Reporting Health Performance:

Elective Procedure Waiting Times in Nova Scotia 1992–1996

Prepared for
Nova Scotia Department of Health

by
Health Information and Evaluation Section,
Strategic Planning and Policy Development Branch

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Executive Summary

This document demonstrates the scope and functioning of the Performance Reporting System and presents the initial results of a new measure that will assist in monitoring waiting times for procedures.

Measuring what is happening in Nova Scotia's changing health care system is critical; standards of care are being established and measuring progress toward them ensures that the evolution is on schedule. A new measure, elective procedure waiting times (also referred to as surgical waiting times), gives the Department of Health a more precise tool for evaluating how well changes to the system will serve Nova Scotians.

The process of health reform has changed the way the Department of Health measures results. At no time has it been more important to measure the individual and collective effects of change and to communicate what is happening to those who manage the system and to the people who rely on it for care.

Government by Design, government's annual reports on its actions, plans and goals, defined in 1995 and 1996 several broad action areas and target measures that, when met, will result in improvements in Nova Scotians' quality of life. Perhaps the document's greatest achievement has been to set in place an evolutionary process of measurement, goal setting, and improvement.

In health care, information on program and service activities exists for acute care, home care, mental health, drug dependency, public health, the tobacco control unit, and MSI-insured services, including Pharmacare, Children's Dental Program, and physician services. There is still a need for indicators measuring the health effects of programs and services on the client--also known as outcome indicators.

The existing health information collection, analysis, and dissemination functions have been formally integrated into a Performance Reporting System. Some measures are compared against the goals and targets published in Government by Design; some are global measures of the population's health status.

To address the continuing need for better measures of change, the department has developed an important new indicator, a method to measure waiting times associated with many diagnostic and therapeutic procedures. While waiting time itself is not an outcome, the length of time a patient waits for a procedure continues any pain, anxiety, or loss of function the patient suffers and may affect the therapeutic outcome. The ability to provide medical and surgical procedures in a timely fashion is an important ingredient in the quality of care provided.

The public judges the success of the health care system (and, therefore, the reform process) by how well they feel it serves them, and one measure they use is waiting times. Therefore, it is critical for government to be able to measure waiting times to ensure that the system is serving the public as well as possible.

Waiting times for procedures are a reality in any health care system, public or private. Specialized procedures require extremely skilled professionals and are highly resource-intensive to maintain. Excess waiting can lead to patient harm and suffering, but having excess surgical capacity would be a waste of scarce resources. Efficiency and need always exist in a balance.

The Department of Health is committed to ensuring that waiting times for procedures in this province remain within clinically reasonable levels. This province is a leader in this area and is approaching the problems head-on on many fronts. The first task has been to develop methods to measure what has been happening with waiting times for common procedures.

To determine the lengths of waiting times in Nova Scotia, department staff examined MSI administrative data to determine when a physician decided to perform a procedure and compared that date with the procedure date. They used this method for the 100 most common procedures in Nova Scotia over five years, including 347,000 procedural services in the analysis. Of course, they rendered all information extracted from patient records anonymous to ensure confidentiality.

This study has revealed good news for all Nova Scotians: that they are waiting less time for most major surgical procedures than they were four years ago.

Waiting times are influenced by many factors. Regional and community health boards will assume an increasing role as their control of hospital resources increases. They will find region- and hospital-specific waiting times useful monitoring tools. Hospitals have a direct influence because major surgical procedures require the availability of operating rooms (ORs) and budgetary restrictions force hospitals to maximize the efficient use of their resources, including OR resources. Individual physicians' waiting times are determined by the number of referrals, the urgency with which surgery is recommended, and the availability of OR time. Certain patient factors may also influence waiting times.

Monitoring is a critical step in identifying and solving problems, and the use of MSI data can help provide the "Big Picture." A new system for processing physician claims, to be introduced in a few months, will significantly enhance the ability to obtain information on waiting times. Two projects are under way at the Queen Elizabeth Health Sciences Centre. Both will eventually provide valid, reliable up-to-date waiting times for procedures. One will also set standards for clinically reasonable waiting times and define levels of priority for orthopaedic procedures.

Identifying and removing bottlenecks will decrease overall waiting times for surgery. Several system-wide measures that could be taken are increasing the commitment to day surgery, using same-day admission whenever possible, expanding the use of pre-anaesthetic evaluation clinics, trying to assure that specialists are appropriately distributed, and developing a triage system for patients waiting for resource-intensive procedures, like joint replacement surgery.

The development of standards for waiting times like those used in cardiovascular surgery and having incremental targets would help ensure an appropriate balance between quality patient care and system efficiency and cost-effectiveness.

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Performance Reporting

Measurement Issues

Measurement of what is happening in government programs is an important and highly complex task. This is particularly true in health care, the largest and, arguably, most varied of government programs. The Department of Health has always been able to report in great detail how much was spent, how many patients/clients were seen at such and such a centre, or time, or for what diagnosis. However, the ability to monitor health outcomes, or other factors reflecting individual or group health, has been much more limited. Health, like most government programs, has traditionally measured its performance by the resources consumed rather than the product, in this case, healthier people, produced.

It has become increasingly important to take a consumer's-eye view of the world. For example, imagine looking for information before buying a new car. Which measure would be more helpful, the government's balance-of-trade comparison between General Motors and Honda on the number of cars produced, or a *Consumer Reports* survey of new car quality comparing the two companies? This analogy illustrates another point as well, that while counting cars may be a simple, objective summary of existing data, measuring an attribute such as quality is more complex and subjective, and requires special planning and investigation.

This illustrates the dilemma within government in general, and within our health care system in particular. What are the measures that really tell us how we are doing? What does the health care consumer and tax payer need to know to judge whether they can be adequately cared for, yet also be assured that their money is spent wisely? The transition from merely counting services and dollars to measuring quality and outcomes is essential, but the process is long and hard. Some measures may be extracted from existing data, but in many cases entirely new collection methods

must be devised. However, progress is being made, and the Department of Health is increasingly able to judge results in terms of specific outcomes.

Performance Reporting System

Over the past year the Nova Scotia Department of Health has been developing a Performance Reporting System to collect and communicate information on various aspects of health and health care. Three separate sets of indicators make up the system, and provide a series of measures designed to give health care managers insight into what is happening in different parts of the health care system, and why.

Government by Design

Seeds for the present system were sown in the original "*Government by Design*" document, "*Progress and Challenge,*" which described each department's mission, strategic goals, fiscal targets, past year's performance, and the priorities established for the next year. In addition, the document described the government's commitment to provide services that meet society's needs.

Government by Design's core premise is that social progress is a shared responsibility between governments and individual citizens. The government has defined several broad action areas and target measures that, when met, will result in improvements in Nova Scotians' quality of life. These areas include educational improvements, a clean environment, safer communities, and healthier families and communities. While *Government by Design* was an important step in goal setting and accountability, perhaps its greatest achievement has been to set in place an evolutionary process of measurement, goal setting, and improvement that transcends the document itself.

The Department of Health is working with other government departments to bring about improvements in these areas. Specific health indicators that are being acted upon include reduction in the number of smokers in the population, and reduction in the number of deaths from heart and respiratory disease or lung cancer. The department is committed to reducing the number of low-birth-weight babies, reducing perinatal mortality, increasing the number of children who are immunized against communicable diseases, and reducing the number of pregnancies in teenage girls. In addition, there are goals to reduce the number of accidental deaths among children.

Program and System Performance

Besides actions improving these specific healthy outcomes, attention will be focussed on enhancing the performance, efficiency and quality of care in several program areas including Pharmacare, physician services, and hospitals. Progress in these areas will be reported annually as part of the *Government by Design* strategy.

Most program areas have quarterly and annual performance reporting to senior management of information pertinent to decision making. These indicators are extracted from existing departmental information systems designed to record program and service activities. There is still a need to

develop indicators measuring the health effects of programs and services on the client. These are called outcome indicators.

Currently, indicators exist for the following program areas: acute care, home care, mental health, drug dependency, public health and the tobacco control unit. In addition, indicators have been developed for MSI-insured services including Pharmacare, Childrens' Dental Program, and physician services.

Population Health Indicators

A strategy has been developed to create indicators that reflect the general health of the population. This strategy includes indicators for health determinants and health status. Health determinants include those factors that will ultimately affect the health of the population. These include important areas such as education and literacy, employment and income. Government policies concerning safe roads and the use of seat belts are other examples. Health status includes indicators based on rates of illness and death in the population.

The following topics will be developed and published as issue papers over the next 12 months: population demographics, reproductive health, communicable disease, lifestyle factors, socioeconomic status, employment, education, prevention and screening issues, leading causes of hospital admission, utilization of health services, and leading causes of death.

A New Indicator – Surgical Waiting Times

It is within the context of the Performance Reporting System that this document presents an important new indicator, a method to measure waiting times associated with many diagnostic and therapeutic procedures. This is a new measurement tool developed by the Department of Health. While waiting time for a procedure is not a patient outcome in itself, the length of time a patient waits may influence the outcome, and has a direct bearing on the continuation of any pain, loss of function or anxiety suffered by the patient during the waiting process. Therefore, waiting time may influence not only the objective therapeutic outcome, but also subjective measures such as worry and satisfaction by the patient and his/her family.

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Waiting Time for Procedures

Overview

The report outlines some issues related to waiting times, different approaches to their measurement, and provides detailed descriptions of waiting times over the past four years in selected major procedural categories. Included are groups of procedures performed by different surgical specialties, procedures for specific conditions, volumes of procedures, and variations between health regions.

Overall, waiting times have remained the same or are slightly better than they were several years ago. Some procedure groups, like cardiac surgery, have shown significant improvements, while others like ear, nose, and throat surgery or eye surgery have increased waiting times. This report also identifies regional problems for certain specialty services such as gynaecology.

Finally, this report will outline strategies that can be employed to monitor and, where necessary, reduce waiting times. Now that the Department of Health has a picture of what has been happening in Nova Scotia over the past few years, it can begin to consider clinically-acceptable standards for waiting times for various conditions and procedures. Tools to measure waiting times in a comprehensive and timely manner must be developed, and hospitals and their staffs must be involved in the process of defining standards, setting incremental targets, and dealing with strategies to reduce or maintain waiting times at target levels.

Waiting Times and Health System Reform

Health Reform continues to evolve in an enormous restructuring of the Nova Scotia health system. Actions have ranged from developing new modes of community participation to reduction in the numbers of inpatient hospital beds to introducing Home Care. The intention is to maintain or enhance access to necessary services while striving for improved effectiveness and efficiency within the available resources.

Access to medical and surgical procedures is a critical part of the health care system, whether those procedures save a life, restore function, or relieve suffering. The ability to provide such procedures in a timely fashion is an important ingredient in quality of care. Hearing about prolonged waiting times threatens our feeling of security and our confidence that the health care system will be able to meet our needs if we are sick or injured.

Waiting times are, therefore, a natural focal point for Health Reform. Not only are they an important consideration in the reform agenda, they are also subject to critical public scrutiny as part of concerns about the process of reform itself. Consequently, the cause of long waiting times is often attributed to Health Reform. However, waiting times for procedures are a reality within any health care system, public or private. Specialized procedures require extremely skilled professionals and are highly resource-intensive to maintain. Excess waiting can lead to patient harm and suffering, but having excess surgical capacity would be a wasteful use of scarce resources.

What is being done in Nova Scotia?

The Nova Scotia Department of Health is committed to ensuring that waiting times for procedures in this province remain within clinically reasonable limits and will do so through a range of initiatives. Nova Scotia is a leader in its approach to waiting times, and is addressing the problems head-on on many fronts, both at the Department of Health level and in individual hospitals. The first task has been to develop methods to measure waiting times to build an historical perspective of what has been happening with waiting times for important procedures. New ways of monitoring waiting times, pilot projects, defining clinically reasonable waiting times, and setting standards are all important ongoing initiatives that will be covered in this report.

Definitions

Surgery

In this report the term “surgery” is used generically to include not only surgical operations requiring general or local anaesthesia, but also significant non-operative diagnostic and therapeutic procedures such as endoscopy (using miniature telescopes to peer into body cavities such as the abdomen, bladder, or knee), laser treatments, and lithotripsy (using sound waves to break up kidney stones). These are generally done in a hospital, and often involve waiting periods. While some of these procedures are also done by non-surgeons, only services by surgeons who are registered as specialists by the Nova Scotia College of Physicians and Surgeons are included in this report.

Degrees of Urgency

Procedures, like most medical services, can have varying degrees of urgency depending on the nature and seriousness of the patient's condition. Diagnosis, the prospect for cure or palliation, pain, preservation of function and other factors all must be considered in determining urgency. Three classes of urgency may be defined:

- Emergency - Danger to life or limb within hours
- Urgent - Danger to life or limb within days
- Elective - Procedure planned where there is no immediate risk to the patient. This does not mean the surgery is unimportant, or that surgery could be postponed indefinitely. There is a broad range of "seriousness" within the elective category, ranging from some types of cancer surgery to non-insured cosmetic surgery. In this report any reference to waiting time is for procedures presumed to be elective, unless otherwise specified.

Elective Waiting Time

For our purposes, waiting time for surgery is defined as the number of days between the date the surgeon formally books a patient's procedure at a hospital and the actual date of the procedure. Obviously, the waiting time may range from minutes to days for emergency and urgent surgery, while the wait for elective surgery can range from days to months depending on the relative seriousness of the condition and other factors involved.

How Can Waiting Times Be Measured?

"Next Patient"

Waiting times for surgery may be measured in several ways. One of the simplest is the "next patient" approach. Imagine a surgeon calls the hospital booking office and requests an operating room time for a patient's elective procedure. The booking office consults its schedule and gives a time and date. The anticipated waiting time is, of course, the difference between the date the surgeon calls and the expected date of surgery. If one surveyed the surgeon or the hospital regarding the waiting time for that procedure, they would likely report the time for this "next patient." The waiting time may be accurate, but is specific to that hospital, that surgeon, and the type of procedure being booked. Also, whether the patient actually gets the procedure on that day can depend upon whether other cases receive greater priority, availability of a hospital bed, and many other factors. In other words, the "next patient" method generates a projected rather than actual waiting time.

Recording actual waiting times when the procedure is done by comparing the date the request for a booking was made with the actual procedure date is also possible. This has the advantage of being very accurate, but does not account for patient factors such as preference for a certain time or changes in the patient's condition that may introduce delays that are not created by the health system.

Dedicated In-Hospital System

For certain critical types of lifesaving surgery, hospitals have instituted special waiting lists where the waiting times are constantly monitored. An example of this would be the cardiac surgery waiting list. All prospective patients are reviewed by a special expert committee that assigns them to categories (urgent, semi-urgent A or B, and elective) based on the seriousness of their condition and the relative risk of delaying the procedure. The waiting times within each category are known at all times and are compared against national standards. If a category does not meet the standard, action can be taken to reduce the waiting time.

This method is possible because the process assigns patients to categories and rotates surgical responsibilities among the cardiac surgeons. Instead of several individual surgeons' waiting lists, there is one master waiting list. Because of its unique characteristics, this model applies only to certain very highly specialized surgery with extensive resource requirements.

Survey

Another method would be to survey surgeons or hospitals about what they think their waiting time is. This was the method used in a Fraser Institute study of hospital waiting lists across Canada. This has the disadvantage of having questionable validity when response rates are low. For example, there is a possibility that surgeons with long waiting times would be more likely to reply than those with shorter times, leading to biased results. The Nova Scotia methods and results using MSI data will be contrasted with Fraser Institute survey data later in this report.

Use of Administrative Data

Another method to measure waiting times would involve attempting to determine when the decision to perform a procedure was most likely made and comparing it with the actual procedure date by examining the patient records in the MSI administrative databases. This would have the benefit of using available data and give a picture that could include all procedures over a long period. In some cases it might also have the advantage of being less speculative. However, while the date of a procedure can be easily extracted from MSI billing records, the date on which the actual booking took place cannot be determined without making certain assumptions.

This latter method was used to determine the waiting times for a list of the 100 commonest major[1] procedures performed in Nova Scotia. A detailed description of the method may be found on page 48. Briefly stated, a list of the 100 commonest procedures was used to scan the computerized MSI files for all instances of procedures performed by specialist surgeons and to collect all matching procedures. Similarly, any previous visits by that patient to that surgeon were also scanned for and collected. The time between the last visit with the surgeon and the date of surgery was taken as the presumed waiting time. In the majority of cases, there was a history of only a single visit with the surgeon to use in calculating the waiting time.

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[1] The term "Major" is used in the context of this report according to the MSI definition of procedures with a fee of 50 or more MSI units (about $86 or greater).

