would represent a doubling of the number of procedures performed in 1992/93.

In our previous report, we found that waits were longer in the public sector: the median public-sector wait for 92/93-96/97 was 13.1 weeks and the private-sector wait was 4.1 weeks. By the final year of analysis, the wait in the public sector was 17.9 weeks, compared with 4.1 weeks in the private sector.<sup>8</sup> This pattern held for 1997/98 and 1998/99: the public-sector waits were 17.1 and 17.9 weeks, respectively, whereas the private-sector waits were 5.0 and 5.4 weeks for those years. When compared to the previous five-year median, waits in both sectors were significantly longer. When compared to 96/97 only, the public-sector wait remained stable despite a 12.6% increase in the rate of surgery.

We also found in our previous report that there was a difference in the public-sector wait depending on whether the surgeon also had a private practice. We divided ophthalmic surgeons according to whether they operated entirely in the public sector, or in both public and private sectors. We defined surgeons as having both a public and private practice if they performed at least 20 procedures per year in a private clinic.<sup>9</sup> Most cataract surgery, about 75% in 97/98 and 98/99, was in the public sector (Table 4). Furthermore, about two-thirds of public-sector cataract surgery was performed by surgeons who have both a public and private practice. These high-volume surgeons focus most of their practise on cataract surgery, and make maximum use of the public-sector operating room resources available to them. Low-volume surgeons often have sub-specialties, and consequently have limited capacity to increase the number of cataract operations they do.

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<sup>8</sup> Note that when talking about waits for cataract surgery, we use “weeks” whereas for all other procedures we talk of waits in terms of “days.”

<sup>9</sup> All surgeons operate in the public sector, but some operated both publicly and privately.

**Table 4: Number of patients receiving cataract surgery in private clinics and public hospitals, according to surgeon's practice type<sup>10</sup> (% of annual total)**

	92/93-96/97	1997/98	1998/99
Surgeon operates in public hospital only*	6811 (38.0%)	1133 (25.8%)	1154 (23.4%)
Public hospital, surgeon operates both publicly and privately**	8830 (49.2%)	2353 (53.6%)	2424 (49.2%)
Private clinic, surgeon operates both publicly and privately**	2292 (12.8%)	903 (20.6%)	1351 (27.4%)
Total procedures	17933	4389	4929

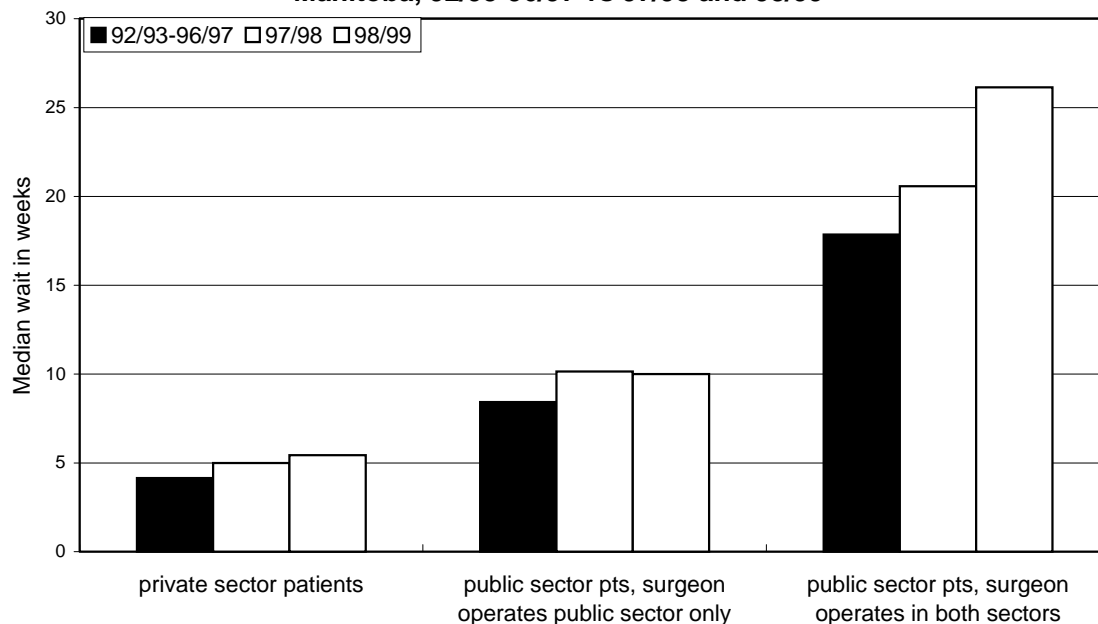
\* number of surgeons = 27 for 92/93-96/97, 13 for 97/98, 18 for 98/99

\*\* number of surgeons = 9 for all years

There continued to be a difference in waits by type of surgeon practice (Figure 4). Waits for public-sector surgery, if the surgeon operated only in the public sector, were 10 weeks in both 97/98 and 98/99; waits for public-sector surgery for surgeons who had both public and private practices were 21 and 26 weeks in 97/98 and 98/99, respectively. For both types of practices, public-sector waits were significantly longer compared to the previous five-year median.

<sup>10</sup> These numbers will not compare with other MCHPE reports, because for this study, if the patient had more than one cataract procedure over the study period, we included only the first procedure.

**Figure 4: Median wait (weeks) for cataract surgery  
by surgeon's practice-type  
Manitoba, 92/93-96/97 vs 97/98 and 98/99**



### **Region of residence, gender, income**

Waits for public-sector cataract surgery were similar for residents living in different regions of the province, with residents from every region except the Far North waiting between 17 and 19 weeks. Residents of the Far North had shorter waits: 12.5 weeks.

