

## Chapter 3

### Section 3.09

# Hospitals—Management and Use of Surgical Facilities

## Background

Public hospitals in the province are generally governed by a board of directors and are, for the most part, incorporated under the *Corporations Act*. The *Public Hospitals Act* and its regulations provide the framework within which hospitals operate and set out the responsibilities of hospital boards and their medical committees regarding the quality of patient care provided by the hospital. The board is responsible for the hospital's operations. As well, each hospital is responsible for determining its own priorities to address patient needs in the communities it serves. Under the *Ministry of Health and Long-Term Care Act*, the Minister of Health and Long-Term Care's (Minister's) duties and functions include governing the care, treatment, and services and facilities provided by hospitals. As well, the Minister is responsible for administering and enforcing the *Public Hospitals Act* and its regulations.

The *Local Health System Integration Act, 2006* provides for an integrated health-care system to improve the health of Ontarians through better access to health services, better co-ordination of health care both locally and across the province, and effective and efficient management of the health-care system at the local level by 14 Local Health Integration Networks (LHINs). Effective

April 1, 2007, the LHINs assumed responsibility for prioritizing, planning, and funding certain health-care services, including the funding of hospitals, and, as of that date, hospitals report to their LHIN rather than directly to the Ministry of Health and Long-Term Care (Ministry).

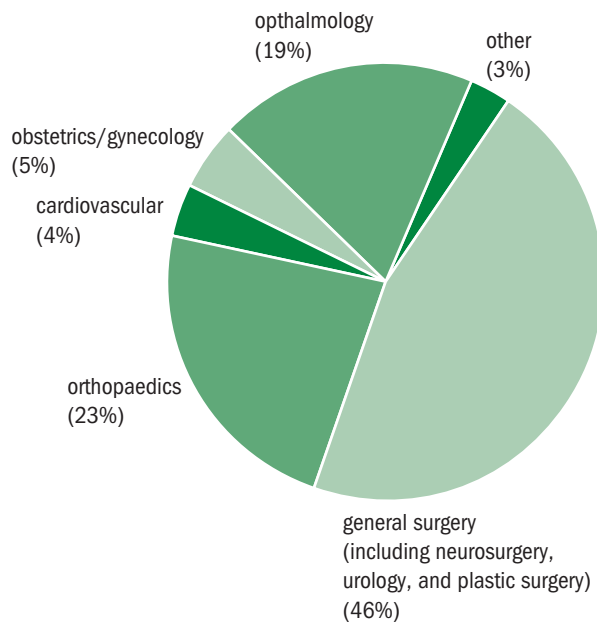
The Ministry provides approximately 85% of total hospital funding, some of which can only be used for specified purposes. Other funding sources may include, for example, semi-private and private accommodation charges, and funds from donations. In the 2006/07 fiscal year, the total operating cost of the over 150 hospital corporations was approximately \$19 billion.

Hospitals perform various types of surgeries, with some hospitals, such as teaching hospitals, specializing in certain types of surgeries. Efficient and effective surgical processes are needed to maintain safe, high-quality patient care while making the best use of human and financial resources.

According to the Ministry, about 844,000 surgical procedures were performed at Ontario hospitals in the 2006/07 fiscal year (see Figure 1 for a breakdown by type of surgery), of which 35% required an in-patient stay at the hospital and 65% were performed on an out-patient basis. As well, hospitals also performed over 135,000 other diagnostic procedures, such as biopsies and imaging, in their operating rooms in 2006/07. Hospitals are not