The month of surgery, waiting time, age of patient, county of patient, county of surgeon, procedure name, and diagnosis were all collected for analysis. Once extracted, all patient information was rendered anonymous to maintain confidentiality in any reporting of results. The great benefit to this method is that it can gather information from vast quantities of data. A total of five years of MSI data, approximately 35 million physician services, was scanned in the process, and a total of 347,000 procedural services are included in the final analysis.

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Findings

What Information Is Included

Graphs on the following pages have been chosen to illustrate specific trends or features relating to waiting times. With 100 different procedures, 11 specialties, four regions, and four years of data to analyse, only a small portion of the available combinations can be included in this report. Many procedures are grouped together within the specialty that performs them the most, or as a separate procedure group when several specialties are involved, such as for back surgery or diagnostic services.

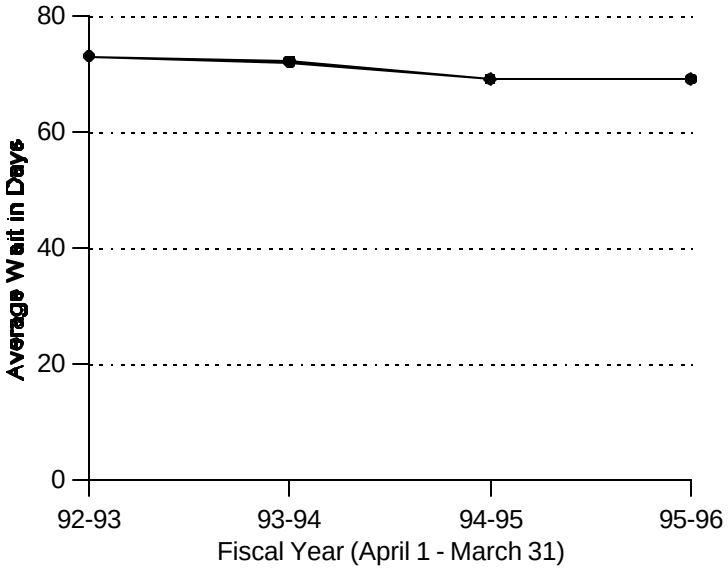
How to Read the Graphs

Each graph of average waiting time has a horizontal line corresponding to the government's fiscal year (April 1 to March 31). The vertical line at the left shows the weighted average of the waiting time expressed in days. For volumes of services, the vertical line represents a count of the number of services performed.

Graphs of Procedure Volumes

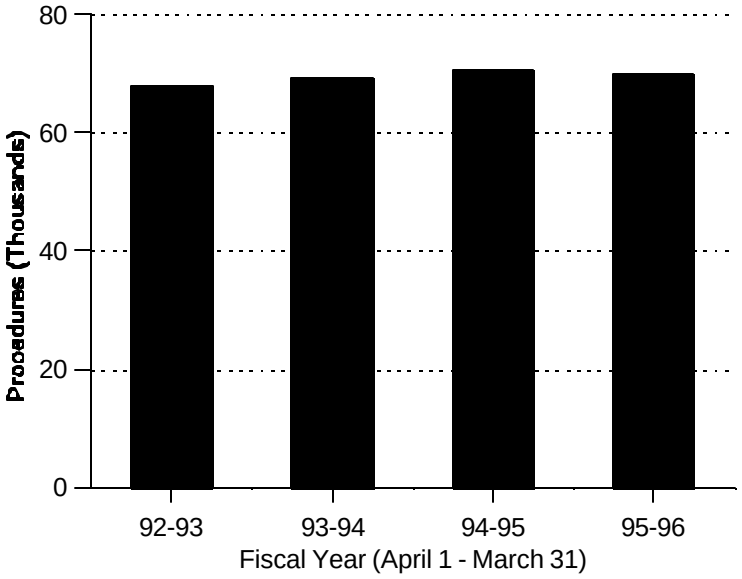
This report deals with a selection of only the 100 procedures most often performed over the past four years. The entire volume of services, when all 2000+ MSI procedures are considered, is higher. While the average waiting times are calculated based on those procedures that meet the criteria for being "elective," the reported volumes are based on all selected procedures, regardless of whether they were classified as elective or not.

All Selected Elective Procedures Combined



This first graph illustrates the "Big Picture" of surgical waiting times for all the selected procedures included in the analysis. As such, it shows the global trends for approximately 75 percent of the major non-acute procedures in Nova Scotia. There has been a slight decrease in the waiting times over the past four years, despite an increase in the number of cases per year as shown in the graph on the following page.

Total Volumes

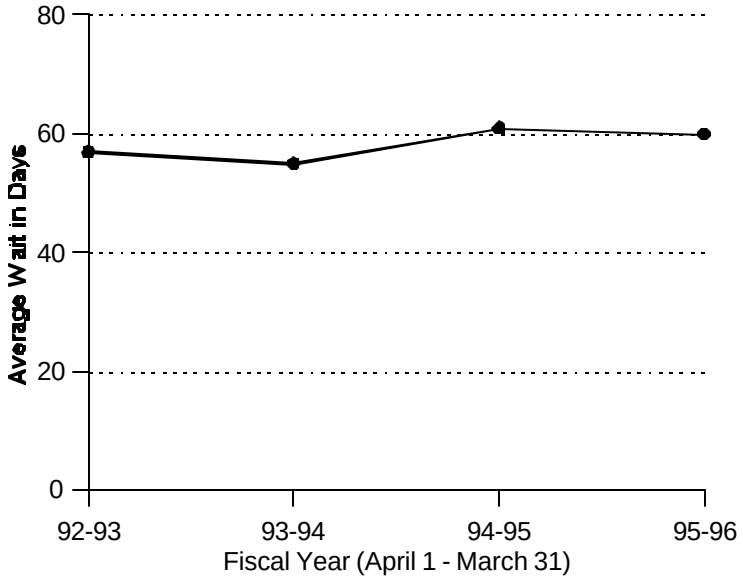


The above graph illustrates the changing volume of selected procedures for all surgical specialties combined over the past four years. The overall trend has been for a yearly increase in the number of procedures by approximately two to three percent yearly until 1994–95, and a slight (less than one percent) reduction in the past fiscal year.

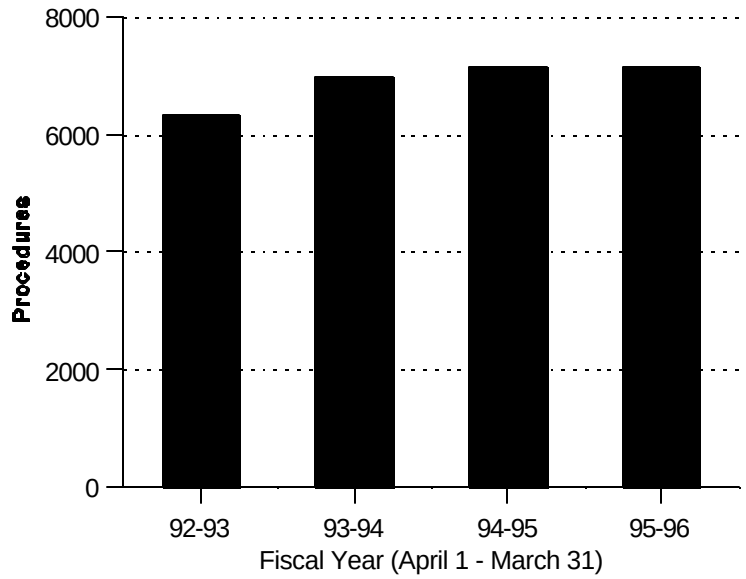
Surgical Procedure Groups

The following section groups procedures according to the specialty that performs the majority of services, *e.g.*, urology or orthopaedics, or by type of procedure, e.g., diagnostic tests or back surgery. These groups may not always approximate the typical average waiting times for a particular surgical specialist since the pattern of practice, region, and hospital may also influence the waiting time. A list of surgical procedures included in each group can be found on page 52 along with calculated waiting times by fiscal year.

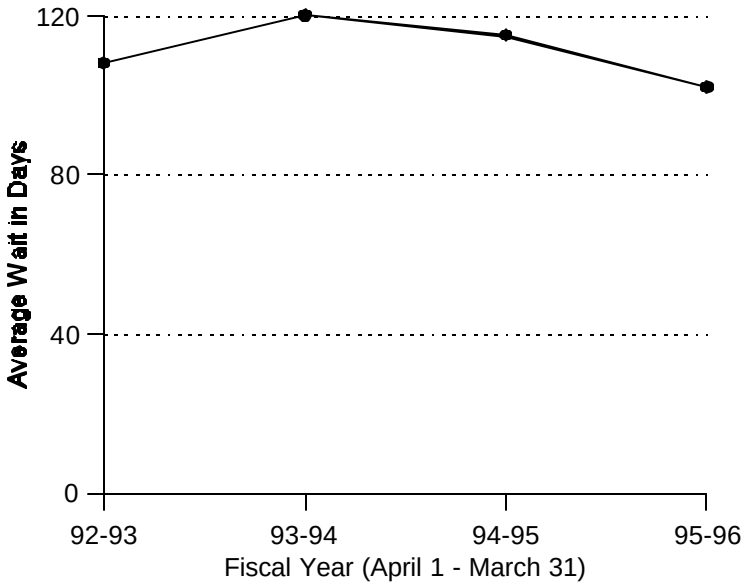
ENT Surgery



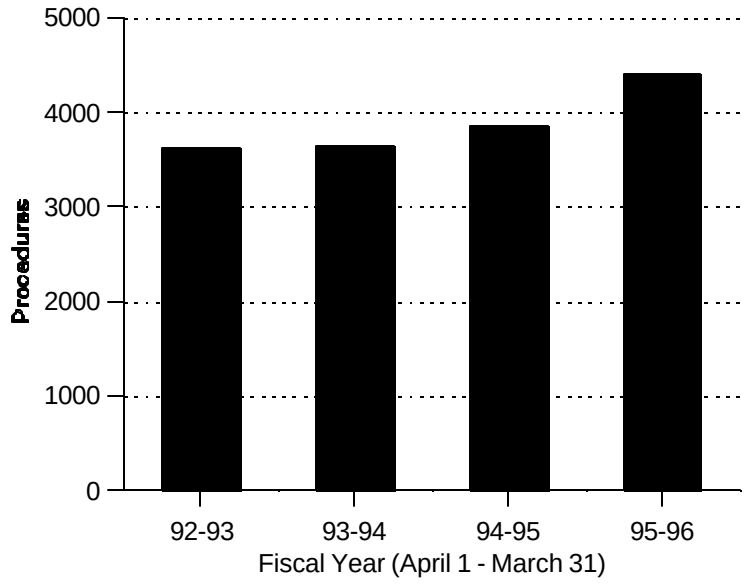
ENT (Ear, Nose and Throat surgery, also known as Otolaryngology) surgery has remained very stable during the period of analysis, although the number of procedures performed annually has increased. Much of the surgery in this group is done on children (ear tubes for recurrent ear infections and tonsillectomies for recurrent tonsillitis).



Orthopaedic Surgery

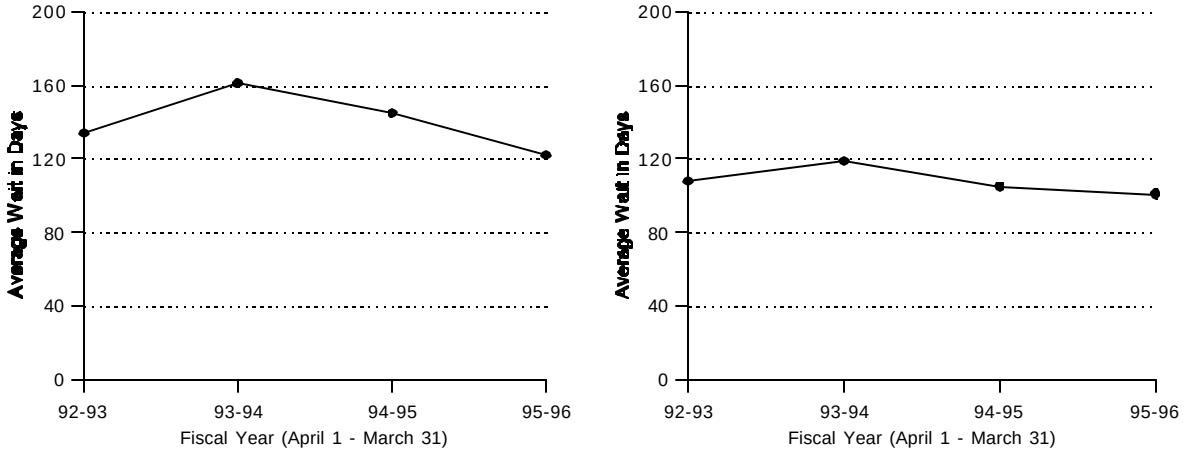


Considerable attention has been focussed on perceived problems with waiting times for orthopaedic surgery. In fact, the overall picture is of a downward trend during the past three years. Of additional interest, orthopaedic surgery has had the largest increases in surgical volumes over the past few years, as illustrated in the graph below:

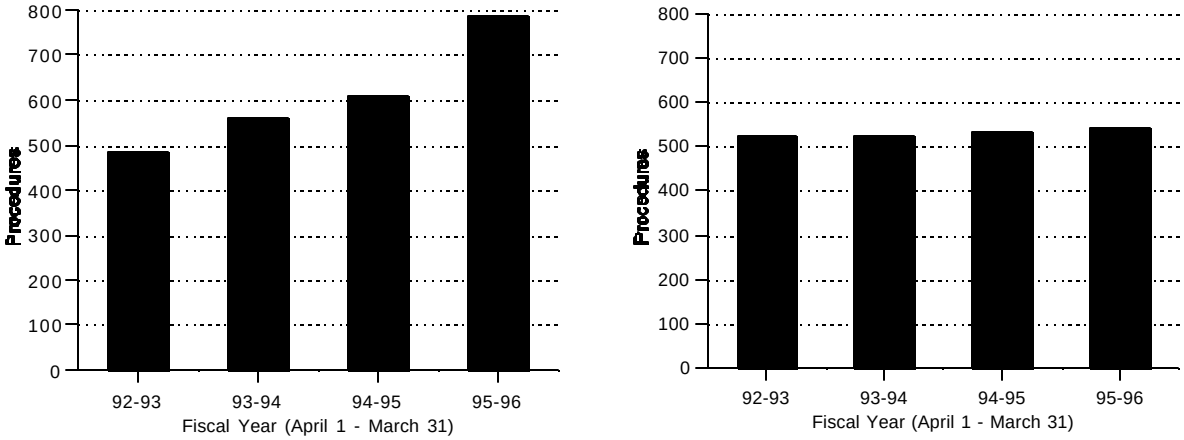


Joint Replacement - Knees and Hips

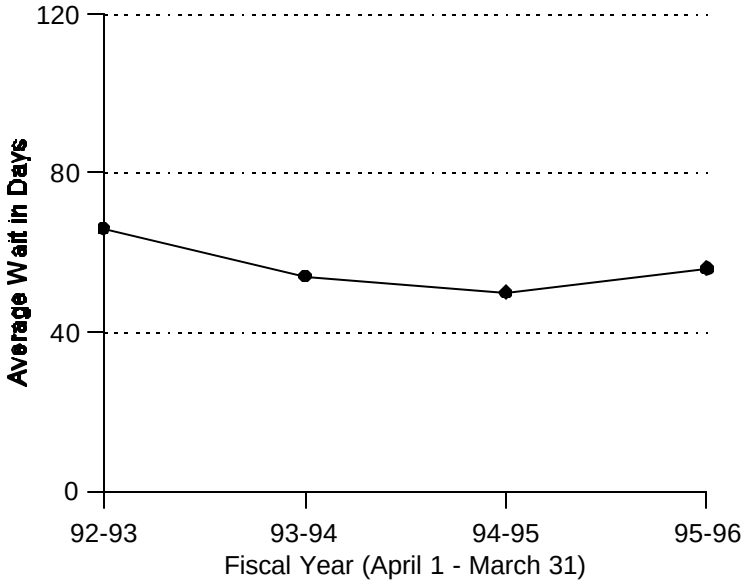
A frequent focus of concern regarding surgical waiting times is around joint replacement surgery. Joint replacements are done most commonly for knees and for hips. Some improvements in average waiting time can be seen since 1993–94. Knee replacements are on the left, hips on the right:



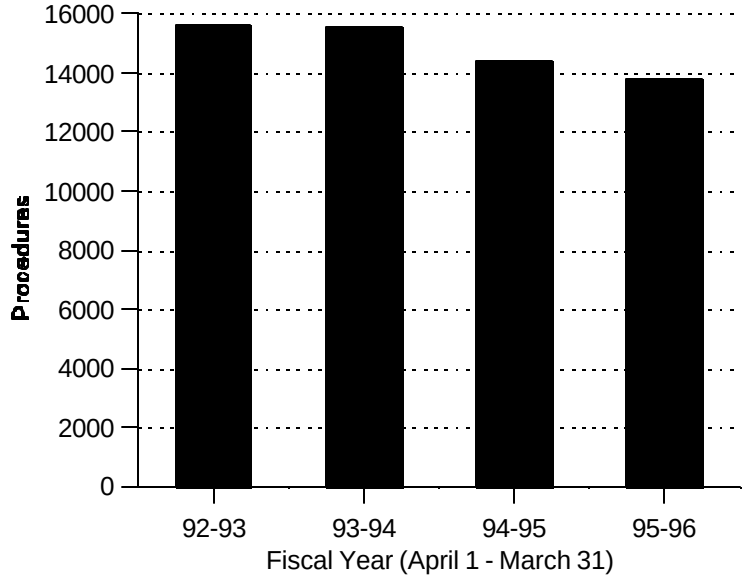
In addition, the volume of joint replacement surgery is increasing yearly from approximately 500 knee replacements in1992–93 to almost 800 in 1995–96. Hip replacements have shown a small increase during the same period. Below are two graphs illustrating the increasing volumes, knees on the left, hips on the right. Together, these graphs demonstrate a dramatic increase in the capacity to carry out joint replacements.