There were differences between genders with respect to public-sector cataract surgery. The majority of patients, 63.5%, were female, and women waited longer than men. Using two years of data, 97/98-98/99, women waited 18.6 weeks (95% CI: 17.9, 19.3) and men waited 15.9 weeks (95% CI: 14.9, 16.7). In other words, women waited on average nearly three weeks (19 days) longer than men. This difference was statistically significant. From 92/93-96/97, women waited 11 days longer than men.

There was no difference in the median wait for cataract surgery according to neighbourhood income category. People in the highest-income neighbourhoods had similar waits to people from the lowest-income neighbourhoods. Proportionately more cataract procedures were performed on residents of the lowest-income neighbourhoods: 23% of all cataract surgery

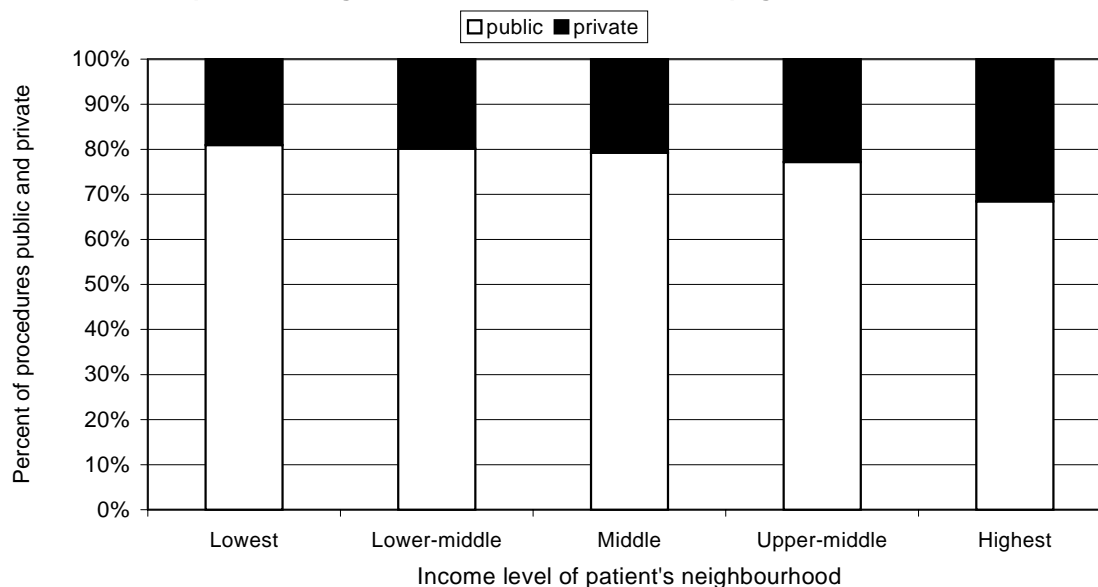
recipients in 97/98-98/99 were from the lowest-income neighbourhoods, and 18% were from the highest-income neighbourhoods (Table 5). Despite the fees charged for private-clinic cataract surgery for most of the study period, a substantial proportion, 38%, of private-clinic procedures were performed on patients from the two lowest-income neighbourhoods.

**Table 5: Proportion of cataract surgery performed in public versus private sector, 97/98 and 98/99, by neighbourhood income, Winnipeg residents only**

Neighbourhood income level	Lowest	Lower-middle	Middle	Upper-middle	Highest
Public (n = 4242)	24.0%	21.2%	20.4%	18.1%	16.3%
Private (n = 1235)	19.4%	18.1%	18.4%	18.4%	25.7%
Total (n = 5477)	23.0%	20.5%	20.0%	18.1%	18.4%

In Table 5, the *rows* total 100%, showing how the number of cataract surgery procedures are distributed according to patients' neighbourhood income level. Another way to look at the distribution is according to the proportion in each income category that are performed privately and publicly, i.e., having each *column* total 100%. When looked at in this way, one can see that there is a gradient between low- and high-income neighbourhoods, with proportionately more of the high-neighbourhood-income patients having their cataract surgery done privately (Figure 5).

**Figure 5: Cataract surgery, percent of procedures public and private by patients' neighbourhood income level, Winnipeg, 97/98-98/99**



## Selected routine procedures

### KEY POINTS

- We studied eight routinely-performed elective procedures: excision of breast lesions, carotid endarterectomy, cholecystectomy, carpal tunnel release, trans-urethral resection of prostate (TURP) (for benign disease), hernia repair, tonsillectomy, and stripping and ligation of varicose veins. Although all of these procedures are “elective” in the sense of being scheduled, they range in the degree to which indications for surgery are clear and unequivocal, with excision of breast lesions and carotid endarterectomy being less discretionary, and tonsillectomy and varicose vein repair being more discretionary.
- Since 96/97, standardized rates for three of these procedures increased (excision of breast lesions (+29.7%), cholecystectomy (+8.4%), and tonsillectomy (+16.2%)), two decreased (carpal tunnel release (-7.3%), varicose vein repair (-5.6%)) and three stayed about the same.
- In 1998/99, waits for seven of the eight procedures were significantly longer compared to 92/93-96/97; only cholecystectomy was not significantly different.
- For five of the procedures, the wait was four to six days longer, for carpal tunnel release it was 17 days longer and for varicose vein repair it was 19 days longer in 98/99 compared to 92/93-96/97.
- For seven of the eight procedures (all except carotid endarterectomy), patients from either Winnipeg or the West (South Westman, North Westman and Brandon RHAs) had a significantly longer wait than the Manitoba median. Patients in the South (Central and South Eastman RHAs) had a shorter wait than the Manitoba median for four procedures. Patients living in other RHAs had waits similar to the Manitoba median.
- Median waits were similar by age, gender and neighbourhood income level. Whereas previously, older patients tended to have shorter waits than younger, in 97/98-98/99, there was no difference according to age.