**Figure 1: Types of Surgical Procedures Performed in Ontario Hospitals, 2006/07**

Source of data: Ministry of Health and Long-Term Care



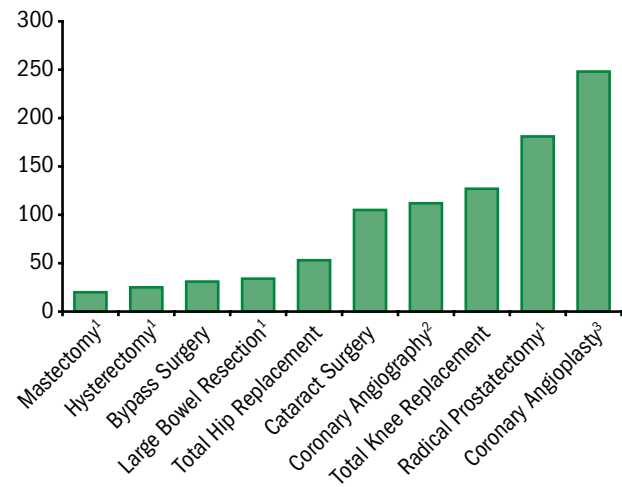
required to report their number of operating rooms to the Ministry; province-wide information on the number of operating rooms is therefore not available. According to the Ministry, hospital operating room expenditures, including nurses' salaries and medical supplies, totalled approximately \$1.2 billion in the 2006/07 fiscal year. This excludes most physicians' services, such as surgeons' services, that are provided to hospital patients and paid for by the Ministry to physicians through the Ontario Health Insurance Plan (OHIP).

As Figure 2 illustrates, the demand for selected surgeries has continued to increase, according to various studies, primarily because of a growing and aging population, technological innovations, and an increase in the patient conditions that can be treated through surgery.

We conducted audit work at three hospitals, which performed about 44,000 surgical procedures in their 42 operating rooms during the 2006/07 fiscal year. During this period, operating room expenditures at these hospitals totalled approximately \$65 million.

**Figure 2: Increase (%) in Annual Number of Selected Surgical Procedures in Ontario, 1994/95–2004/05**

Source of data: Institute for Clinical Evaluative Sciences



1. cancer-related surgeries
2. angiography: an x-ray examination (using a catheter to inject a fluid visible by x-ray) of the blood vessels or chambers of the heart to determine the degree of heart disease and the extent of coronary artery narrowing and blockage
3. angioplasty: insertion of a catheter with a small balloon tip into a narrow or blocked artery to widen it and restore blood flow, after which a small metal mesh tube, called a stent, is typically inserted and left in the artery

## Audit Objective and Scope

The objective of our audit was to assess whether selected hospitals had adequate policies and procedures in place to ensure the efficient management and use of surgical facilities to meet patients' needs.

We conducted our audit work at three hospitals of different sizes that provide services to a variety of communities: Toronto East General Hospital, St. Joseph's Healthcare Hamilton (with surgical sites in Hamilton and Stoney Creek), and Sudbury Regional Hospital (with surgical sites in Sudbury at St. Joseph's Health Centre and Memorial). In conducting our audit, we reviewed relevant files and administrative policies and procedures, interviewed appropriate hospital and ministry staff, and reviewed relevant research, including best practices for the management of surgical services in other

jurisdictions. We also reviewed reports on surgical processes that had been prepared by consultants engaged by the hospitals we visited. As well, we received and reviewed information from the Ministry's Wait Time Strategy and the Cardiac Care Network on certain surgical procedures. In addition, we discussed the management of surgical services in Ontario with representatives of the Ministry of Health and Long-Term Care's (Ministry's) Surgical Process Analysis and Improvement Expert Panel. We also engaged the services of independent consultants, with expert knowledge in surgical facility management, on an advisory basis.

We did not rely on the Ministry's internal audit service team to reduce the extent of our audit work because it had not recently conducted any audit work on surgical services within hospitals. None of the hospitals we visited had an internal audit function.

## Summary

All of the hospitals we visited were managing the use of their surgical facilities well in some areas. We also noted that the Ministry of Health and Long-Term Care (Ministry) has introduced several encouraging initiatives in connection with its Wait Time Strategy designed to help hospitals improve their surgical processes. However, the Ministry did not have information available on the overall capacity of hospitals' surgical facilities, the total number of patients waiting for required surgery, or the type of surgery they were waiting for. Furthermore, the hospitals we visited needed to better utilize their surgical facilities to reduce patient wait times.