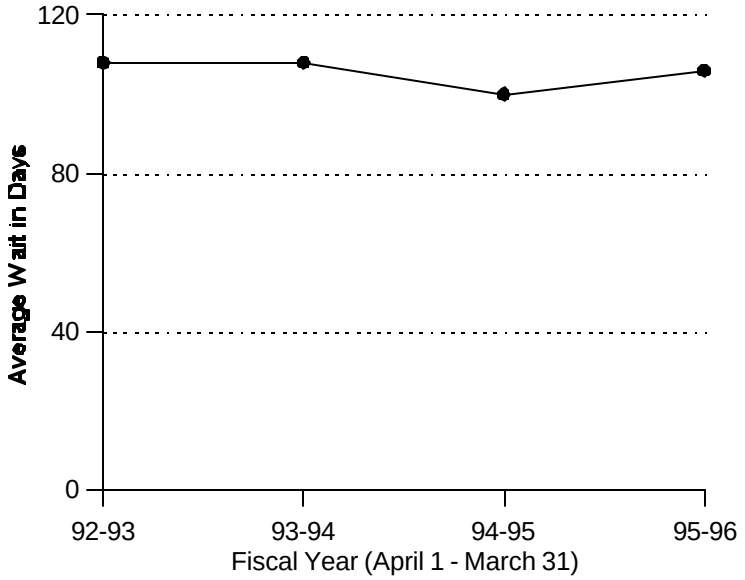
Urological Surgery Group



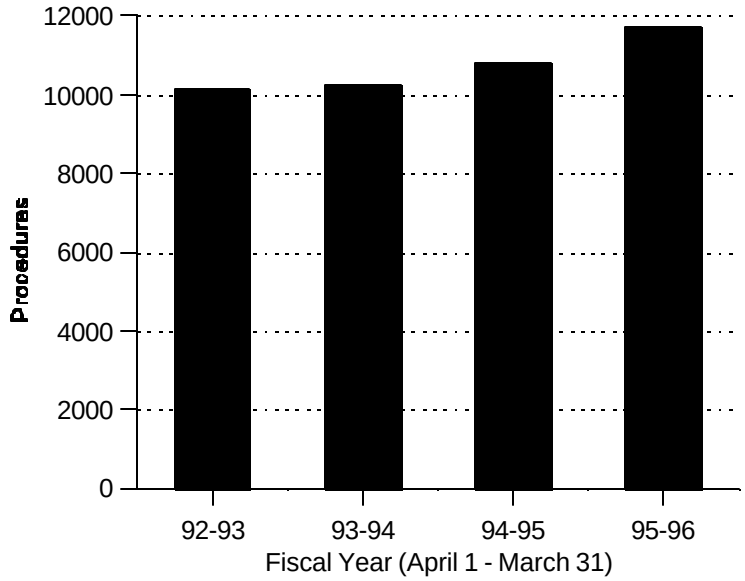
Despite a decreasing trend over previous years, urological surgery waiting times have increased slightly over the past year. In addition, this is one of the only groups where there has been a large reduction in the yearly number of procedures as shown below.



Eye Surgery Group

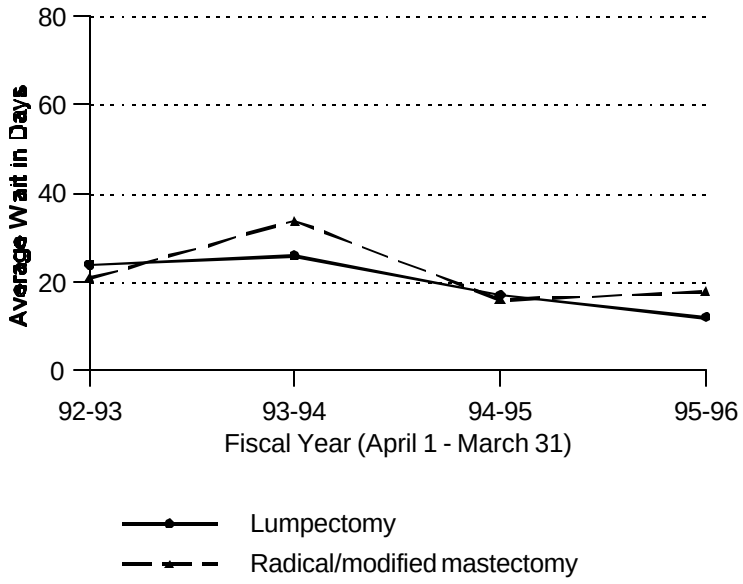


Eye surgery displays some of the longest waiting times among the procedure groups, and may be increasing. The principal procedure in the group is cataract surgery, as detailed on page 25. The eye surgery situation is illustrated more completely with the regional breakdown on page 33.



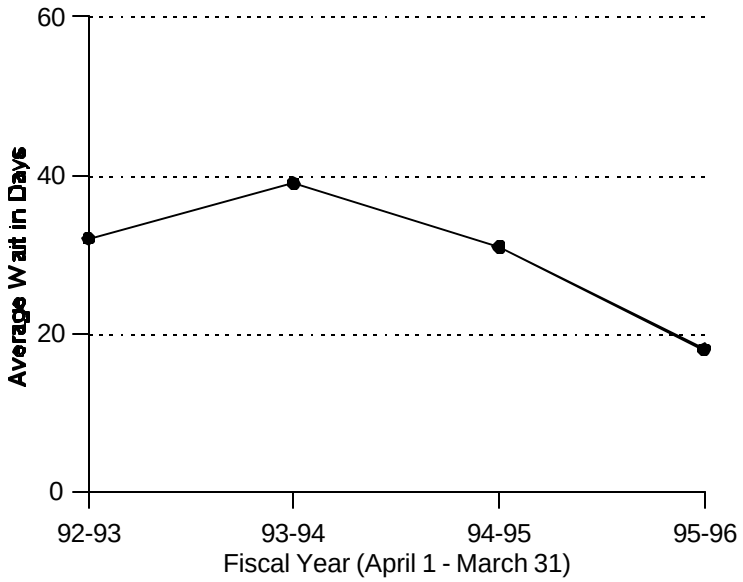
Cancer Surgery

Breast Cancer



The idea of prolonged waiting times for cancer surgery is one of extreme concern. Breast cancer has been the leading cause of cancer among women for many years and represents the most frequent cancer surgery among women. Waiting times for the two commonest types of surgery for breast cancer have shown a decreasing trend over the past three years.

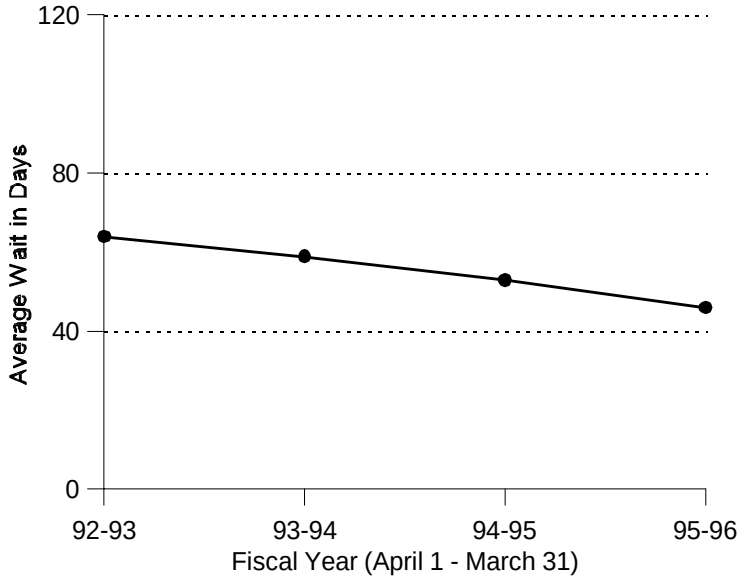
Lung Cancer - Lobectomy



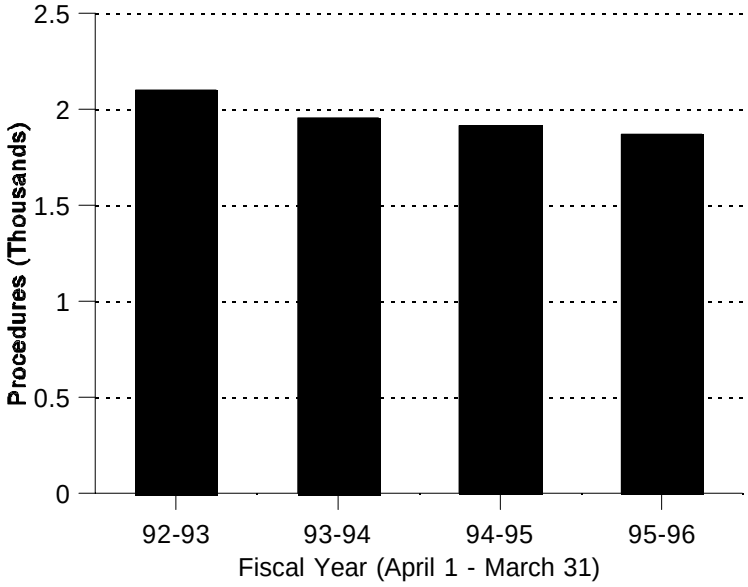
Lung cancer is the leading cause of cancer mortality among both men and women. For operable lung cancer, the commonest procedures are total or segmental lobectomies where all or part of the cancerous lung is removed. Waiting times have been variable but there has been a downward trend for the past two years.

Other Selected Procedures

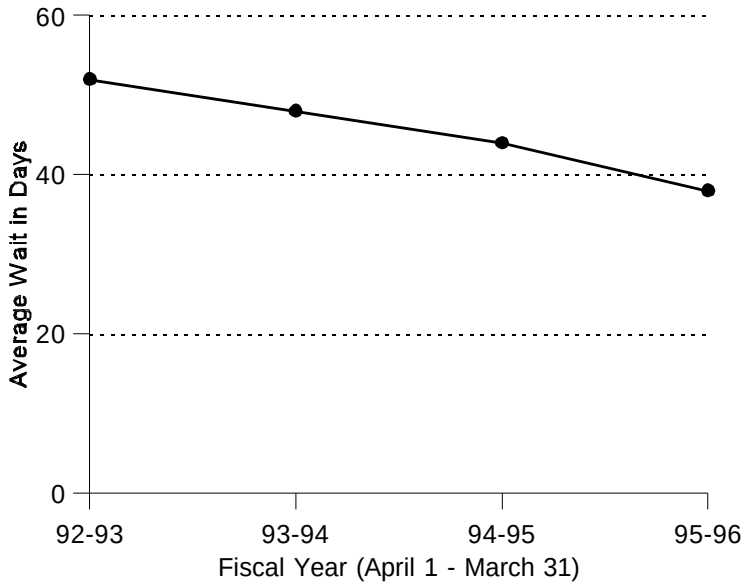
Hysterectomies



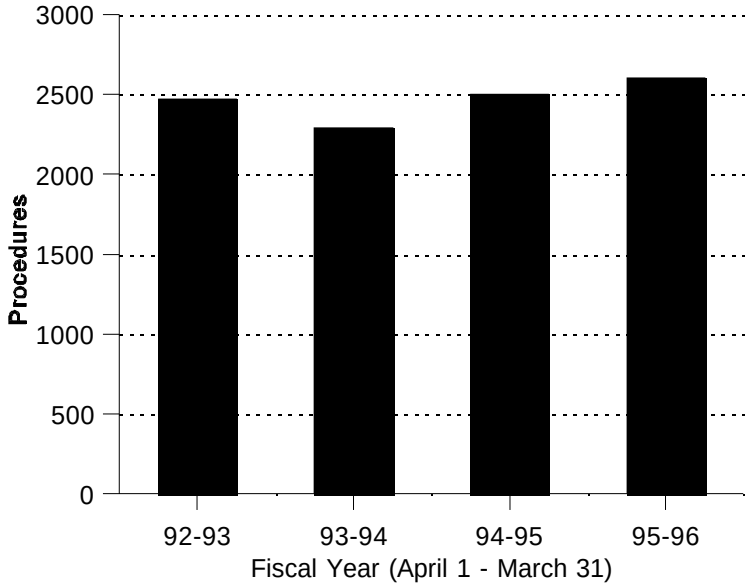
Hysterectomy is one of the commonest procedures performed for women, although there has been a reduction in numbers over the past few years as shown below. The graph of waiting times for hysterectomies shows a downward trend as well. This includes hysterectomies performed both by gynaecologists and general surgeons.



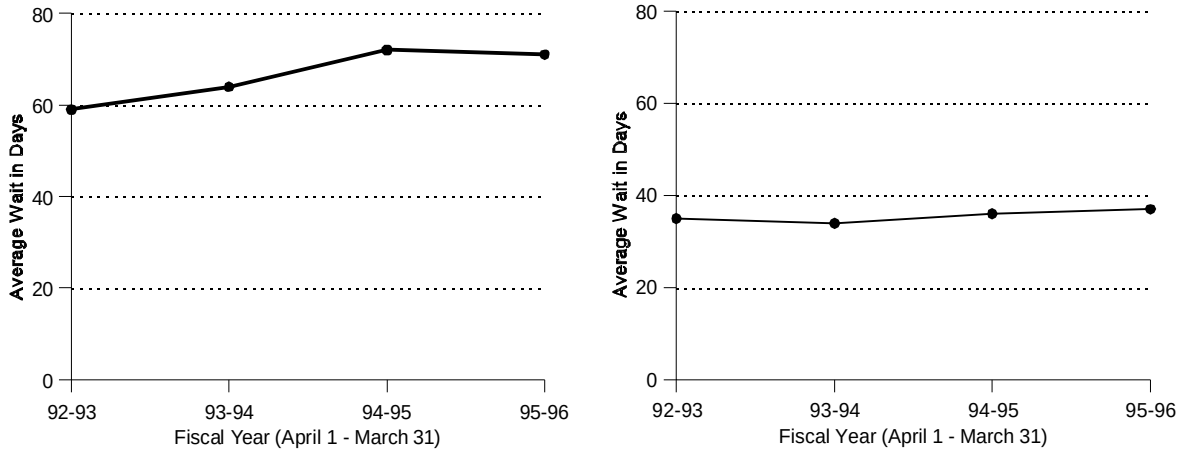
Cholecystectomy



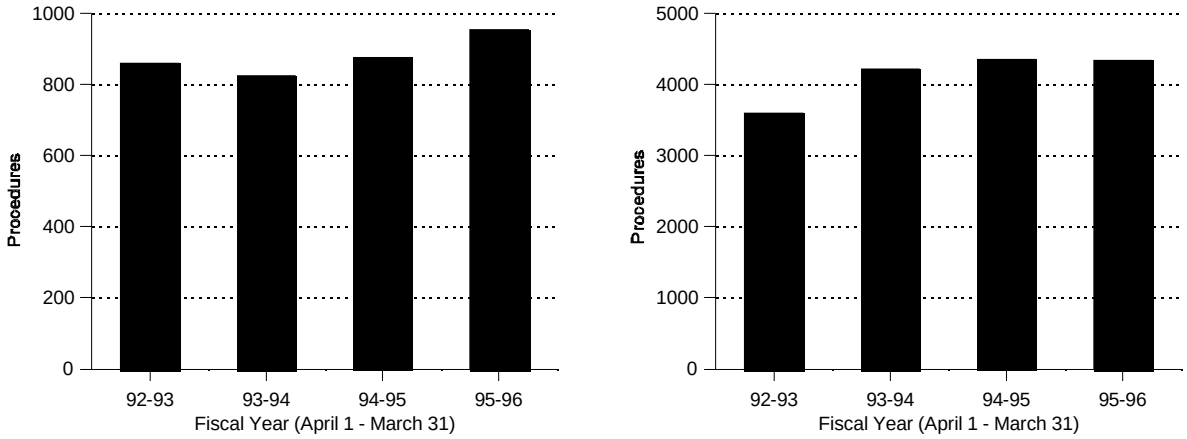
This is one of the commonest general surgical procedures done electively. There has been an approximate two-week reduction in the waiting time over the past three years.