### Procedure rates

Rates of all procedures studied were calculated (Table 6). All rates were age- and sex-adjusted to the 1992 Manitoba population, using the direct method of adjustment. The procedure with the biggest change since 1996/97 was excision of breast lesions (excluding simple biopsies), increasing 29.4%. The tonsillectomy rate increased 16.2%. Several procedure rates decreased in 97/98 compared to 96/97, then increased in 98/99 to a rate similar to or higher than the 96/97 rate: carotid endarterectomy, cholecystectomy, TURP, and varicose veins. The rate for carpal tunnel release showed the opposite pattern, increasing in 97/98 and then falling below the 96/97 rate in 98/99. The rate of hernia repair stayed fairly stable over the three years.

**Table 6: Rates of selected surgical procedures, 1996/97 to 1998/99, Manitoba, directly adjusted to the 1992 population**

	1996/97	1997/98	1998/99	Percent increase (decrease)
Excision Breast Lesions	2.29	2.68	2.97	29.7%
Carotid Endarterectomy	0.33	0.29	0.32	(2.1%)
Cholecystectomy	2.45	2.38	2.66	8.4%
Carpal Tunnel Release	1.10	1.14	1.02	(7.0%)
TURP	1.54	1.47	1.56	1.2%
Hernia Repair	2.01	1.98	1.99	(1.1%)
Tonsillectomy	1.54	1.65	1.79	16.2%
Varicose Veins	0.36	0.29	0.34	(6.6%)

### Overall findings

Table 7 shows the median waiting time for eight common elective procedures for 1997/98 and 1998/99, comparing them to the median for the previous five years. In 1997/98, four procedures showed a significantly longer wait compared to the 92/93-96/97 median: excision of breast lesions, carotid endarterectomy, carpal tunnel release and hernia repair. In 1998/99, seven of the eight procedures had significantly longer waits compared to 92/93-96/97; only cholecystectomy was not significantly different. Most of the increases were less than seven days compared to 92/93-96/97, the exceptions being carotid endarterectomy for 97/98 (7 days), carpal tunnel release for both years (8 and 17 days), and varicose vein surgery for 98/99 (19 days).

**Table 7: Median waiting times in days between pre-operative visit to surgeon and surgery date, Manitoba, (with 95% confidence intervals) (asterisks indicate significantly different from 92/93-96/97 median)**

	92/93 to 96/97	1997/98	1998/99
Excision Breast Lesions	16	19* (17, 20)	20* (19, 21)
Carotid Endarterectomy	26	33* (27, 38)	32* (29, 38)
Cholecystectomy	31	30 (29, 33)	33 (31, 34)
Carpal Tunnel Release	35	43* (40, 49)	52* (47, 56)
TURP	25	27 (23, 30)	30* (27, 33)
Hernia Repair	29	35* (33, 36)	35* (34, 37)
Tonsillectomy	51	51 (48, 54)	55* (52, 58)
Varicose Veins	40	43 (38, 50)	59* (51, 71)

### Region of residence

Table 8 provides the median waits according to the area of the province in which patients live. In Table 8, there are two columns for each region. The median wait for 92/93-96/97 is on the left for each region and the two-year median for 97/98-98/99 is on the right. The asterisk indicates a statistically significant difference from the 92/93-96/97 median value.<sup>11</sup> For instance, in the South, for carotid endarterectomy, the median wait for 92/93-96/97 was 22 days, and for 97/98-98/99, it was 29 days, an increase which was not statistically significant.

**Table 8: Median waits (days) by region of residence for each procedure, 97/98-98/99 median compared with 92/93-96/97 median (\* indicates significantly longer than 92/93-96/97 median; \*\* significantly shorter)**

Region of residence	Winnipeg		West		South		Mid-North		Far North	
	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99
Excision Breast Lesions	17	20*	15	24*	14	17*	15	19	13	21*
Carotid Endarterectomy	27	32*	35	37	22	29	25	31	26	31
Cholecystectomy	33	33	37	43	26	26	29	31	26	33*
Carpal Tunnel	41	61*	33	43*	27	30	31	42*	33	35
TURP	23	25*	47	38**	25	29	27	29	27	30
Hernia Repair	30	36*	35	40*	26	33*	28	32	25	25
Tonsillectomy	61	58	38	52*	42	40	48	50	39	47
Varicose Veins	41	59*	42	53	36	34	42	48	28	49