Some of our more significant observations on the management and use of surgical facilities include the following:

- The hospitals we visited had all implemented procedures to prioritize urgent surgical

cases and to screen elective patients prior to surgery. As well, the Ministry had established various expert panels and coaching teams to work with hospitals in improving the management of their surgical facilities and resources. The Ministry had also initiated various pilot projects, including those to centralize patient referral and assessment. Such centralization is aimed at providing patients with the option of choosing a surgeon with the shortest wait list and determining whether surgery is the most appropriate course of action.

- The Ministry did not have information available on the number of hospital operating rooms in Ontario and the hours they were in use. Without this information, it is difficult for the Ministry or Local Health Integration Networks to determine whether operating room capacity is sufficient to meet the surgical needs of Ontarians. At the hospitals we visited, operating rooms generally were not used for elective surgery on weekends or statutory holidays. As well, an average of about 12% of operating rooms were not used on most weekdays in 2006, and, for approximately nine weeks during the summer of 2006, only about 60% of the operating rooms at these hospitals were used during weekdays, owing primarily to planned closures to accommodate vacation time.
- The operating room time available to each surgeon at the hospitals we visited was based primarily on the time allocated to that surgeon in prior years, rather than on other factors such as patients' needs and hospital priorities.
- Two of the hospitals maintained information on whether the hospitals' urgent emergency cases had their surgery within hospital-established time frames. This information indicated that most urgent emergency cases

did, although about 13% of non-emergency but urgent (for example, acute appendicitis) patients did not.

- The Ministry's Surgical Process Analysis and Improvement Expert Panel noted that all patients who have similar clinical conditions and are scheduled for similar surgical procedures should be screened in a similar manner regardless of who the surgeon or anaesthesiologist is. However, despite clinical guidelines indicating that most medically stable patients undergoing low-risk surgeries do not require a pre-operative electrocardiogram (ECG) or chest x-ray, research indicated that the rate of ECGs and chest x-rays conducted in Ontario hospitals prior to surgery varied significantly for patients undergoing low-risk procedures.
- According to the wait time funding agreement between hospitals and the Ministry for the 2006/07 fiscal year, hospitals are to ensure that no patient waits for surgery longer than 10 months without a reassessment by his or her surgeon. However, none of the hospitals we visited had followed up with the applicable surgeons to ensure that patients who had waited longer than 10 months were reassessed. For example, at one hospital, 67% of low-priority hip-replacement patients waited longer than the targeted time frame, with some patients still waiting after three years. As well, patient wait times from the date of the family physician's referral to the date of the patient's appointment with the surgeon are not tracked and therefore are not included in the 10-month wait.
- We noted that the timeliness of surgery varied significantly in some cases, depending on the hospital in which the surgery was done or the Local Health Integration Network in which the hospital was located. For example, some hospitals were able to perform Priority Level 3 cancer surgeries more quickly than other hospitals performed more urgent Priority Level 2 cancer surgeries.
- At the time of our audit, the Ministry was not planning to publicly report wait times by surgeon, although initiatives had been introduced in Alberta and British Columbia to report wait time by surgeon for certain surgeries, such as joint replacements and eye surgeries. While ministry initiatives to centralize patient referral and assessment for certain types of surgeries could eventually reduce the need for wait time information by surgeon, that information could currently assist both referring physicians and patients in determining which surgeon could offer patients the quickest access to surgery.
- The surgeons we spoke with noted that provincial tracking of patient wait times is a significant step forward for the health system. However, the hospitals we visited were not using information from the Wait Time Information System to better monitor and manage patient wait lists, owing in part to the System's standardized reporting function still being under development.
- At the time of our audit, two hospitals we visited had about 13% of their in-patient beds occupied by individuals no longer requiring hospital care, who were waiting for alternative accommodation, such as in a long-term-care home. Both hospitals indicated that the use of beds for this purpose reduced the number of beds available for post-operative patients and, therefore, surgical patients sometimes had their surgeries delayed or cancelled.
- The Ministry was conducting a pilot project to use anaesthesiology care teams for certain low-risk surgical procedures. These teams can help ensure the availability of anaesthesiology services, in that one anaesthesiologist can supervise more than one surgical procedure,

and this in turn can prevent the delay or cancellation of surgeries. However, if the Ministry decides the pilot warrants expansion, it will have to assess whether its current funding model needs to be revised to encourage adoption of the team system.