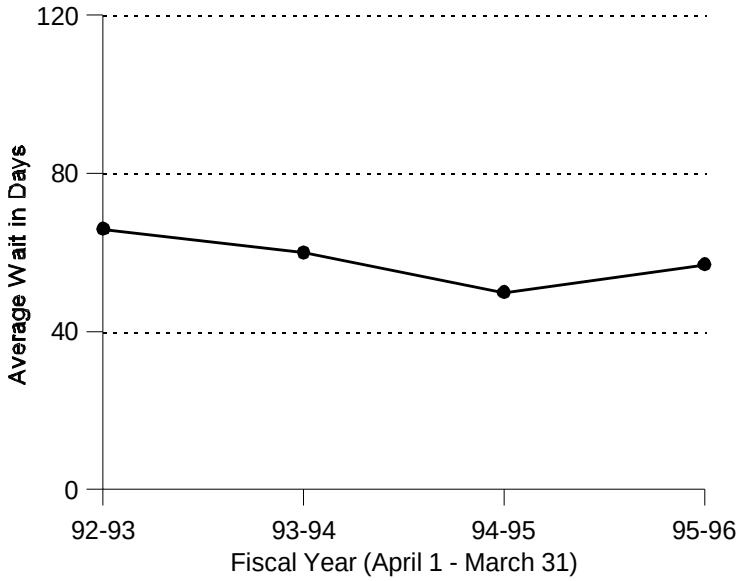
Tonsillectomies and Middle Ear Aspiration – Placement of Tubes



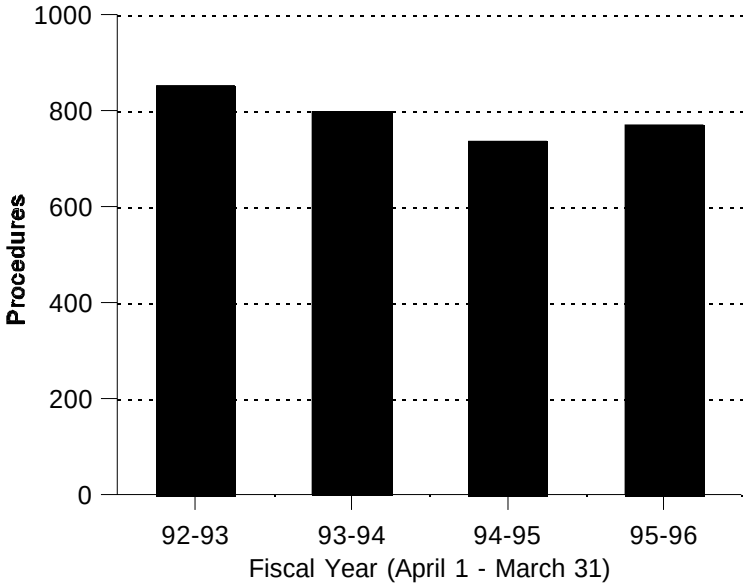
As mentioned previously, these two operations are most commonly performed on children. Both show a slight increasing trend over the past three years. Tonsillectomies are on the left, tubes on the right. Both operations are being performed more frequently than they were four years ago.



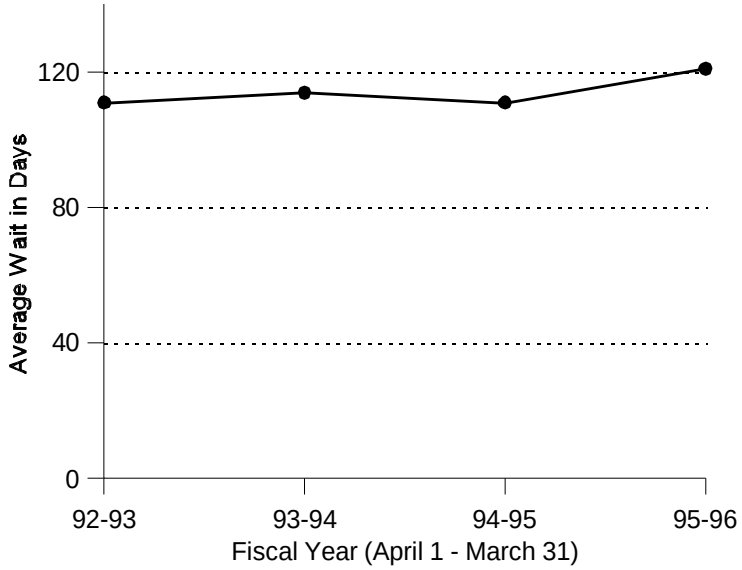
Prostate Surgery - Transurethral Resection of Prostate



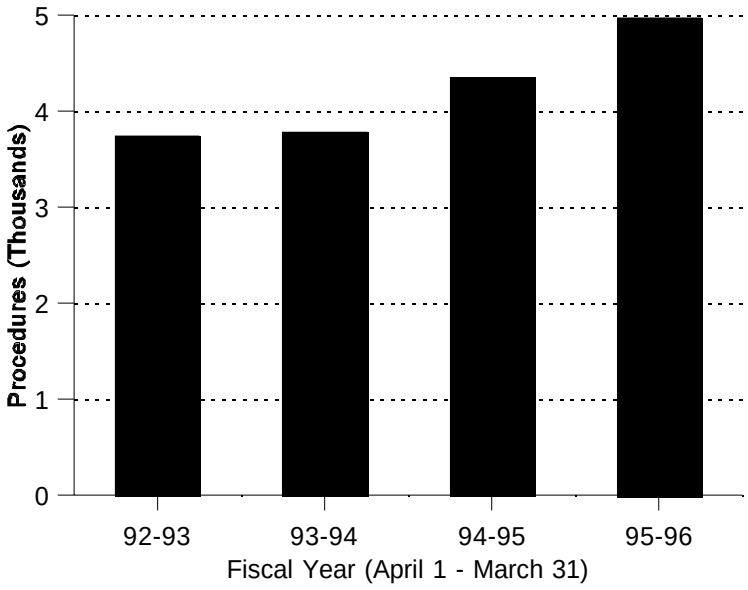
This is a common surgery for older men to relieve symptoms and potential complications arising out of enlargement of the prostate gland. Other than cystoscopies, this is the most frequent urological procedure. Despite a reduction in the previous two years, there has been an increase in both waiting time and number of procedures in 1995–96.



Cataract Surgery - Extraction with Lens Implant

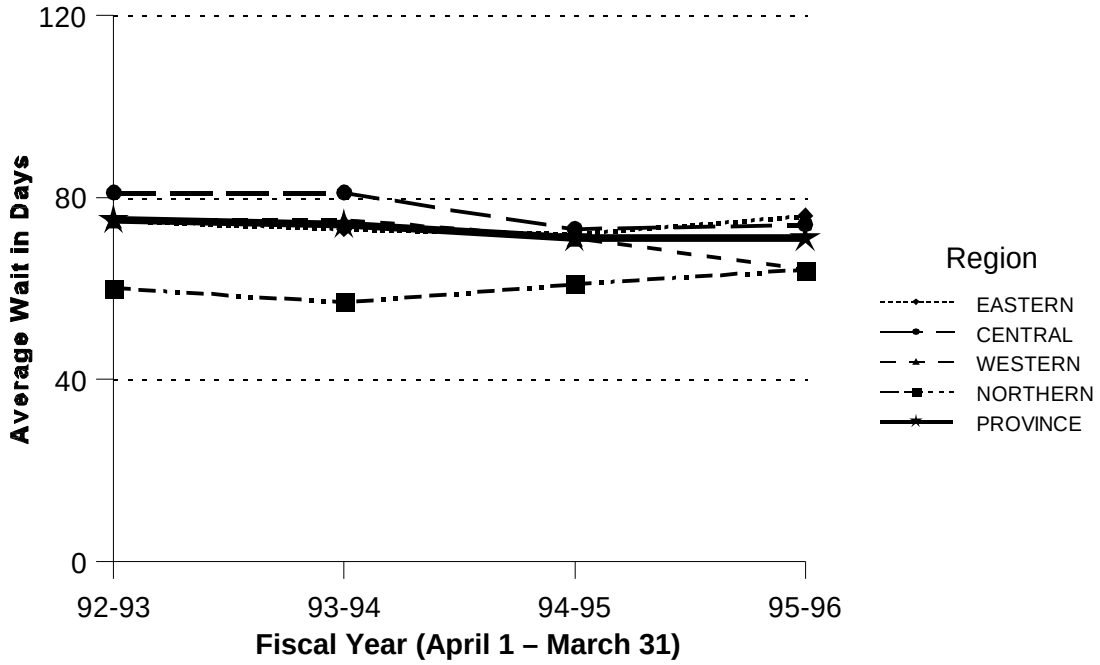


Cataract removal with intraocular lens insertion is the commonest major surgical therapeutic procedure performed in Nova Scotia with approximately 5000 done yearly. As such, it represents an important component in surgical waiting times, especially for the elderly.



Regional Variations in Waiting Times

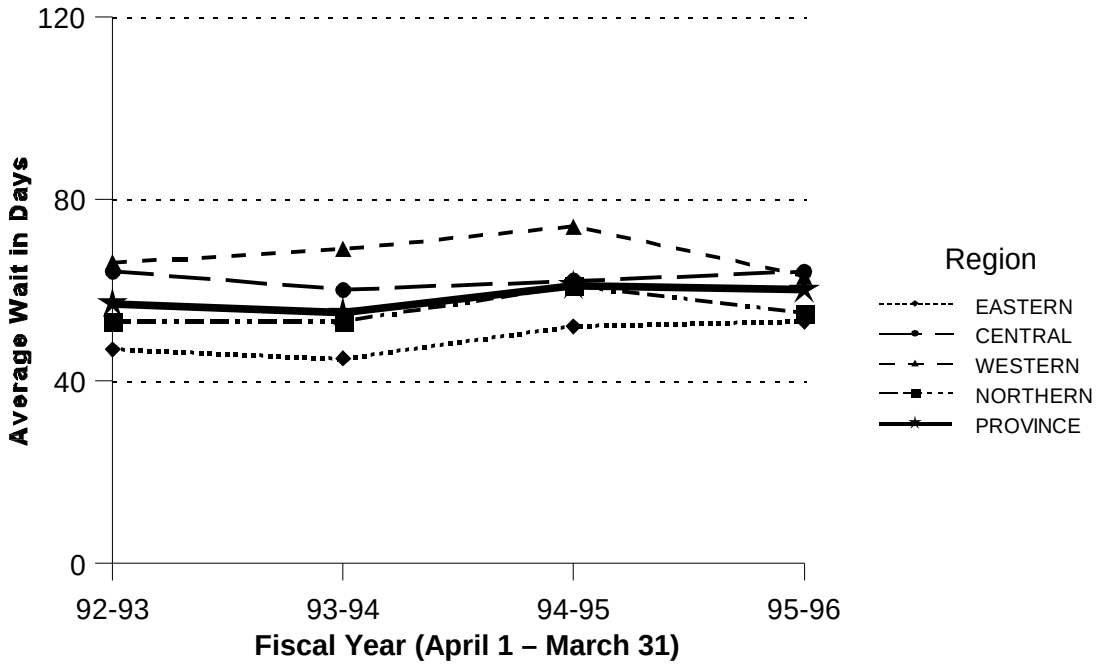
Weighted Average of All Procedures – Regional Comparisons



Nova Scotia has some marked differences in waiting times between regions in some procedure groups. This first graph gives an overview of waiting times broken down by the region of patient residence (not necessarily the region in which the surgery was performed). We can see that patients in the Northern region have historically had the shortest waiting times and Central the longest, with Eastern and Western in the middle of the group. In addition to the slight reduction in overall waiting times, disparities between the regions do no appear to be as great as they were three years ago.

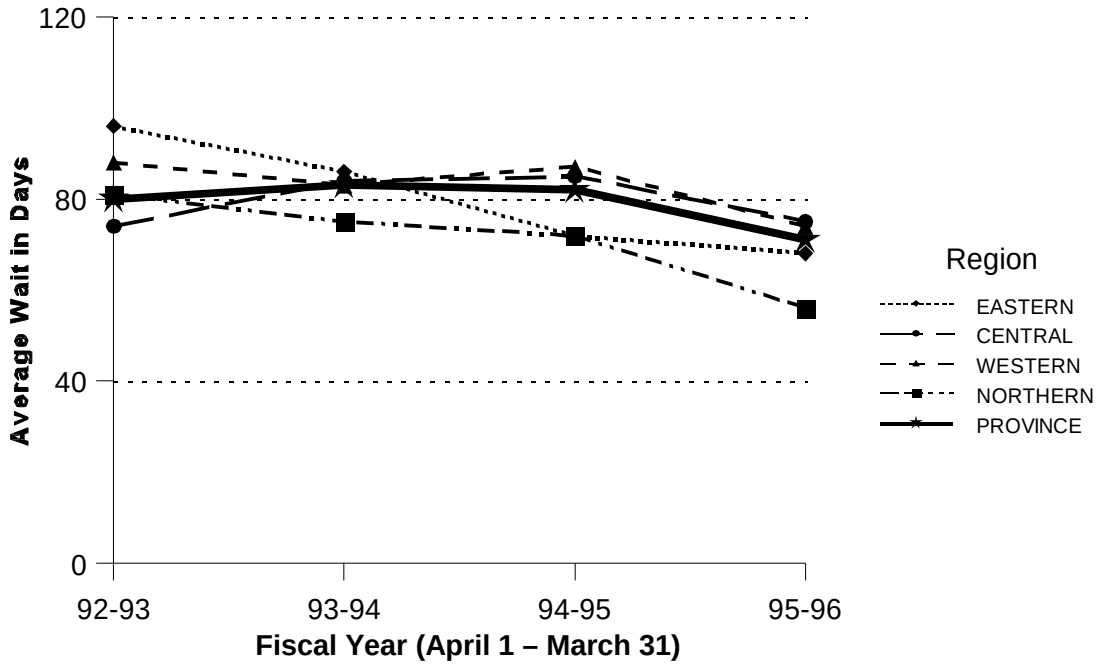
The Central region is a provincial (and Atlantic Provinces) resource for some types of procedures, so regional waiting times are partially influenced by the percentage of procedures their residents must have done in the Central region. Residents of the Central region often find themselves part of a provincial queue for specialized procedures, which may help explain why residents of the Central region experience the longest waiting times overall.