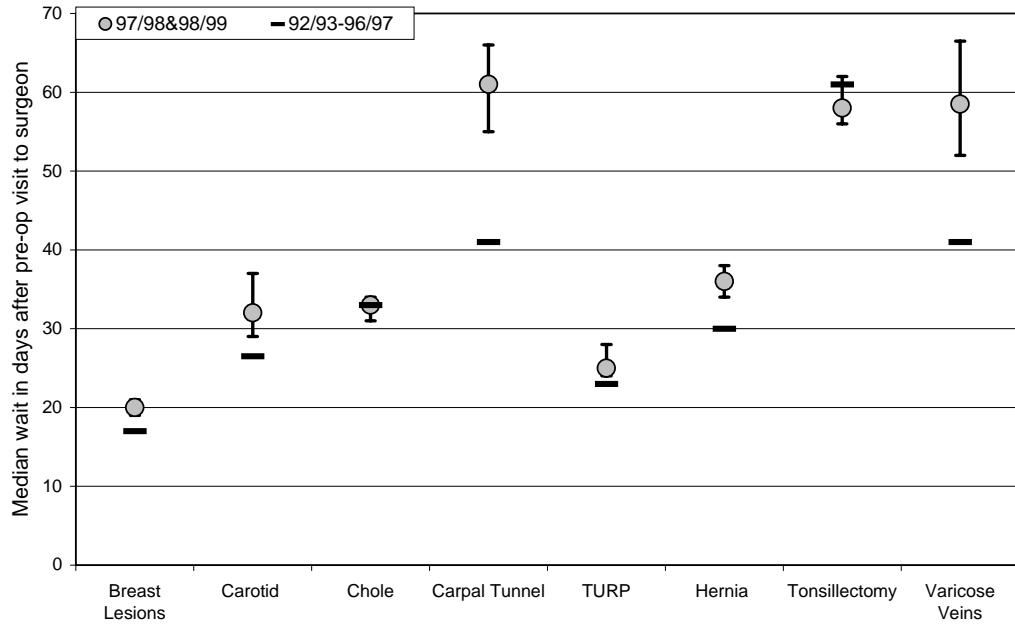
<sup>11</sup> It may seem peculiar that a difference of 11 days in the waits for varicose vein repair was not found to be significant in the West, whereas a difference of six days in the waits for hernia repair is significant for Manitoba. Confidence intervals are wider when there are fewer procedures and/or more variation in the waits.

Every procedure showed a significant difference in at least one area of the province. Most of the time, this meant that the more recent waits were longer than the earlier waits, with the exception of TURP for the West, where the wait became shorter. Residents of every area except the Mid-North had a statistically significant increase in the wait for excision of breast lesions; in the West and Far North the increase was greater than one week. Waits for carotid endarterectomy were significantly increased only for Winnipeg, with the 97/98-98/99 median being five days longer than the 92/93-96/97 median. Cholecystectomy waits did not change significantly except for residents of the Far North where the wait increased by seven days. Three areas showed increased waits for carpal tunnel repair, Winnipeg, the West and Mid-North, and all of the increases were 10 or more days. Waits for hernia repair were from five to seven days longer in Winnipeg, the West and the South. The wait for tonsillectomy increased by two weeks for residents of the West. The wait for varicose vein surgery was 18 days longer for Winnipeg residents, which was statistically significant.

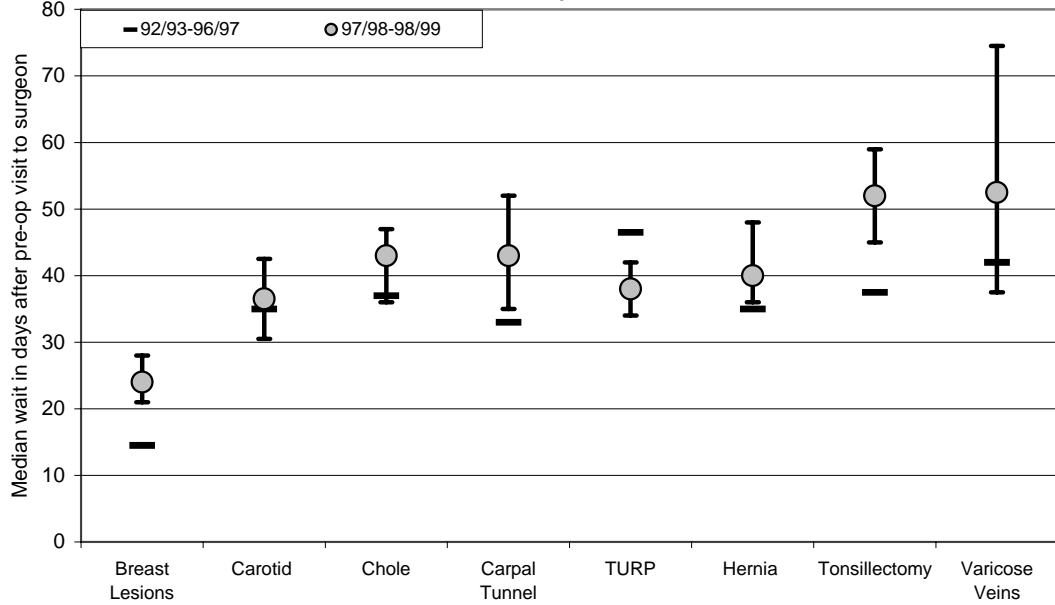
Because the confidence intervals are not shown in Table 8, there is also a series of charts, one for each area, that show the median wait for both 92/93-96/97 and 97/98-98/99 for each procedure (Figures 6, 7, 8, 9, and 10). In these charts, the horizontal bar represents the median wait from 92/93-96/97, and the dot is the median wait for 97/98-98/99. The whiskers on either side of the dot illustrate the confidence intervals. When the whiskers do not overlap the bar, then the 97/98-98/99 median is significantly different than the 92/93-96/97 median.