ENT Group



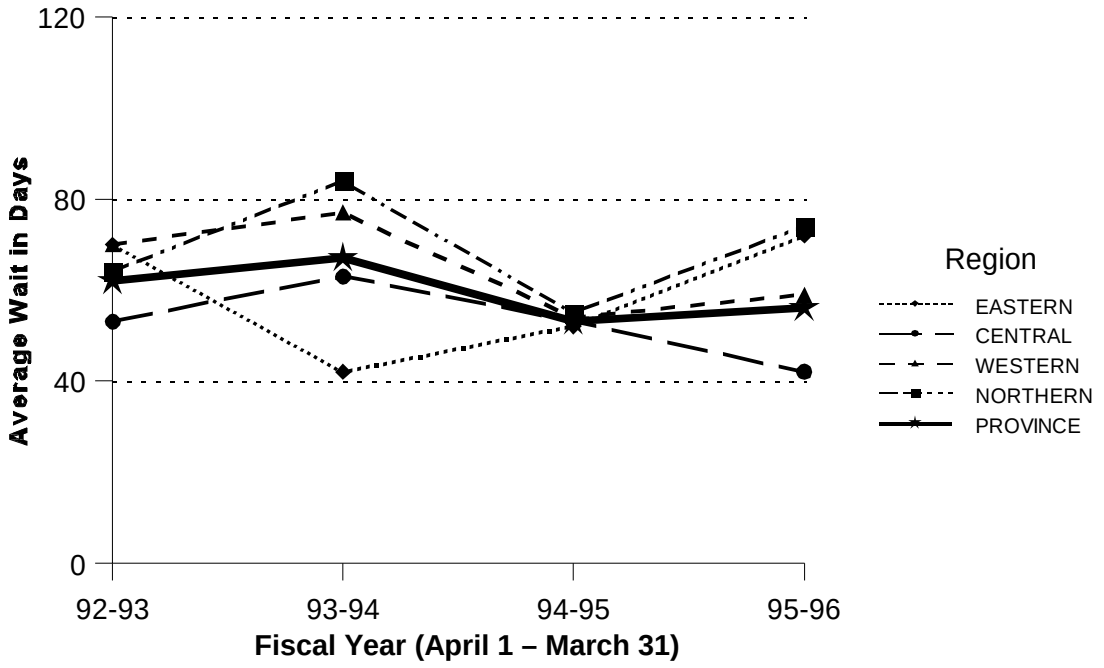
The regional pattern for ENT surgery shows a generally increasing trend, with the Western region highest and Eastern lowest. However, Western has shown improvement over the past year and is now in line with the provincial average.

Plastic Surgery Group



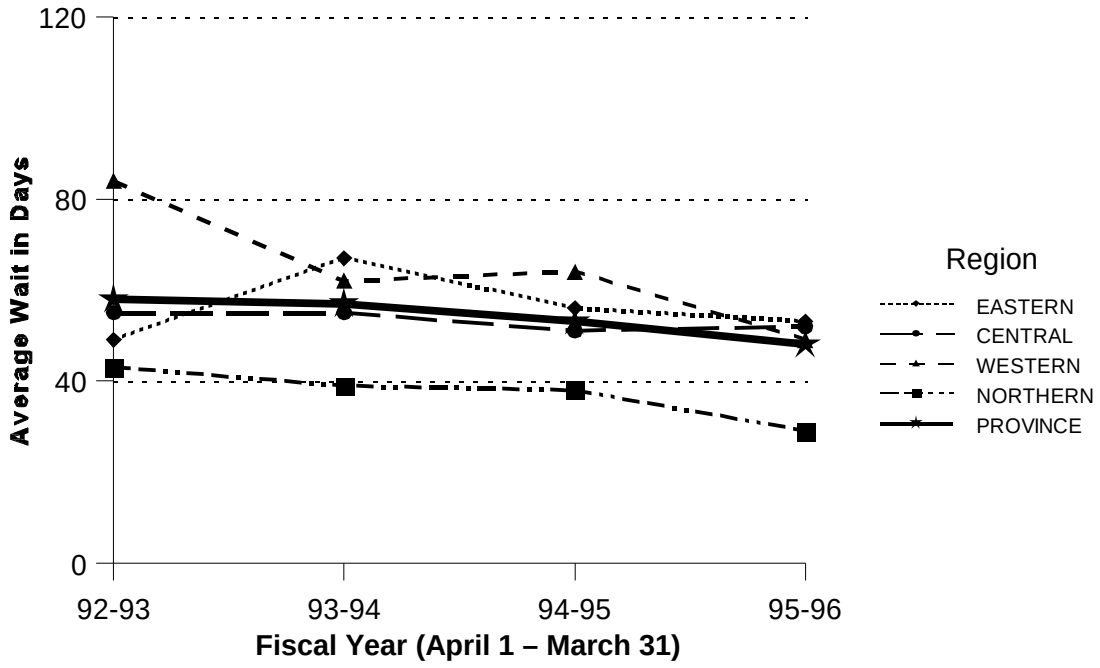
Plastic Surgery demonstrates improvement in waiting time in all regions except Central over the past four years. Plastic Surgery can often be done on a Day Surgery basis and may be particularly responsive to improved efficiency in handling Day Surgical cases.

Back Surgery Group



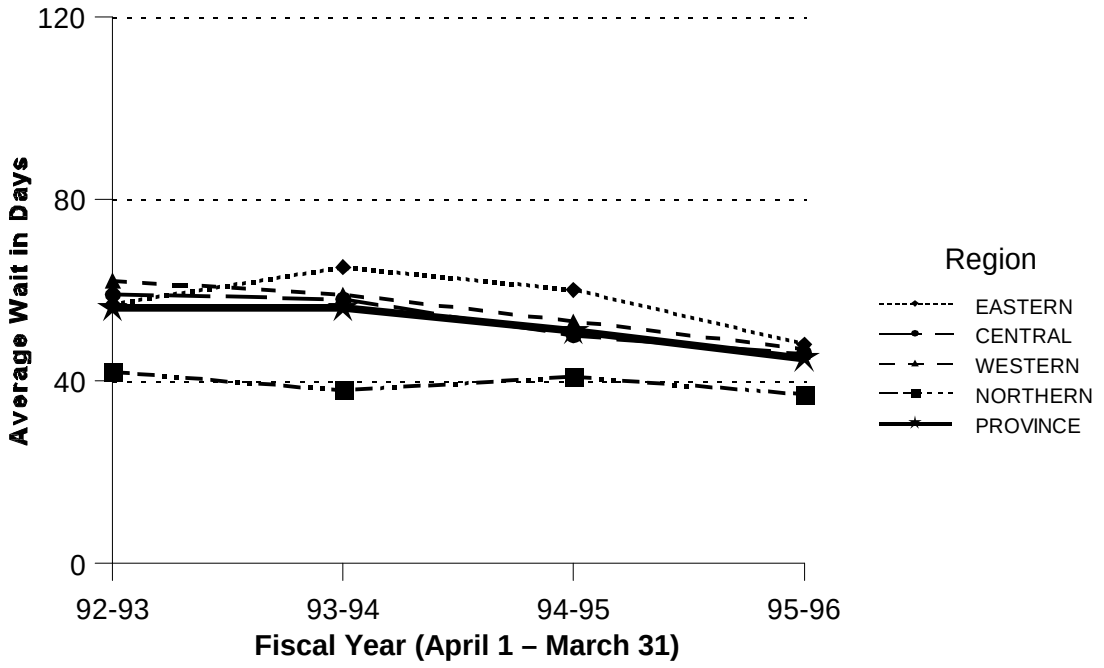
Back surgery is performed by both neuro- and orthopaedic surgeons. Patients in the Eastern region have shown a large increase in waiting times over the past two years that may reflect the difficulty with maintaining services in these two specialties. However, in this past year the Eastern Region has obtained an additional orthopaedic surgeon and their neurosurgeon has returned, so waiting times may be expected to decrease again.

Cardio-Thoracic Surgery Group



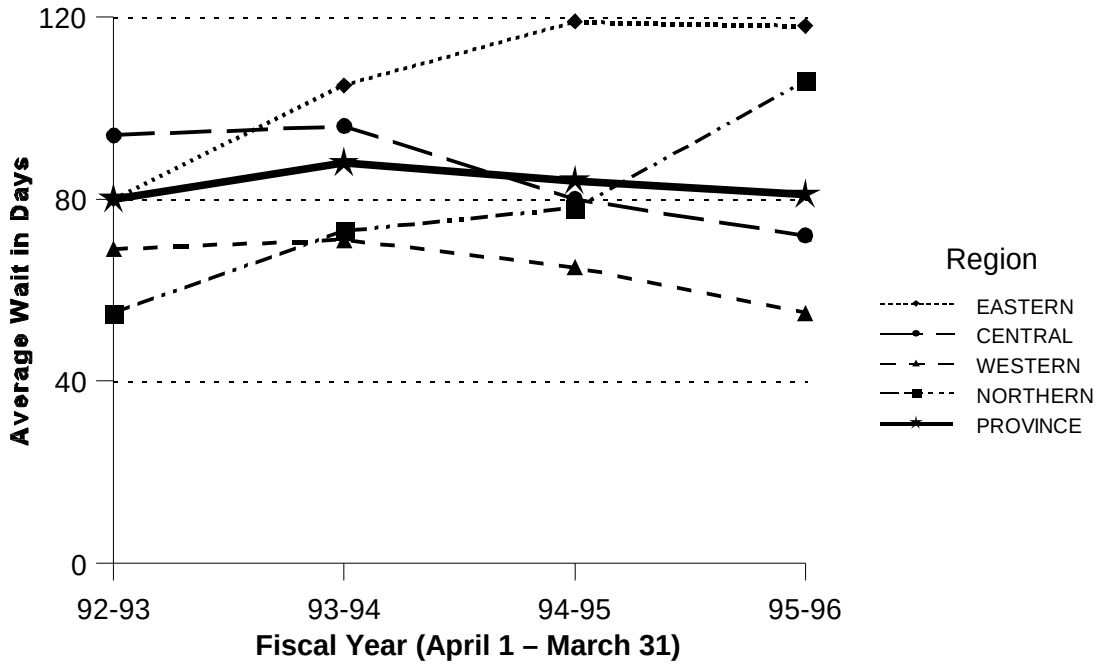
This group includes lung surgery and some operations on major blood vessels. The reductions in waiting times seen here likely reflect the concerted efforts taken in the past couple of years to reduce waiting time for this type of surgery.

General Surgery Group



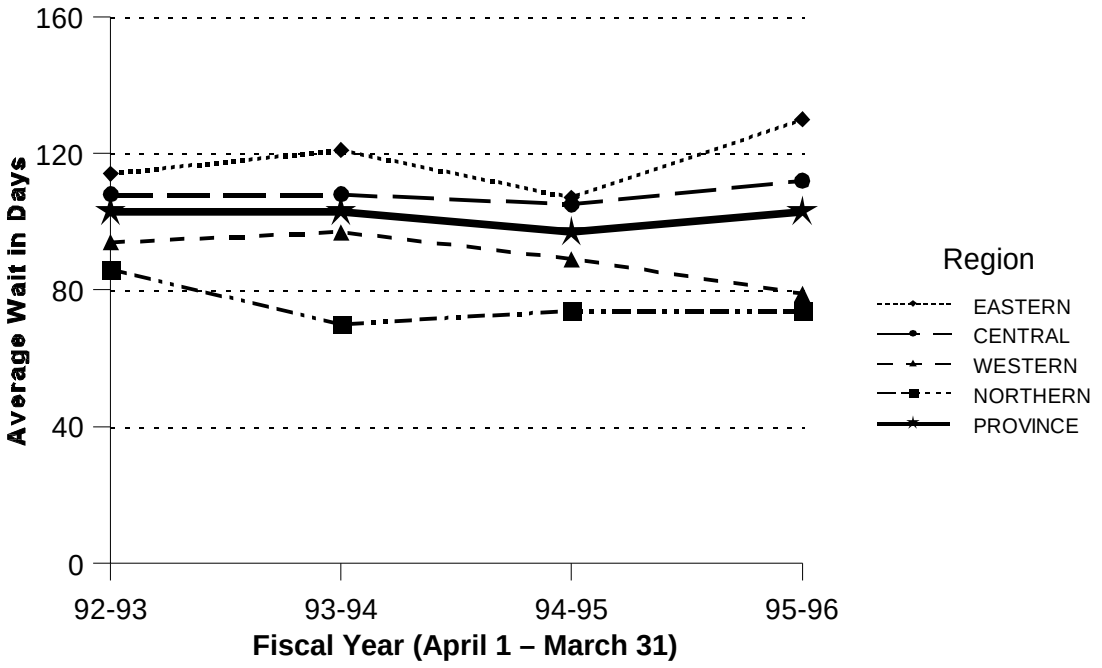
General surgery has the largest and most diverse selection of procedures of any of the groups. It is also the specialty most likely to be found in smaller hospitals with a surgical service. Because of this, most procedures in this category are performed in the region where the patient lives. The regionalization of services in some hospitals might have been expected to cause increases in waiting times for general surgical procedures through reduced access. However, this does not seem to have had adverse effects: three regions have seen reductions in waiting times, while the fourth, Northern, has remained the same. Regionalization would appear to be associated with not only a general reduction in waiting times, but a gradual equalization between regions as well.

Gynaecological Surgery Group



For Gynaecological surgery the provincial pattern is one of a slight reduction in waiting times over the past three years, largely due to reductions in Central and Western Regions. However, Eastern and Northern Regions now have much longer waiting times compared with four years ago.

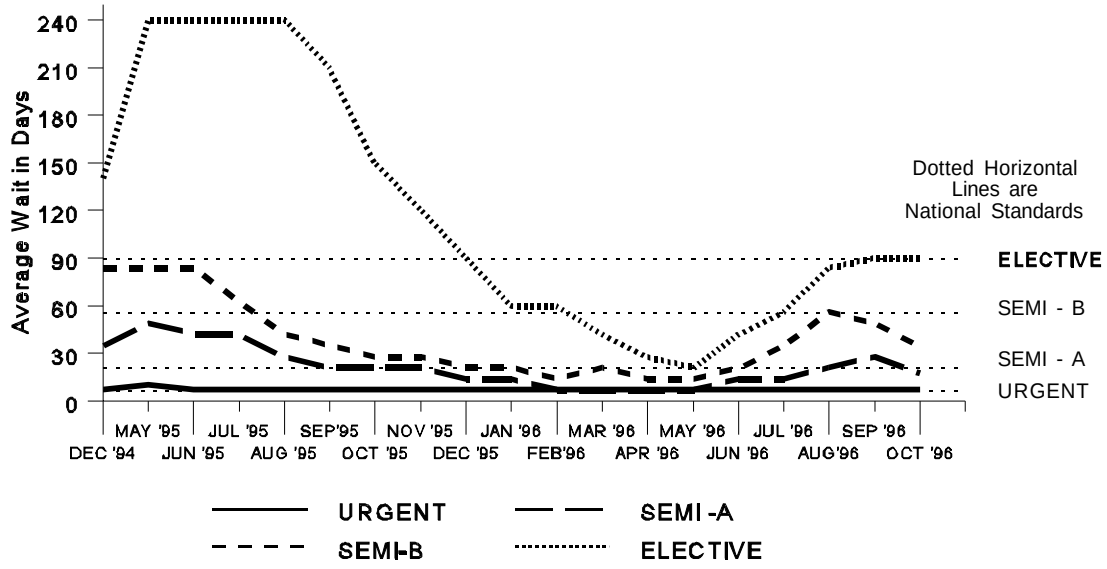
Eye Surgery Group



The times in this group are largely influenced by waiting times for cataract surgery. Patients in Central and Eastern regions have particularly long waiting times that are increasing.

Other Information Sources

Cardiac Surgery Waiting Times



Cardiac surgery uses a dedicated waiting list divided into several categories depending on the type of surgery and patient's condition. The categories are urgent, two levels of semi-urgent (A & B), and elective. This waiting list is not only for Nova Scotian patients, but patients in other Atlantic provinces requiring these specialized procedures as well. The above graph is based on information adapted from the Performance Reporting System that collects data from the Queen Elizabeth II Health Sciences Centre monthly. Note the "standard" for waiting times in each category as indicated at the right end of the scale.

A large backlog of elective cases occurred in the spring and early summer of 1995 when waiting times became prolonged. In response, the QEII reallocated monies within its budget and the Department of Health increased funding to Cardiac Surgery. These combined measures were sufficient to accommodate the backlog of cases and to maintain waiting times within the nationally-accepted guidelines.

The results can be clearly seen in the graph above with a rapid decline in waiting times between July 1995 and May 1996. Over the past summer waiting times started to creep upward again due to staff vacations; however, the past two months have shown a return to within standards.

Comparisons with Fraser Institute Reports

The Fraser Institute is an "independent Canadian economic and social research and educational organization" as self-described in their monthly bulletin The Fraser Forum. For the past five years the Institute has compiled surveys of waiting lists across Canada in the only systematic national measure of waiting times. A table on the following page compares Fraser Institute survey results from the previous two years with the results calculated from the MSI Databases for this report.

There are significant differences in the way waiting times are calculated between the two methods. While the Fraser Institute and MSI Database methods do yield comparable results sometimes, there are also some dramatic differences. For example, in 1994–95 estimates by both methods (as measured by medians) for breast surgery, cholecystectomy, hernia repair, cystoscopy, prostatectomy, and dilation & curettage, were within days of each other. Other estimates, such as for mammoplasty, hip arthroplasty, tonsillectomy, and cataract extraction had wide differences between the two methods, with the Institute's estimates generally being higher.

A discussion of comparisons between the two methods is detailed in Appendix D on page 63.

Comparison of Wait Times - Selected Procedures
MSI Data Base (Fiscal 1993-94 and 1994-95) and Fraser Institute Reports (1993, 1994)†

	1993-94 Average* Wait Times				1994-95 Median** Wait Times			
	MSI Data Base		Fraser Institute		MSI Data Base		Fraser Institute	
Procedure	Days Wait	Number of Cases	Days Wait	Survey Response Rate	Days Wait	Number of Cases	Days Wait	Survey Response Rate
Excisional Breast Biopsy	31.3	842	14	33%	17	999	14	22%
Mastectomy (lumpectomy)	36	131	12	33%	10.5	120	14	22%
(radical)	46	142			13	181		
Reduction mammoplasty	272	342	250	33%	258	244	359	22%
Disc surgery/laminectomy	43.3	380	42	32%	22.5	392	31.5	36%
Arthroplasty (interphalangeal)	153	221	90	33%	100	206	154	22%
Arthroplasty (hip)	121	440	134	32%	72	425	266	30%
Rhinoplasty/septal surgery	83.6	666	179	37%	55	576	77	21%
Laparoscopy	55.4	1362	43.4	39%	33	1519	49	42%
Tonsils & adenoids	63. 9	1061	179	37%	49. 6	1025	96.5	21%
Haemorrhoidectomy	71.3	304	27	27%	28	291	52.5	25%
Cholecystectomy	56.6	1587	31.5	27%	26	1753	30	25%
Hernia/hydrocele	56.5	955	32	27%	29	838	21.5	25%
Cystoscopy	53	5354	59	32%	23	4732	28	36%
Vaginal repair	96	240	71	39%	48.5	184	56	42%
Prostatectomy	64.3	175	60	32%	27.5	134	28	36%
Dilatation and curettage	47.2	1426	32	39%	25	1517	28	42%
Hysterectomy	66	917	70	39%	39	843	49	42%
Tympanoplasty	78	83	83	37%	70	86	50.5	21%
Cataract extraction	123	3297	109	37%	73	3847	112	32%

† Source: Waiting Your Turn: Hospital Waiting Lists in Canada, (5th edition).
Waiting Your Turn: Hospital Waiting Lists in Canada, (4th edition).

* & ** For their report on waiting times in 1994, the Fraser Institute switched to reporting medians rather than averages as had been used in their previous reports. The "MSI DataBase" column reports results derived using similar statistical measures, *i.e., medians are compared with medians and averages with averages.*

Cross Country Survey of Other Departments of Health

As part of the research on surgical waiting times, the Health Information and Evaluation section of the Department of Health carried out a telephone survey of other provincial departments of health (results are summarized in Appendix C on page 62). To our knowledge, Nova Scotia is at the fore in developing ways to measure waiting times and, furthermore, to incorporate them into a routine source of management information.

4

Discussion

Elective procedure services may show patterns of change in response to various aspects of health system policy and administration, making it essential to monitor for any improvement or deterioration. These services are also sensitive to influences stemming from changes in everything from population demographics to the introduction of new technologies. Waiting times for elective procedures are a concrete way to measure the accessibility of services, and indirectly, the adequacy of hospital physical and human resources.

Why Waiting Lists?

Why should we have waiting lists at all? Why can't a procedure be done immediately after there has been a determination that it is medically necessary? The health care system is always balancing customer service (short queues) with the costs of building and maintaining hospitals (equipment, services) and employing the necessary personnel (nurses, physicians, and other healthcare workers). The system attempts to meet the emergency needs of patients at all times, and elective patient needs most of the time. In many instances shorter queues for elective procedures can only be achieved through acquiring more equipment and personnel, resulting in higher healthcare costs. Efficiency and need always exist in a balance, since gearing the healthcare system to provide very short queues during periods of higher demand may result in underutilisation during periods of lower demand.

What or Who is Responsible for Waiting Times?

This report represents an initial step in the process of examining and discussing the issues related to waiting times for procedures. Foremost among these issues is the question of responsibility, first from the standpoint of individual or organizational accountability to the public and second, in terms of the influences stemming from current healthcare trends, changing demographics and societal priorities. The following discussion of responsibilities is intended as a stimulus for discussion around waiting times, not as template for specific actions or solutions.

Department of Health

The Department of Health has two roles related to waiting times. The first is strategic priority-setting in conjunction with the other branches of government. This involves a complex interplay of societal expectations, tolerable levels of taxation and long-term debt obligations, all of which affect the funds available for health care financing. Internally, the department must make allocation decisions to balance acute care and preventive services. While the impact of and philosophy behind all these strategic decisions are important, this discussion focuses on the operational considerations involved in providing access to health services.

The department has a second role through its management of programs in terms of planning, budgeting and other aspects of administration. Regional funding envelopes, capital expenditures, tertiary care, and human resource planning are all contributing activities. In addition, the department carries on high level discussions with providers, health boards, and other groups related to the provision of services. Policy development relating to physician services – funding, supply and distribution is an especially important activity.

Regional Health Boards

The availability of region-specific, and even hospital-specific waiting times will be an important monitoring tool for Regional Health Boards. As the restructuring process unfolds, the boards will assume increasing control of hospital resources. As a result, they will assume an increasing role in providing acute care and will make decisions that affect waiting times. Those decisions will be made in the context of other health priorities where board members must recognize the existence of the inherent tradeoffs – money spent to increase surgical throughput may not, in the end, be the most effective expenditure to improve the overall health of their population.

Hospitals

Major surgical services are primarily dependent on the availability of hospital operating rooms (ORs). ORs require highly specialized equipment and staff and are subject to escalating standards and costs. Generally, hospitals allocate OR time by service, and within a service, by surgeon. Established surgeons with larger caseloads may have more OR time than less well-established

surgeons, but OR time is not necessarily allocated on the basis of the waiting times experienced by individual surgeons.

Budgetary restrictions may force hospitals to restrict access to very expensive procedures or to curtail OR staff overtime, all of which can lead to a lengthening of OR waiting lists. The availability of surgical beds also determines the rate at which surgery can be performed. If a patient requires hospitalization and no bed is available, then the patient's surgery must be delayed.

Hospitals are the front line in controlling waiting times through both their own monitoring of waiting times within the institution and their ability to innovate and maximize the efficient use of OR resources. However, some hospitals may already be operating near peak efficiency in terms of OR productivity, use of Same-Day Admission or Day-Surgery, or other factors. In those cases, further large improvements may not be possible. A particular concern is the impact of fiscal restraint on OR availability. If waiting times in a particular hospital are increasing because the hospital is reducing OR services to save money, this becomes an important issue.

Physician and Patient Factors

Individual Physician Factors

The physician element in waiting times is particularly important. This study has found wide variations in waiting times between different physicians and regions. Waiting times vary between surgeons in the same specialty in different regions and between different surgeons within the same region or hospital. An individual surgeon's waiting time depends on several factors, including number and type of referrals, efficiency, and availability of personal OR time and hospital beds. If the rate of referral and surgical bookings exceed the ability to accomplish the surgery, an increase in personal waiting time is an inevitable result. Clearly there is a point at which a surgeon's capacity to operate safely, even under optimum conditions of OR availability, can be outstripped by an excessive caseload.

Physician Supply and Distribution

Physician human resource issues remain a perennial problem. Prolonged waiting times may be caused by an undersupply or maldistribution of specialists in a surgical category. Some areas have too few surgeons in one or more specialties. This leads to a twofold problem, that of retention of existing surgeons and recruitment of new. Physicians are far less willing than they once were to assume solo practice responsibilities and onerous on-call schedules. In areas where there are insufficient numbers to begin with, recruitment becomes a significant problem.

Aging and New Technologies

The twin effects of an aging population and emerging medical technologies are having a major impact on the demand for surgical services. Demographic trends are increasing the proportion of the population (the elderly) in which the most surgery is performed. Advances in technology, hospital acquisition of specialized equipment, and physician and hospital staff skills upgrading have

developed a capability to offer treatment options not previously available. Furthermore, they may be employed in persons who may not have been considered candidates for surgery just a few years ago.

Other Factors

The increasing yearly number of procedures performed cannot be explained solely by factors such as aging or deterioration in the health of the population. Part of the increase may result from the complex interaction of physician, patient, and societal expectations. While no-one may want to have a procedure performed unnecessarily, advances in surgical and diagnostic techniques may make certain procedures more acceptable and lead to increased utilization. An example of this is the introduction of endoscopic procedures that promise less pain and morbidity with hospital stays that are shorter, or eliminated completely.

Perceptions that surgery is now "easier," safer, and associated with less pain or fewer complications may increase patients' willingness to have a procedure performed. If the increased demand is not met with a parallel increase in capacity to perform the procedure, longer waiting times will result. Furthermore, patients and physicians may now assert that there are "rights" to all avenues of treatment, even for aggressive surgery with marginal chance of success.

The availability of community supports affects post-discharge planning, since use of Home Care or other services may reduce hospital length of stay and improve throughput by increasing bed availability.

Actions Taken to Address Waiting Times

Enhanced Monitoring: a Waiting Time Tracking System

This report presents only the tip of the iceberg of an advanced monitoring system designed to follow trends in waiting time, not only for surgical procedures, but for many other important diagnostic and therapeutic services as well. Monitoring is a critical step in identifying and solving problems

The use of MSI databases to monitor waiting times will be automated to enable health care managers to have information tracking trends in waiting lists. It will supplement the monitoring by individual hospitals of their own waiting times by providing a means of comparing surgeons, counties, regions, specialties, and other groupings. As such, it can provide the "Big Picture" and help monitor the effects of various initiatives designed to improve service.

MSI has introduced a new information system for processing physician service claims. There should be significant enhancements in the ability to obtain timely information on waiting times and other indicators when the system becomes fully operational. Especially important will be the inclusion of information on the other critical step in the waiting time chain, namely the time from referral to a specialist to the time when the patient is actually seen.

Other Initiatives

The Queen Elizabeth Health Sciences Centre has several projects under way relating to waiting times. One project, under the auspices of the Performance Indicators Task Group, has been developing methods to provide valid, reliable, and up-to-date waiting times for several procedures or services. These include:

- Coronary Artery Bypass Grafting (Cardiac Surgery)
- Radiation Oncology (Cancer Treatment)
- Mental Health Day Hospital
- Rehabilitation Centre Admissions
- Extracorporeal Shock Wave Lithotripsy

In addition to these initiatives, a separate project encompassing Orthopaedic surgery outcomes is underway and there have been discussions on how to set standards for clinically reasonable waiting times, and to define levels of priority based on pain, function or prognosis. If successful, joint replacement surgery might be handled in a manner similar to the cardiac surgery process described earlier in this document.

Publication of Waiting Time Information

The issue of patients' rights to all information necessary to make an informed decision regarding treatment raises some important considerations for the health care system, and for physicians in particular. Should referring physicians have access to information on the waiting time for procedures of the various specialists to whom they may refer? Should patients be informed of the expected waiting time if there are many specialists capable of performing the procedure they need? We cannot presume how patients might choose presented with the option of a three-month wait for an experienced surgeon *versus* a one-month wait for a newly established surgeon. We now have the capability of publishing surgeon- and procedure-specific waiting times. Such a process is being considered in other provinces.

Removing Bottlenecks

We have seen that, despite an increasing number of procedures being performed, waiting times have not increased overall. However, in some specialties where more procedures are being performed, it is at the expense of increasing waiting times. A concerted effort must be made to identify and remove "bottlenecks" in the system that introduce delays or unequal access. There are several measures that can be taken on a system-wide basis:

- Increase the commitment to Day surgery for procedures where the nature of the surgery and the individual would allow the procedure to be completed safely.

- Maximize the use of Same-Day Admission wherever possible.

- Expand the use of Pre-Anaesthetic Evaluation Clinics to screen patients with above average anaesthetic risk.

- Continue efforts to assure an appropriate number/distribution of specialists.

- Develop a system of triage based on pain, disability, prognosis, *etc.*, for patients waiting for resource intensive procedures such as joint replacement surgery.

Other efforts must be made on a hospital and specialty level basis.

Developing Standards

Currently the only surgical area using external standards for clinically acceptable waiting times is cardiovascular surgery. There are other efforts under way in orthopaedics that may result in similar standards. The process of developing benchmarks for waiting times and having incremental targets would help ensure an appropriate balance between achieving appropriate patient care while maximizing system efficiency and cost effectiveness.

5

Appendices

Appendix A:

Detailed Waiting Time Calculation Methods

The MSI Database

Every time a physician provides an insured service to a patient, a claim is submitted to MSI that includes patient identification, service(s) provided, diagnosis, date, and other details necessary for processing the claim. When a claim is paid, this information is recorded in a computerized Patient History File that MSI has maintained since the beginning of the MSI plan. These files may then be searched for information on visits, procedures, diagnostic tests, *etc.* of interest.

Selection of Procedures

Nearly three thousand types of visits or procedures are listed in the MSI Physician's Manual, and over half are surgical procedures. However, many of these are not performed frequently and would not be good indicators because of the small numbers. A strategy was employed by which all procedure data for fiscal 1994 was examined to find procedures ranked as "important" by virtue of having at least 30 procedures recorded in the year or where at least $30,000 had been billed. Approximately 160 procedures met these criteria (A complete listing is included on page 52) and the number was narrowed further by eliminating redundant procedures, procedures generally done acutely (like fractures or appendectomies), and certain non-surgical procedures. In all, 100 procedures were used in the final selection of MSI services to be extracted from the MSI Patient History Files.

Visits

"Visit" is a generic term applied to services where, on most occasions, no procedure is performed other than a history, physical examination, and discussion with the patient. In the context of a visit to a specialist, a visit may be either an initial consultation, a follow-up visit, or a repeat consultation. For waiting time calculation, a "visit" is a service defined by MSI from a list that includes consultations, major, minor, or repeat; continuing or directive care; visits with complete or regional examinations; or routine office visits.

Assumptions Made in Calculating Waiting Times

Several important assumptions must be made when using MSI data to calculate waiting times:

- Procedures are preceded by a visit claim by the operating physician, but if none is present in the Patient History File, then the procedure was done acutely[2] (on the same day).

[2] Currently, MSI rules do not allow a physician to claim for both a consultation or visit on the same day a "major" surgical procedure is performed. Therefore, for a procedure like an acute appendectomy, no preceding visit with the operating physician may be recorded, or if one is, it may be for an unrelated condition.

- If more than one visit was provided prior to the procedure, the most recent one was the one at which a decision to perform surgery was made.

- If more than one procedure is performed during a hospitalization, only the first (by date of service) and most expensive procedure counts as being "elective."

- Procedures performed within three days of the last visit were excluded because they may be either acute/urgent procedures that could not be done immediately, or elective procedures with a visit by the operating physician one or more days prior to the procedure. (Inclusion of this group of urgent or elective procedures would tend to underestimate the actual elective waiting times)

Detailed Steps:

Multiple steps were involved in creating a database of all eligible procedures and their associated visits.

- A database of all frequently performed major surgeries was created to identify "episodes" of care for each patient along with a second database of all surgical consultations and visits extending back to 1990. Where a patient had several surgeries within a given period, they were treated as a single episode with the date of the first and most expensive surgery used in calculating the waiting time.

- A 36-month "window" was used to look back from the date of the procedure to the date(s) of a previous consult or visit by the same surgeon in the preceding thirty-six months. In more than 75 percent of cases, only a single previous consult/visit service was found on the patient history. For calculation purposes this was assumed to be the point at which the decision to perform the procedure was made, and determined the date used as the start of the waiting time. The choice of 36 months was based partly on practicality to minimize the years of visit data necessary, and to eliminate cases with apparently extremely long waiting times where clinical or personal factors were more likely the cause, rather than an inability to perform the procedure.

- When there were multiple consult/visit services during the period preceding the procedure, the last visit was arbitrarily set as the start of the waiting time. This would underestimate the waiting time for persons receiving ongoing care by the surgeon during their wait if the procedure had been booked following a previous visit. Conversely, if a surgeon waited some time following the last visit/consult to book the procedure, an overestimation of the waiting time would result. Despite these potential shortcomings, this method is considered reliable for most procedures that typically have one or two visits to diagnose and plan for the procedure, and where the surgery is booked following the last visit.

There may be specific types of procedures, or individual surgeons, where the pattern of practice violates one or more of these assumptions. Coronary artery bypass graft (CABG) surgery is an example of where this method cannot be used. The cardiac surgeons do not independently see and decide who will receive a CABG, the decision to operate is made by a committee of physicians. The patient is assigned to one of a group of surgeons who may visit them only a short time before

surgery. For CABGs, the waiting times actually start from the point the team assigns the patient to a risk category and they are entered on the waiting list.