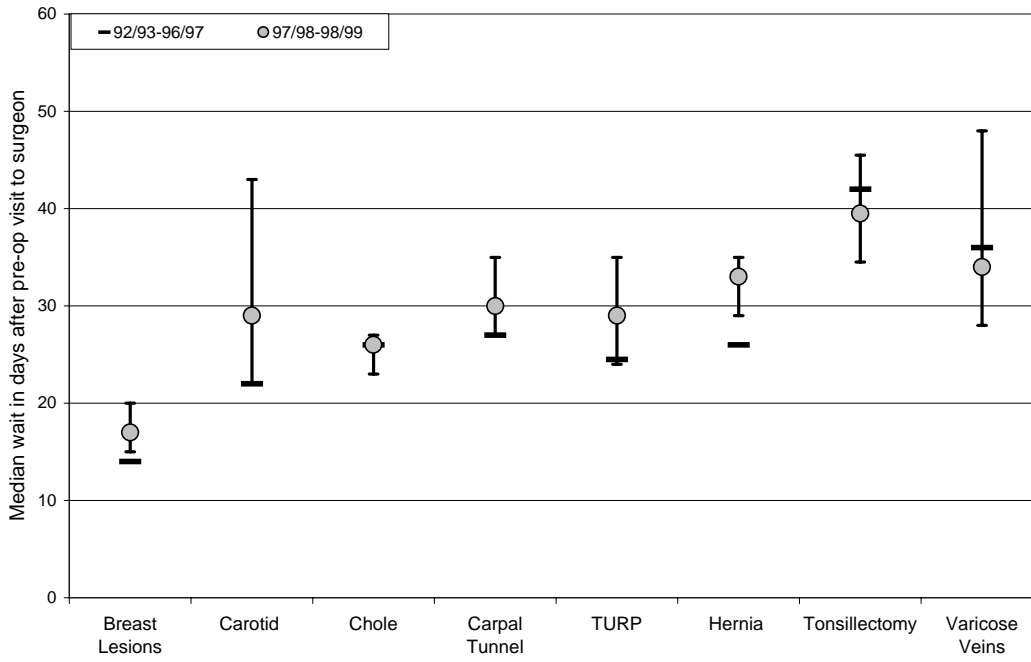
**Figure 6: Median wait (days) for elective procedures with 95% confidence intervals, Winnipeg: 97/98-98/99 compared with 92/93-96/97 median**



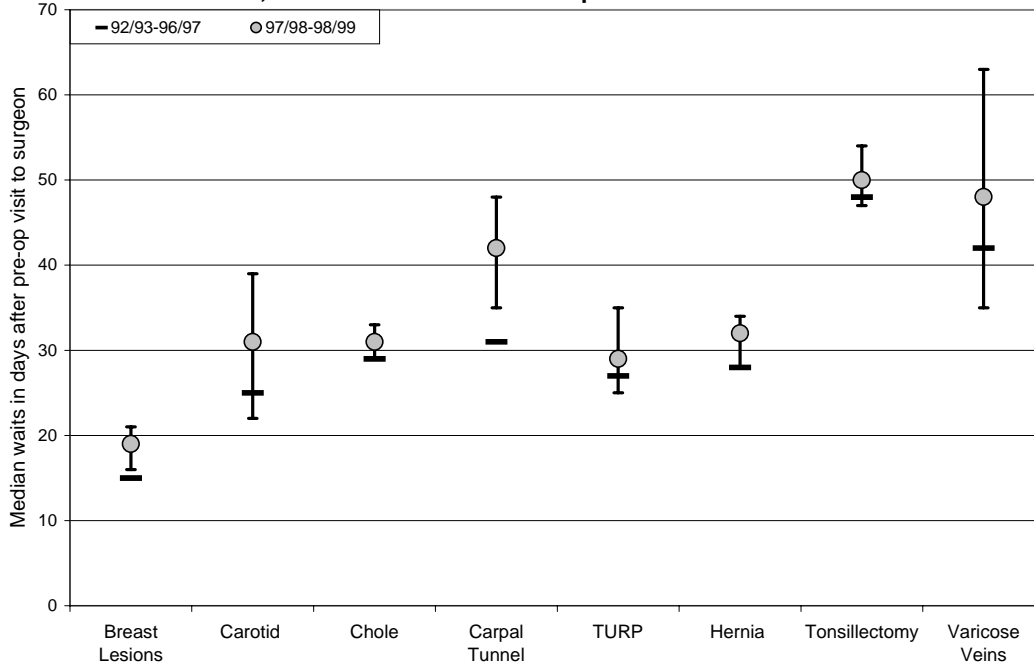
**Figure 7: Median wait (days) for elective procedures with 95% confidence intervals, West: 97/98-98/99 compared with 92/93-96/97 median**



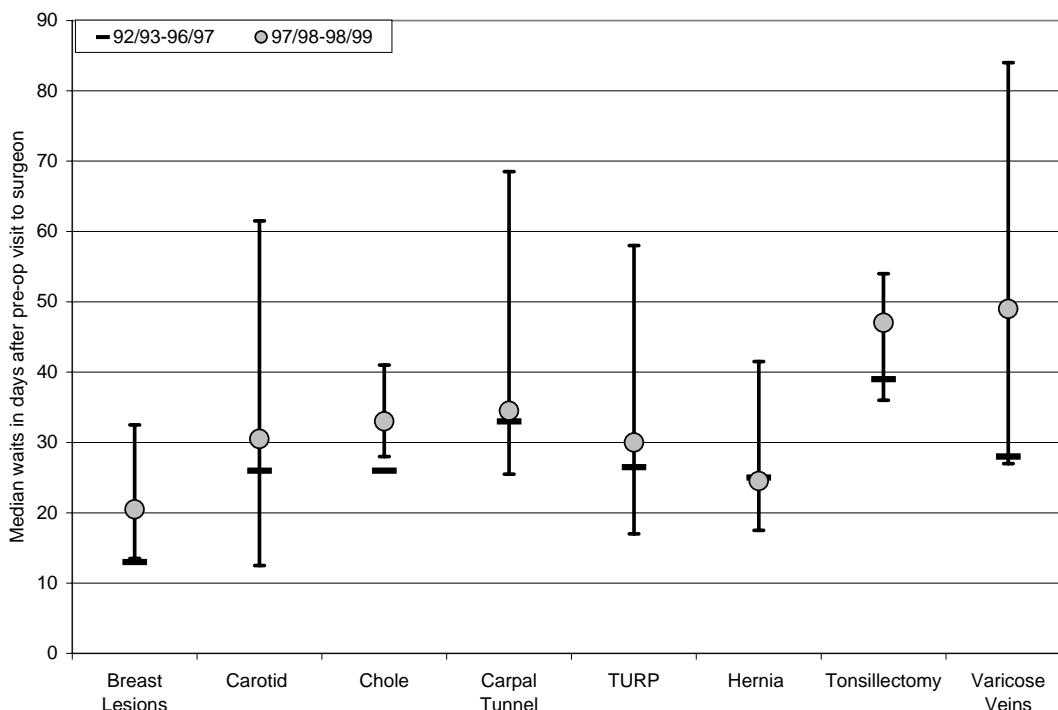
**Figure 8: Median wait (days) for elective procedures with 95% confidence intervals, South: 97/98-98/99 compared with 92/93-96/97 median**



**Figure 9: Median wait (days) for elective procedures with 95% confidence intervals, Mid-North: 97/98-98/99 compared with 92/93-96/97 median**



**Figure 10: Median wait (days) for elective procedures with 95% confidence intervals, Far North: 97/98-98/99 compared with 92/93-96/97 median**



### *Comparisons between regions*

For every procedure, the longest waits were either in the West, where Brandon is located, or Winnipeg. For six of the eight procedures, waits were shortest in the South. Because of these patterns, we also made a comparison *between* regions for 97/98-98/99. For this comparison, each region's two-year median was compared to the Manitoba two-year median (Table 9). For seven of the eight procedures (all except carotid endarterectomy), patients from either Winnipeg or the West had a significantly longer wait than the Manitoba median. Patients in the South had a shorter wait than the Manitoba median for four procedures: cholecystectomy, carpal tunnel, tonsillectomy, and varicose veins. The Mid-North and Far North had similar median waits as the Manitoba median.

**Table 9: Median waits (days) by region of residence for each procedure, 97/98-98/99, compared to the Manitoba median for 97/98-98/99 (\* indicates significantly longer than Manitoba median; \*\* significantly shorter)**

	Winnipeg	West	South	Mid-North	Far North	Manitoba
Excision Breast Lesions	20	24*	17	19	21	20
Carotid endarterectomy	32	37	29	31	31	33
Cholecystectomy	33	43*	26**	31	33	32
Carpal Tunnel	61*	43	30**	42	35	48
TURP	25	38*	29	29	30	28
Hernia Repair	36	40*	33	32**	25	35
Tonsillectomy	58*	52	40**	50	47	53
Varicose Veins	59*	53	34**	48	49	51

Winnipeg residents waited 61 days for carpal tunnel release compared to the Manitoba median of 48 days, 58 days for tonsillectomy compared to 53 for Manitoba, and 59 days for varicose vein surgery compared to 51 days for Manitoba. For cholecystectomy, residents of the West waited 11 days longer than the Manitoba median of 32 days, and residents of the South waited six days less than the Manitoba median. Southern Manitoba residents waited 18 days less than the Manitoba median for carpal tunnel release, 13 days less for tonsillectomy and 17 days less for varicose vein surgery. In our earlier report, patients living in the West waited 47 days for TURP compared with the Manitoba median of 25 days; despite the fact that waits for TURP have shortened in the West, they are still longer (38 days) than the rest of the province (28 days).

### Age

We looked at median waits for age, categorized as younger than 65 years and 65 years or older. Patients having tonsillectomy were excluded from this analysis since they are predominantly younger. In the previous report, it was noted that persons aged 65 years or older had shorter waits on average compared to people younger than 65. However, this was not evident for 97/98-98/99, where the waits for these age groups was similar. The median waits were within three days of each other for all procedures except carotid endarterectomy and carpal tunnel release; only the wait for carpal tunnel release was significantly different with people under 65 waiting longer than those aged 65 or older.

Table 10 shows the median waits for both age groups for both time periods. In the younger age group, waits increased significantly for excision of breast lesions, carpal tunnel release, hernia repair, and varicose veins, but did not change significantly for carotid endarterectomy, cholecystectomy, and TURP. For carpal tunnel release and varicose vein surgery the increases were 14 and 9 days, respectively. For older patients, waits were significantly longer in 97/98-98/99 compared to 92/93-96/97 for every procedure except cholecystectomy; for carotid endarterectomy, carpal tunnel repair and varicose vein surgery, the difference was ten or more days.

**Table 10: Median waits (days) by age category 92/93-96/97 and 97/98-98/99 (\* indicates significantly longer than 92/93-96/97 median)**

	Age younger than 65 years		Age 65 years or older	
	92/93-96/97	97/98-98/99	92/93-96/97	97/98-98/99
Excision Breast Lesions	16	20*	15	20*
Carotid endarterectomy	28	28	26	36*
Cholecystectomy	30	32	31	32
Carpal Tunnel	38	52*	28	38*
TURP	31	29	24	28*
Hernia Repair	30	35*	28	35*
Varicose Veins	42	51*	30	51*

### Gender

Median waits according to gender for 97/98-98/99 combined were compared to the Manitoba median for the two years. For the most part, there were no differences in median waits by gender, except for tonsillectomy, where males waited longer than females. Males waited 56 days (95%CI: 54, 59) and females waited 50 days (95%CI: 48, 53). The Manitoba median for tonsillectomy for 97/98-98/99 was 53 days.