A Word of Caution

- The graphs enclosed in this report, although they may illustrate "averages," are derived based on the assumptions outlined previously, and may not give an accurate picture in all procedure categories. The choice of procedures, the relative numbers performed, and the principle of weighting can all influence the result. As such, these waiting times are best thought of as indicators that are useful in measurements of trends that involve relative, rather than absolute, waiting times. They give approximations of waiting times that must be interpreted with knowledge of the type of procedure and physicians' usual patterns of diagnosis and treatment for the condition(s) involved.

- Where individual or group patterns of practice vary from the assumptions, the usual effect is to underestimate the waiting times. However, if the pattern of practice is stable over time, the overall trend of improvement or lengthening in waiting times will still be reliable and provide valuable information.

- Since this is an indirect method of measurement, it may not always agree with hospital data based on booking office waiting times. To have a waiting time recorded, a patient must have had the procedure done and the physician's claim paid by MSI. Thus, we know waiting times only for completed procedures, not for patients currently waiting.

To put it in a different perspective, if we have visit and procedure data from three months ago for a procedure, and the average waiting time is ninety days, what the data actually reflect is the situation that existed six months previously. There is also a paradox that must be appreciated: when elective surgery slows down, for example, during a holiday period, the calculated waiting time may appear to drop. This is due to the reduced overall caseload that includes a larger proportion of more urgent cases with shorter waiting times, effectively reducing the average waiting time. However, the waiting time in the following months may rise, as an increased proportion of backlogged cases is accommodated in the OR schedule.

List of Procedures and Average Waiting Times

Procedure Groups are in bold [MSI Code] Individual Procedure Description	Fiscal Year 92-93	93-94	94-95	95-96
All Procedures - weighted average in days	75	74	71	71
ENT Surgery	57	55	61	60
[5009] Septal reconstruction	74	82	96	95
[5030] Complete rhinoplasty with submucous resection - without skin grafting	120	116	115	115
[7086] Tonsillectomy only or Tonsillectomy & Adenoidectomy - Child < 16	59	64	72	71
[7087] Tonsillectomy only or Tonsillectomy & Adenoidectomy - Adult - GA	93	90	96	92
[9526] Aspiration for serous otitis w. insert. drainage tube under microscopy	35	34	36	37
[9532] Intratympanic microscopic excision of aural polyp or granuloma	102	76	106	100
[9549] Middle ear stapedectomy with prosthesis	131	95	96	90
[9550] Tympanoplasty & ossiculoplasty with/without canal plasty	112	63	71	89
[9573] Tympanoplasty (Type One) with graft only	82	78	81	69
Plastic Surgery	80	83	82	71
[3110] Carcinoma of Skin - Loc. excision, primary closure	57	52	64	46
[3113] Carcinoma of Skin - Loc. excision with rotation flaps	45	42	44	43
[3204] Skin Grafts - Re-Grafts - local shifts - Single	86	91	80	87
[3208] Skin Grafts - Re-Grafts - local shifts - Multiple	83	101	101	117
[3420] Mammoplasty - reduction - unilateral	233	265	292	228
Back Surgery	62	67	53	56
[4141] Spinal fusion - Two spaces	105	140	81	90
[4627] Discectomy-Lumbar, anterior or posterior approach	49	46	37	45
[4634] Ostectomy - Spine- Neural arch with nerve exploration	77	91	78	69
Ortho or Plastic Surgery	82	77	80	78
[4857] Excision-Fascia - Dupuytren's-complex	131	114	127	104
[4860] Excision-Decompression of carpal tunnel	72	70	74	73
Orthopaedic Surgery	107	121	113	102
[4046] Osteotomy - Tibia (with or without fibula)	140	122	132	97
[4624] Arthroscopy	83	99	93	88
[4666] Arthroplasty-Exostectomy with metatarsal osteotomy	154	152	164	152
[4668] Arthroplasty-Hip - cup or total arthroplasty	108	119	105	101
[4678] Arthroplasty-Total knee replacement	134	161	145	122
[4689] Arthroplasty-Revision of total hip	79	109	96	109
[4893] Reconstuction-Composite rotator cuff repair	112	103	70	75
[4985] Arthroscopic meniscectomy	61	87	84	70
[4993] Arthroscopic debridement-Major (Tricompartmental)	100	96	90	82

Procedure Groups are in bold [MSI Code] Individual Procedure Description	Fiscal Year 92-93	93-94	94-95	95-96
Cardio-Thoracic Surgery	55	50	50	36
[5172] Lung - lobectomy	32	39	31	18
[6111] Excision Aneurysm - Abdominal aorta	60	50	56	46
[6123] Periph. Art. Graft - Femoral graft with prosthesis	67	55	72	46
[6143] Periph. Art. Graft - In situ venous femoral artery bypass graft	59	58	35	29
General Surgery	54	54	48	43
[3120] Excision - Pilonidal cyst - simple excision/marsupialization	47	42	41	39
[3414] Quadrant resection, lumpectomy, rad. mast. with axillary dissection	24	26	17	12
[3416] Radical/modified radical mastectomy	21	34	16	18
[7208] Gastroplasty/gastric bypass for morbid obesity	95	99	121	80
[7345] Enterectomy with Anast. - Large Intestine - Segmental	35	64	58	45
[7346] Enterectomy with Anast. - Large Intestine - Hemicolectomy, R./L.	40	44	31	38
[7376] Intestinal Obstruction - with resect.	40	119	113	63
[7430] Proctotomy - Anterior resection of rectum	37	29	28	21
[7503] Haemorrhoidectomy with sigmoidoscopy & excision of fissure	61	61	55	46
[7740] Cholecystectomy	52	48	44	38
[7742] Cholecystectomy - operative cholangiogram	57	47	53	50
[7743] Cholecystectomy & exploration of bile duct - operative cholangiogram	51	52	80	124
[7949] Inguinal/femoral hernia repair by prosthesis/graft	58	59	51	51
[7950] Herniotomy & Herniorrhaphy - Inguinal/femoral - single	56	56	46	47
[7951] Herniotomy & Herniorrhaphy - Inguinal - single with hydrocoele	73	82	55	39
[7955] Herniotomy & Herniorrhaphy - Umbilical hernia - Adult	59	58	51	45
[7961] Herniotomy & Herniorrhaphy - Recurrent hernia	70	48	57	55
[7969] Recurrent hernia repair by prosthesis/graft	73	87	57	55
[8911] Total lobectomy of thyroid	47	47	39	45
Diagnostic Tests	63	72	66	62
[3100] Excision - Biopsy of skin or mucosa	82	102	92	88
[3410] Excisional breast biopsy	28	31	29	31
[3411] Excisional breast biopsy - with imaging control	43	38	28	30
[7045] Peritoneoscopy/laparoscopy	57	53	51	47
Urological Surgery	66	54	50	56
[8029] Radical nephrectomy - lumbar of thoraco-abdominal	19	36	12	15
[8151] Ureteral stent - via cystoscope	91	66	58	73
[8227] Endoscopy - Cystoscopy - diagnostic, with/without cath. of ureters	67	50	48	55
[8233] Cysto. with electroex. of tumor/tumors inc. base & adj. muscle - mult.	92	44	52	44
[8234] Cystoscopy - with urethral dilation	71	61	45	52
[8235] Cystoscopy - with bladder dilation	71	63	55	54
[8240] Cysto. with removal of foreign body/calculus	66	52	62	44

Procedure Groups are in bold	**Fiscal Year**			
[MSI Code] Individual Procedure Description	**92-93**	**93-94**	**94-95**	**95-96**
[8301] Cold knife urethrotomy	68	56	56	44
[8440] Orchidopexy/exploration - unilateral	63	74	49	49
[8478] Ligation - bilateral	65	63	57	65
[8511] Urology Biopsy Procedures - Needle biopsy, perineal, with cystoscopy	43	40	34	33
[8532] Prostatectomy - retropubic - radical with vesiculectomy	38	45	46	31
[8540] Endoscopy - Transurethral electro-resection	66	60	50	57
Lithotripsy	70	84	41	50
[8065] Lithotripsy - One side, one stone	76	102	42	44
[8068] Lithotripsy - One side, multiple stones	52	37	42	72
[8069] Lithotripsy - Bilateral multiple stones	50	36	28	27
Gynecological Surgery	68	72	68	66
[8346] Urethrovesical suspension stress incontinence	120	96	74	64
[8755] Excision- Salpingectomy and salpingo-oophorectomy	63	50	69	43
[8762] Suture-Ligation of tubes-vaginal or abdominal	80	82	72	64
[8764] Suture-Tubal ligation by laparoscopy	66	63	51	55
[8770] Ovary-Excision-Ovarian cyst	49	56	68	42
[8805] Uterus- Diagnostic curettage	51	48	44	45
[8806] Conization of cervix by any means	59	58	57	54
[8809] Uterus-Hysterectomy - total	64	59	53	46
[8812] Uterus- total, abd or vag w. recto and/or cystocoele repair	67	68	56	65
[8815] Uterus-hyst with retropubic incontinence repair	69	74	59	64
[8846] Endometrial biopsy (only)	155	221	197	182
Neurosurgery	53	40	52	90
[9110] Craniotomy - removal of cyst, tumor, hematoma, lobectomy	62	35	57	71
[9140] Craniotomy - Obliteration of cerebral aneurysm	41	59	40	132
Eye Surgery	108	108	100	106
[9340] Iridotomy or iridectomy	61	55	52	60
[9354] Crystalline lens - Capsulotomy	110	116	87	86
[9357] Cataract extraction with insertion of intra-ocular lens at same op.	111	114	111	121
[9363] Re-attachment retina\choroid by photocoag.	180	140	142	109
[9370] Strabismus repair - one or two muscles - one or both eyes	113	97	112	125
[9395] Laser photocoagulation, retinal or vascular	103	80	66	67
[9423] Repair ectropion or entropion	60	79	70	65
[9426] Dacryocystorhinostomy	169	226	130	210

Table of Most Commonly Performed Procedures

(With >$30,000 in claims or >30 procedures)

This list gives details of the number and cost of services from which the "Top 100" procedures were selected for inclusion in the waiting time monitoring list.

MSI Code	Abbreviated Procedure Description	Specialty	Services*	Payments
3100	Excision - biopsy of skin/mucosa	SURG GENRL	942	$30,860
		SURG PLAST	1678	$52,687
3110	Carcinoma of Skin - Loc. excision, prima	SURG GENRL	785	$51,454
3113	Carcinoma of Skin - Loc. excision with	SURG GENRL	111	$35,266
		SURG PLAST	326	$105,145
3120	Excision - Pilonidal cyst - simple excis	SURG GENRL	222	$36,541
3151	Excision - Finger/toenail - radical, inc	SURG GENRL	494	$32,570
3204	Skin Grafts - Re-Grafts - local shifts -	SURG PLAST	365	$55,133
3208	Skin Grafts - Re-Grafts - local shifts -	SURG PLAST	229	$50,968
3246	Simple excision of warts, 5/less excisio	SURG GENRL	2226	$73,003
3410	Excisional breast biopsy	SURG GENRL	891	$90,105
3411	Excisional breast biopsy - with imaging	SURG GENRL	182	$30,225
3414	Quadrant resection, lumpectomy, rad. mas	SURG GENRL	176	$82,178
3416	Radical/modified radical mastectomy	SURG GENRL	209	$98,258
3420	Mammoplasty for hypertrophic breast, w.	SURG PLAST	222	$64,145
4025	Removal of internal fixation - metal pla	SURG ORTHO	374	$40,474
4046	Osteotomy - Tibia (with or without fibul	SURG ORTHO	128	$40,464
4141	Spinal fusion - Two spaces	SURG ORTHO	89	$42,058
4528	# Femur-neck-open reduction with interna	SURG ORTHO	98	$34,666
4533	# Femur-pertrochanteric-open reduction	SURG ORTHO	302	$107,450
4540	# Femur-shaft or transcondylar-open redu	SURG ORTHO	103	$30,577
4548	# Femur-neck-prosthetic replacement	SURG ORTHO	140	$49,753
4572	# Ankle-bi or trimalleolar - open reduct	SURG ORTHO	219	$50,553
4624	Arthroscopy	SURG ORTHO	531	$60,433
4627	Removal Lumbar disc - unilateral	SURG NEURO	173	$60,785
4634	Ostectomy - Spine- Neural arch with nerv	SURG ORTHO	100	$35,583
4666	Arthroplasty-Exostectomy with metatarsal	SURG ORTHO	287	$57,059
4668	Arthroplasty-Hip - cup or total arthropl	SURG ORTHO	506	$252,525
4678	Arthroplasty-Total knee replacement	SURG ORTHO	554	$276,276
4689	Arthroplasty-Revision of total hip	SURG ORTHO	111	$70,567
4857	Excision-Fascia - Dupuytren's-complex	SURG PLAST	140	$33,412
4860	Excision-Decompression of carpal tunnel	SURG GENRL	404	$55,991
		SURG PLAST	279	$38,372
4893	Reconstruction-Composite rotator cuff rep	SURG ORTHO	130	$41,179
4985	Arthroscopic meniscectomy	SURG ORTHO	406	$109,447
4986	Arthroscopic trimming of meniscus and mi	SURG ORTHO	216	$42,163
4991	Arthroscopic debridement-Minor (one comp	SURG ORTHO	181	$34,982
4992	Arthroscopic debridement-Major (one comp	SURG ORTHO	355	$81,534
4993	Arthroscopic debridement-Major (Tricompa	SURG ORTHO	203	$63,062
5009	Septal reconstruction	SURG OTOLA	824	$205,512
5030	Complete rhinoplasty with submucous rese	SURG PLAST	77	$32,814
5133	Mediastinoscopy - with flexible bronchos	SURG THORA	202	$47,332
5172	Lobectomy	SURG THORA	70	$44,441
6036	Complete cardiopulmonary by-pass `extra'	SURG GENRL	601	$205,077
		SURG THORA	247	$84,382
6061	Aortic valve replacement	SURG GENRL	57	$38,120
6062	Mitral valve replacement	SURG GENRL	54	$36,812
6089	Insertion of permanent pacemaker - by th	SURG GENRL	154	$32,223
6107	Aorto-coronary by-pass - double	SURG GENRL	114	$114,545
		SURG THORA	48	$48,184
6108	Aorto-coronary by-pass - triple	SURG GENRL	488	$435,185
		SURG THORA	128	$150,081
6111	Excision Aneurysm - Abdominal aorta	SURG VASC	106	$66,945
6123	Periph. Art. Graft - Femoral graft with	SURG VASC	119	$51,494
6143	Periph. Art. Graft - In situ venous femo	SURG VASC	72	$45,797
6213	Implantation of subcutaneous venous acce	SURG GENRL	246	$39,953
7045	Peritoneoscopy/laparoscopy	OBST\GYNE	1605	$229,530
7086	Tonsillectomy only or Tonsillectomy & Ad	SURG OTOLA	814	$128,018
7087	Tonsillectomy only or Tonsillectomy & Ad	SURG OTOLA	459	$71,450
7128	Esophagogastroduodenoscopy - with cannul	SURG GENRL	166	$33,328
7137	Nissen procedure with/without splenectom	SURG GENRL	106	$36,307
7183	Oesophago-gastroscopy	SURG GENRL	3230	$364,170
		SURG VASC	499	$53,716
7184	Oesophago-gastroscopy - with biopsy	SURG GENRL	1355	$164,444
7208	Gastroplasty/gastric bypass for morbid o	SURG GENRL	209	$104,768
7345	Enterectomy with Anast. - Large Intestin	SURG GENRL	229	$113,451
7346	Enterectomy with Anast. - Large Intestin	SURG GENRL	229	$114,251
7350	Enterectomy with Anast. - .Total colecto	SURG GENRL	49	$31,417
7375	Intestinal Obstruction - without resect.	SURG GENRL	142	$59,134
7376	Intestinal Obstruction - with resect.	SURG GENRL	114	$56,639
7411	Appendectomy	SURG GENRL	725	$208,245
7430	Proctotomy - Anterior resection of rectu	SURG GENRL	123	$70,734

MSI Code	Abbreviated Procedure Description	Specialty	Services*	Payments
7439	Proctotomy - Abdomino-perineal plus colo	SURG GENRL	69	$30,914
7503	Haemorrhoidectomy with sigmoidoscopy & e	SURG GENRL	355	$52,804
7516	Colonoscopy of descending colon	SURG GENRL	622	$40,022
7517	Colonoscopy of descending colon - of des	SURG GENRL	458	$52,552
7518	Colonoscopy of descending colon - of des	SURG GENRL	2903	$483,544
		SURG VASC	500	$82,221
7523	Biopsy of haemorrhoids - per session (wi	SURG GENRL	685	$33,164
7740	Cholecystectomy	SURG GENRL	2395	$817,102
		SURG VASC	233	$85,830
7742	Cholecystectomy - operative cholangiogra	SURG GENRL	210	$89,915
7743	Cholecystectomy & exploration of bile du	SURG GENRL	88	$43,980
7900	Incision - Abdomen, Peritoneum & Omentum	SURG GENRL	284	$82,619
7949	Inguinal/femoral hernia repair by prosth	SURG GENRL	352	$93,028
7950	Herniotomy & Herniorrhaphy - Inguinal/fe	SURG GENRL	1009	$226,990
7951	Herniotomy & Herniorrhaphy - Inguinal -	SURG GENRL	151	$39,856
7952	Strangulated/Incarcerated hernia - witho	SURG GENRL	136	$35,768
7955	Herniotomy & Herniorrhaphy - Umbilical h	SURG GENRL	299	$63,523
7960	Incisional hernia - postoperative repair	SURG GENRL	328	$98,833
7961	Herniotomy & Herniorrhaphy - Recurrent h	SURG GENRL	126	$41,325
7966	Incisional hernia - postoperative repair	SURG GENRL	138	$46,631
7969	Recurrent hernia repair by prosthesis/gr	SURG GENRL	112	$39,403
8029	Radical nephrectomy - lumbar of thoraco-	SURG UROL	85	$40,038
8065	Lithotripsy - One side, one stone	SURG UROL	445	$121,205
8068	Lithotripsy - One side, multiple stones	SURG UROL	112	$46,039
8069	Lithotripsy - Bilateral multiple stones	SURG UROL	58	$35,914
8151	Ureteral stent - via cystoscope	SURG UROL	433	$70,048
8152	Endoscopic meatotomy if required (basket	SURG UROL	145	$32,876
8227	Endoscopy - Cystoscopy - diagnostic, wit	SURG GENRL	571	$40,553
		SURG UROL	7476	$521,247
8233	Cysto. with electroex. of tumor/tumors i	SURG UROL	236	$77,354
8234	Cystoscopy - with urethral dilation	SURG UROL	914	$66,361
8235	Cystoscopy - with bladder dilation	SURG UROL	702	$60,883
8240	Cysto. with removal of foreign body/calc	SURG UROL	430	$44,467
8301	Cold knife urethrotomy	SURG UROL	240	$49,733
8346	Urethrovesical suspension stress inconti	OBST\GYNE	158	$34,954
		SURG UROL	206	$53,833
8434	Orchidectomy, unilateral	SURG UROL	259	$36,270
8440	Orchidopexy/exploration - unilateral	SURG UROL	125	$33,732
8478	Ligation - bilateral	SURG GENRL	506	$41,328
		SURG UROL	1262	$104,144
8511	Urology Biopsy Procedures - Needle biops	SURG UROL	569	$50,683
8532	Prostatectomy - retropubic - radical wit	SURG UROL	91	$49,499
8540	Endoscopy - Transurethral electro-resect	SURG UROL	726	$287,636
8550	Kidney transplantation - complete care -	SURG GENRL	42	$32,221
8551	Kidney transplantation - Urologist	SURG UROL	44	$33,748
8755	Excision- Salpingectomy and salpingo-oop	OBST\GYNE	1724	$237,600
8762	Suture-Ligation of tubes-vaginal or abdo	OBST\GYNE	515	$89,083
8764	Suture-Tubal ligation by laparoscopy	OBST\GYNE	1315	$230,117
8770	Ovary-Excision-Ovarian cyst	OBST\GYNE	239	$37,333
8805	Uterus- Diagnostic curettage	OBST\GYNE	2383	$147,817
8806	Conization of cervix by any means	OBST\GYNE	1361	$114,694
8809	Uterus-Hysterectomy - total	OBST\GYNE	1868	$592,342
		SURG GENRL	120	$37,545
8812	Uterus- total, abd or vag w. recto and/o	OBST\GYNE	295	$116,681
8815	Uterus-hyst with retropubic incontinence	OBST\GYNE	80	$31,728
8846	Endometrial biopsy (only)	OBST\GYNE	1753	$54,255
8864	Biopsy of cervix -office procedure	OBST\GYNE	3416	$72,188
8866	Colposcopy	OBST\GYNE	12572	$177,563
8911	Total lobectomy	SURG GENRL	120	$44,622
9110	Craniotomy - removal of cyst, tumor, int	SURG NEURO	97	$82,111
9140	Craniotomy - Obliteration of cerebral an	SURG NEURO	54	$59,988
9330	Repair - Corneal transplant - penetratin	SURG OPHTH	75	$38,419
9340	Iridotomy or iridectomy	SURG OPHTH	676	$122,387
9341	Posterior vitrectomy - infusion suction	SURG OPHTH	222	$131,773
9348	Limbus - Trabeculectomy	SURG OPHTH	338	$114,302
9349	Limbus - Trabeculotomy	SURG OPHTH	96	$35,672
9354	Crystalline lens - Capsulotomy	SURG OPHTH	1245	$179,261
9357	Cataract extraction with insertion of in	SURG GENRL	278	$37,849
		SURG OPHTH	4020	$2,064,186
9363	Re-attachment retina\choroid by photocoa	SURG OPHTH	1177	$331,735
9367	Re-attach of retina & choroid - circling	SURG OPHTH	93	$37,919
9370	Strabismus repair - one or two muscles -	SURG OPHTH	261	$67,268
9377	Retina - intravenous fluorescein testing	SURG OPHTH	1582	$57,880
9395	Laser photocoagulation, retinal or vascu	SURG OPHTH	1946	$467,424
9396	Laser photocoagulation, retinal or vascu	SURG OPHTH	401	$47,600
9412	Ex. of chalazion or tarsal cyst - >=1 -	SURG OPHTH	891	$35,946
9423	Repair ectropion or entropion	SURG OPHTH	228	$53,776
9426	Dacryocystorhinostomy	SURG OPHTH	89	$30,449
9440	Contact Lens Fitting - with follow-up fo	SURG OPHTH	422	$137,674

MSI Code	Abbreviated Procedure Description	Specialty	Services*	Payments
9526	Aspiration for serous otitis w. insert.	SURG OTOLA	4155	$321,759
9532	Intratympanic microscopic excision of au	SURG OTOLA	315	$48,082
9549	Middle ear stapedectomy with prosthesis	SURG OTOLA	53	$33,209
9550	Tympanoplasty & ossiculoplasty with/with	SURG OTOLA	105	$61,111
9568	Complete hearing test (including audiome	SURG OTOLA	11326	$435,697
9569	Imped. audio. includ. interpret.	SURG OTOLA	8073	$108,772
9570	Imped. audio. interpret. only of tympano	SURG OTOLA	3853	$31,437
9571	Imped. audio., tympanometry, stat. compl	SURG OTOLA	6044	$60,625
9573	Tympanoplasty (Type One) with graft only	SURG OTOLA	101	$41,889

Note: Procedures counts and costs are repeated if a fair proportion are performed by physicians with another specialty designation

* Data is based on Fiscal 94 only

Dimensions and Categories Available for Analysis

This table shows the organization of the information derived from the MSI databases. Information type, or "Dimension" is on the left, followed by category name and the number of discrete members in each category. This information is important because any dimension, at any level, can be combined with any other dimension to provide an in-depth analysis of trends.

	Level							
	I		II		III		Other ‡	
Dimension	**Category**	**#**	**Category**	**#**	**Category**	**#**	**#**	**Total**
Time	Year	4	Quarter	16	Month	48	12	80
Service	All Groups	1	Procedure Groups	14	Individual Procedure	100	1	116
Region (Patient)	Patient's Region	5	Patient's County*	19				24
Regions (Surgeon)	Surgeon's Region	5	Surgeon's County	17	Individual Physician	400		422
Specialty	Specialty	11	Individual Physician	387				398
Diagnosis	ICD9 Chapter	18	Major Category	106	ICD9 Code	660		784
ASD§ Age Groups	Age Ranges	5						5
5 Yr Age Groups	Age Ranges	19						19
Acute or Outlier¶	Acute or Outlier	2						2
Total number of categories available for analysis:								1850

‡ Special Categories include Prior Year - Year to Date and running average under Year and grouped or ungrouped procedures under Services

* There are 18 counties plus a category "unknown" for records where the patients' residence was not recorded, hence 19 counties.

† ICD9 - International Classification of Diseases, Version 9. This is the standard list of diagnoses used by the health system.

§ Admission Separation Day Surgery - Records of all hospital admissions - Their reporting system uses age ranges 0-14, 15-44, 45-64, 65-74, 75+.

¶ Acute are persons receiving procedure within 3 days of their last visit with the physician performing the procedure. Outliers are persons with apparent waiting time over 3 years.

Appendix B

A Word About Statistics

Having an easy method to compare waiting times between different times, regions, procedures, or some other category would be helpful. Somehow we must summarize the waiting experienced by all the individual patients in whatever category we are interested in to describe the "typical" patient's waiting time. To do this we need a single number that represents the middle of the group.

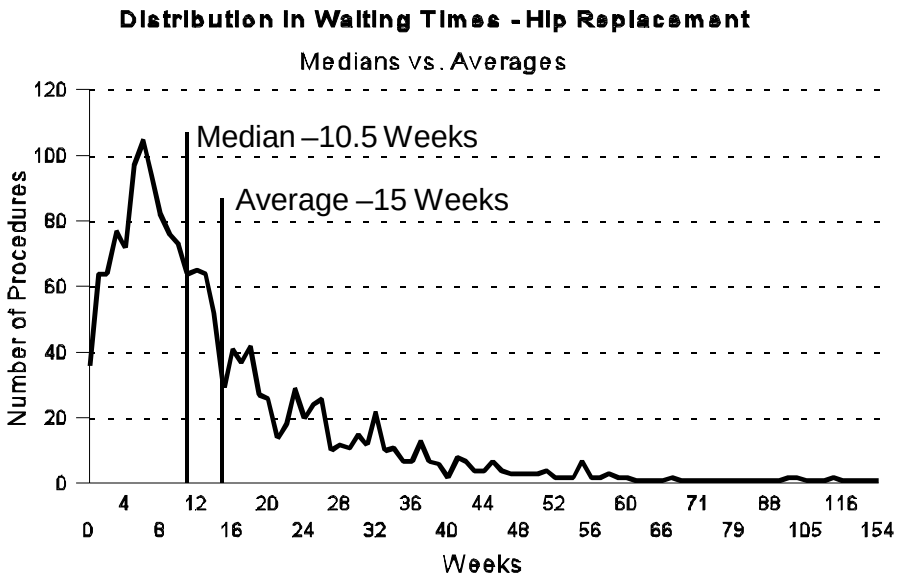
Averages

Averages are the most commonly used means of comparison between groups. If we look at a graph of the numbers of patients who are waiting for different lengths of time as shown in the figure on the following page, we can see that many are bunched up in a group, while others are strung out across a wide range of longer waiting times. Statisticians call this a "skewed distribution" when people do not line up nicely on either side of the middle. An average is calculated by totalling up all the individual waits and dividing by the number of individuals. We can do this, but there is a problem with the individuals on the far right of the graph. Just like on a teeter-totter, the farther away from the middle one gets, the more weight one seems to have. Therefore, a single person with a very long waiting time, for whatever reason, may increase the average for the group, and give an inaccurate picture of the actual situation.

Medians

To get around this problem, statisticians often use a different measure of the middle of a group. This is called a median and is determined by ranking people from highest to lowest and then taking the value of the person in the middle. This has the advantage of not being influenced by extremely unusual values experienced by only a few members of the group. When data is bunched upon the left and spread out on the right as in the example graph, the average is always larger than the median.

Despite the relative advantage of using medians, they are not practical for rapidly comparing the huge amounts of information in this study. Consequently, this paper reports average waiting times for most comparisons. It is important to realize, when reading an average waiting time, that more than 50% of patients experience a waiting time of less than the average, and that the average may inflate the waiting time experienced by the typical patient. The graph on the following page illustrates a typical distribution of waiting times, in this case, for hip replacement surgery. The horizontal axis represents waiting time in weeks, and the vertical axis the number of services done during that waiting interval. Note that the median time is 4½ weeks less than the average.



Small Numbers

While statistical methods exist for comparing averages based on very small groups, using larger numbers is preferable. As a general rule, comparisons between two groups having 30 or more observations are preferred. (This is one of the reasons procedures with a minimum of 30 services in a year were selected.) Graphs based on small numbers can have wide fluctuations in averages, usually resulting from the presence of one or more values that are out of the normal range. It is therefore appropriate to look at trends only when there are sufficient observations for comparison.

Weighting

When we have several individual averages, in our case, averages for different procedures, we are faced with a dilemma of how to combine the averages. To illustrate this, consider averaging two groups of different sizes as demonstrated by the example below:

	Number in Group	Average for Group
Group 1	10	5
Group 2	100	10
Simple Average of Groups	$\frac{(5 + 10)}{2} = 7.5$ [Add the group averages and divide by the number of groups]	
Weighted Average of Groups	$\frac{(5 \cdot 10) + (10 \cdot 100)}{(10 + 100)} = 9.545$ [Multiply each group's average by the number in the group, add them, then divide the result by the total number in both groups]	

We get very different results depending on the method used to combine the group averages. The disadvantage of the simple or unweighted average is that a group with a small number of observations, but having an average much higher or lower than the other groups, would be able to "throw off" the combined average. Because of this, all reported averages are weighted (by the number of procedures in the group) unless stated otherwise.

Appendix C

Waiting Times / Waiting Lists – Other Provinces

Results of a survey done in March 1996

Province	Comments
Newfoundland	Nothing provincially; St. John's Hospital Corporation reports waiting times for various procedures and specialties for internal utilization purposes.
Prince Edward Island	Nothing at the Department or Hospital and Health Services Commission.
New Brunswick	Hospitals are surveyed quarterly by the Department to determine waiting times by specialty and also by patient status - emergent, urgent and elective. Reporting began ~one year ago when funding was made available to reduce waiting list numbers.
Ontario	Cardiac surgery waiting time information system has been developed. Waiting time is from day approved for waiting list by CVS group to day off list (surgery, death, other). Objective criteria used (Lancet, 1995); patients ranked according to severity. Plans to develop similar process for total hip replacements.
Manitoba	No response
Manitoba Centre for Health Policy and Evaluation	Nothing done in report form. Some interest but no research. Have suggested a central waiting list.
Saskatchewan	HSURC and Saskatoon District Health Board indicate no provincial level initiatives.
Hospital Services Utilization and Review Commission	Have completed studies of small area variations in regard to cataract surgery and total hip and total knee replacements. Waiting time is an issue but are waiting for a request from District Health Board before beginning research. They have noted obvious differences in waiting times between regions and between providers.
Saskatoon District Health Board	Three Saskatoon University Hospitals report centrally on waiting lists. Not surgeon- specific at present. Concerned with high-profile procedures like cataracts and hip replacements. Using info to prioritize OR time at hospital rather than provincial level.
Alberta	Waiting times are considered to be Regional Health Authority responsibility
Capital Health Authority	No response
British Columbia	Hospitals reporting their waiting list electronically. The times are procedure/ surgeon/ hospital specific. Plan to feed information back to the hospitals initially, but plan to make surgeon-specific waiting times known to referring physicians and patients.

Appendix D

Discussion of Fraser Institute Method

There are considerable differences in the methods used by the Fraser Institute as compared with the process of producing the waiting times in this report. In particular, the Institute researchers mail surveys to as selected sample of physicians and hospitals across the country, whereas the method using MSI data attempts to use 100% of the data from procedures performed in this province. The assumptions and limitations involved with the MSI database method are detailed in Appendix A.

Several potential problems arise with the Fraser Institute methods, especially as they apply to results reported for Nova Scotia:

- The low rate of response to the survey is a major problem. For example, in 1994 only 22% to 42% of the sample of specialists surveyed responded to the survey. (Nova Scotia had some of the lowest response rates in the country.) If the minority who did respond were significantly different in their practices and waiting times compared with those specialists who did not respond, the estimates reported could be very different.

- MSI data has shown significant differences between specialists in the number of procedures they perform. The Institute's method fails to account for the wide differences in contribution to the overall waiting time that individual surgeons may make. The MSI database method is weighted by number of patients having a particular procedure, not by surgeon as in the Institute's method, and so corrects for these differences.

Based on a comparison of the two methods, estimates for waiting times using the MSI database method are probably more accurate, at least for Nova Scotian patients, than those published in *The Fraser Forum.*