### Neighbourhood Income

Table 11 shows the median waits for Winnipeg residents according to neighbourhood income level. Similar to Table 8, the left column for each income level shows the 92/93-96/97 median value and the right, the 97/98-98/99 value. The asterisk denotes a significant difference from the 92/93-96/97 median value for that income category.

**Table 11: Median waits (days) by neighbourhood income for each procedure, Winnipeg residents only, 97/98-98/99 compared to 92/93-96/97 (\* indicates significantly longer than 92/93-96/97 median)**

Neighbourhood income level	Lowest income		Lower Middle		Middle		Upper Middle		Highest Income	
	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99	92/93 96/97	97/98 98/99
	-	-	-	-	-	-	-	-	-	-
Excision Breast Lesions	17	21*	18	19	16	18*	17	20*	16	19*
Carotid endarterectomy	26	38*	25	31	24	39*	26	38*	26	22
Cholecystectomy	30	30	32	31	35	35	33	34	32	32
Carpal Tunnel	38	56	35	54*	37	62*	44	68*	52	59
TURP	21	24	22	32*	25	27	29	23	22	25
Hernia Repair	29	32	29	34*	31	40*	31	39*	32	37*
Tonsillectomy	56	52	59	56	60	56	64	59	62	63
Varicose Veins	40	60	43	70*	39	69*	39	57	45	57

Although some neighbourhoods waited longer for some procedures, there seems to be no pattern of longer or shorter waits by neighbourhood income level. Patients in all but lower-middle income neighbourhoods waited significantly longer for breast surgery, but only by two to four days. Residents of lowest, middle and upper-middle income neighbourhoods waited from 12 to 15 days longer for carotid endarterectomy in 97/98-98/99 compared to 92/93-96/97. Waits for carpal tunnel were from 19 to 25 days longer in the three middle-income neighbourhoods. Lower-middle income residents waited 10 days longer for TURP and 27 days longer for varicose vein surgery in 97/98-98/99 compared to 92/93-96/97. The wait for varicose vein surgery was also significantly longer for middle-income residents, going from a median of 39 days in 92/93-96/97 to 69 days in 97/98-98/99. Residents of all but the lowest income neighbourhoods waited from five to nine days longer for hernia surgery in 97/98-98/99 compared to 92/93-96/97.

Comparisons were also made between neighbourhoods in the different income quintiles, to see if there were patterns of differences between them. For this comparison, each neighbourhood was compared with the Winnipeg median. No significant differences in the median waits were found. In other words, regardless of income level, patients throughout Winnipeg had similar waits for these commonly performed elective procedures.

## Limitations

1. We used the most recent pre-op visit to estimate the median wait time, except for cataract surgery. For the eight routinely performed procedures, 70% of patients had only one pre-op visit to the surgeon. However, for some procedures, the percent of patients with only one visit was lower. For excision of breast lesions and TURP, only about 50% of patients had one visit, and for carotid endarterectomy, only 39% of patients had one visit. It seems reasonable that patients with these conditions would require more than one visit, and that the most recent visit is the one where the decision was made to proceed. For example, patients with TURP for benign disease might have a period of watchful waiting before deciding to have surgery, and patients with breast disease or carotid stenosis would likely have some diagnostic tests after the preliminary visit to the surgeon. It had been mentioned in the earlier report that this method was not suitable for procedures for chronic conditions. Given that restriction, perhaps TURP should be excluded from future analyses.
2. It was discovered during the course of this analysis that proportionally more procedures were excluded in patients from the lowest-income neighbourhoods compared to others. For instance, 35% of tonsillectomies were excluded in patients in the lowest-income neighbourhoods, compared to 20% for the middle, upper-middle and highest-income neighbourhoods. Recall that all urgent/emergent procedures were excluded, and we only counted the initial procedure performed over the time period. Reasons for this discrepancy are unknown. Possibly more low-income patients see surgeons in out-patient clinics where claims are not filed, or low-income people may be more likely to receive more than one procedure and we only counted the first one over the time period.
3. Our method can only estimate waits for people who had surgery. For patients who had decided to have surgery but did not, we have no data. Therefore, this method could underestimate the true waiting time. However, registries that collect data on all patients waiting can overestimate the wait because of list inflation, that is, the tendency for waiting lists to contain the names of patients who should be removed from the list

because they have improved, changed their minds, moved or died. Studies have documented the degree of list inflation to be in the order of 25 to 50 per cent (Barham, Pocock and James, 1993; Elwyn, Williams, Barry, et al., 1996; Lee, Don and Goldacre, 1987; Tomlinson and Cullen, 1992). The method used in this report does not have to contend with this problem, since it measures the wait for all patients who did have surgery.

## **Discussion**

This report provides a measure of the actual time that patients wait for a variety of surgical procedures. There is good news. For instance, the waits for coronary artery bypass surgery are decreasing and a bigger proportion of patients receive their surgery within 90 days. Also reassuring is that, whether male or female, wealthy or poor, young or old—Manitobans experience similar waiting times. For all procedures, except cataract surgery, waits were less than 60 days, and for many of them, the wait was around 30 days. Shortening waits more than this may in fact be inappropriate, since patients should have sufficient time to weigh carefully the risks and benefits that accompany any surgical procedure.

However our report raises some concerns also. There was a general pattern of increasing waiting times for elective surgery. For instance, the median wait for breast tumour surgery increased 25% in 98/99 compared to the 92/93-96/97 median, and the median wait for carotid endarterectomy increased 23%. Even though the median waits for every procedure except cataract surgery are less than 60 days, and the absolute increases are not large—four days for breast tumour surgery and six days for carotid endarterectomy—it is the trend towards increasing waits that is of concern. Do they indicate that access to care is decreasing?

One of the usual, and indeed intuitive, responses to this kind of finding, is that we need more resources. It seems logical that if waits are increasing, then it must mean that supply is inadequate, and that more resources will reduce waits. A supporting example can be found in coronary bypass surgery, in which both the rate and the frequency increased over the past five years, and the median waiting time declined. But there is contradictory evidence as well. The number of public-sector cataract surgery operations increased 52% between 1992/93 and



1998/99, and the age-sex adjusted rate increased 43% over that period. As the resources devoted to cataract surgery were increasing, the median waiting time at first fell, but then increased again. TURP shows yet a different pattern: the number of procedures fell from 1223 in 1992/93 to 786 in 1994/95 and this was accompanied by a fall in the waiting time from 30 to 25 days. Since 1994/95, the number of procedures has increased to 928 and the waiting time has also risen back up to 30 days. So, for TURP and cataract surgery, an increase in resources has been accompanied by an increase in waiting times. Increasing resources is clearly not the only answer in trying to manage waiting times.

The presence of a parallel private system also does not result in shorter waits in the public sector. Manitoba Health's decision to ban extra fees for private clinic cataract surgery reflects the recognition of this fact. During most of this study period, cataract surgery was available both publicly and privately, with patients being required to pay a fee if they opted for surgery in a private clinic. We found that waiting times for cataract surgery in the public sector were the longest for surgeons who also had a private practice. This pattern has been noted in the United Kingdom as well, where areas with the longest waits for public-sector surgery are those with the most private beds, and the long-wait procedures are those where there is the most private practice (Williams, West, Hagar et al., 1983; Light, 1996; Richmond, 1996). The reasons for this finding are not clear. One possibility is that where more human and capital resources are devoted to private practice, they are unavailable for the public sector. However, that does not seem to be the answer in Manitoba, where the surgeons who operated both publicly and privately made maximum use of their public-sector operating room time.

Another theory is that surgeons with private clinics have an incentive to have long public-sector waiting lists. That is not to say that these surgeons would try to "pad" their public-sector waiting lists by recommending surgery unnecessarily, but they might recommend it sooner than other surgeons, knowing that with the anticipated wait, the patient would be ready for surgery when called. Therefore, patients waiting for the same surgical procedure will have varying levels of dysfunction, depending on the way each surgeon manages his or

her waiting list. This is true not only of cataract surgery, but of elective surgery generally, and points to the need for more information in order to manage waits.

What is needed is a system that prioritizes patients based on defined criteria, such as severity of illness, activity limitation, urgency, and expected benefit (Hadorn, 2000). In addition, information on waiting times for individual surgeons should be readily available, to assist patients and primary care physicians when making referrals to specialists. A waiting list information system should flag patients whose waits seem excessively long, reprioritize patients based on their changing conditions, and remove patients from the list who are no longer waiting, either because they have moved, or their condition improved, or they decided against surgery (Lewis, Barer, Sanmartin et al., 2000). Finally, better information systems can contribute to research on outcomes, which can then feed back into improved management of waiting times.

In closing, while this research monitors waiting times, it cannot assist with managing them. The causes of waiting times—a complete discussion of which is beyond the scope of this report—are complex. Consequently, their solutions are often elusive. But one thing seems clear—in order to have some impact on waiting times, more and more accurate information is needed.

## APPENDIX 1: MEAN WAITING TIMES

The major drawback of using the mean is that it is sensitive to outliers. Therefore, for the calculation of mean waiting times as given in table 1A below, it was necessary to consider excluding a few extremely unusual waiting times based on Tukey's robust outlier detection method. Under this method, we calculated the difference between the 25<sup>th</sup> and 75<sup>th</sup> percentile, called the interquartile range (IQR). An outlier was defined as being longer than  $[3 \times \text{IQR}] +$  the 75<sup>th</sup> percentile, or shorter than the 25<sup>th</sup> percentile  $- [3 \times \text{IQR}]$ . Note that we used the conservative  $[3 \times \text{IQR}]$  instead of the conventional  $[1.5 \times \text{IQR}]$  to define outliers. This resulted in excluding 3.6% of the eight routinely-performed procedures, and 2.5% of all procedures.

**Table 1a: Mean waiting times for 92/93-96/97, 97/98 and 98/99**

	92/93 to 96/97	1997/98	1998/99
Excision Breast Lesions	20.0	23.6	24.5
Carotid Endarterectomy	34.8	39.3	42.2
Cholecystectomy	41.3	38.2	39.5
Carpal Tunnel Release	52.1	69.3	70.7
TURP	36.4	33.1	35.2
Tonsillectomy	61.7	56.7	61.3
Hernia Repair	38.1	43.5	45.7
Varicose Veins	49.4	52.0	69.9
Cataract surgery (public sector only)	115.2	138.1	149.2
CABS (scheduled)	78.7 (90/91-96/97)	46.8	42.1
PTCA (scheduled)	44.1 (90/91-96/97)	45.4	37.8

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