- All the hospitals we visited used a quick sterilization process, called “flash sterilization,” when it would take more time to complete the regular cleaning and sterilization of instruments than was available before they were needed for the next surgery. According to the Ministry’s Provincial Infectious Diseases Advisory Committee, as well as the U.S. Guideline for the Prevention of Surgical Site Infection, flash sterilization should only be used in emergency situations, such as when an instrument is dropped on the floor; a lack of instruments is not an acceptable reason to use flash sterilization. However, at the one hospital we visited that recorded the reasons for flash sterilization use, almost 73% of flash sterilizations occurred because of a lack of available surgical instruments.

We acknowledge that there will be challenges—for the hospitals, as well as for the Ministry and Local Health Integration Networks—in addressing the observations and recommendations in our report, especially those that will require the co-operation of all key stakeholders. We further recognize the complex accountability relationships surrounding hospitals given that fee-for-service physicians working at hospitals are not paid by the hospitals. Rather, they bill the Ontario Health Insurance Plan for surgeries performed, while hospitals pay for other, non-physician costs. These separate funding mechanisms make it more challenging to make systemic changes to the way surgical services are delivered. Real improvements will require co-ordinated teamwork among the stakeholders. In addition, the Ministry and Local Health Integration Networks will require better

information on surgical capacity and patient needs in order to help address the issues noted in this report.

We also wish to acknowledge the co-operation we received from the hospitals we visited and would like to thank the hospital management and staff, as well as surgeons and anaesthesiologists, for their input and open discussions throughout the audit process.

We sent this report to the hospitals we visited as part of this audit, and to the Ministry of Health and Long-Term Care, and invited them to provide a response. We received responses from each of the three hospitals and from the Ministry. To be succinct and avoid repetition, we summarize the overall response we received from the hospitals below, followed by the Ministry’s overall response. Responses by the hospitals and the Ministry, where applicable, to specific recommendations are summarized following each recommendation.

### SUMMARY OF HOSPITALS’ OVERALL RESPONSE

Overall, the hospitals generally agreed with our recommendations but indicated that, in some cases, limited financial and human resources may have an impact on their implementation.

### OVERALL MINISTRY RESPONSE

The Ministry of Health and Long-Term Care is encouraged by the Auditor General’s review of hospitals’ management and use of surgical facilities, and is pleased with the references to many of the successful projects currently under way within Ontario to improve the use of operating rooms. Most specifically, the Ministry is encouraged by the Auditor General’s comments related to the Ministry’s Surgical Process Analysis and Improvement Expert Panel, and in particular agrees with recommendations 2 to 5 and 8 that hospitals should be moving toward

implementing the Expert Panel’s recommendations. This report is valuable to the Ministry as it provides guidance and information on areas for continuous program improvement, and the specific recommendations will be taken into consideration for future program development.

While the Ministry takes seriously its accountability for the broader health system and the delivery of health care to Ontarians, it recognizes that this requires working closely with its partners—Local Health Integration Networks (LHINs), hospitals, health professionals and their colleges and associations, and the public. Within the current health-care system, there are multiple entities, each with its own roles and responsibilities. Ontario law clearly sets out accountability for each entity.

## Detailed Audit Observations

### MINISTRY INITIATIVES

The Ministry indicated that it exercises its duties and functions under the *Ministry of Health and Long-Term Care Act* through the administration and enforcement of legislation, in particular the *Public Hospitals Act* and Regulation 965 (the hospital management regulation). Additionally, while hospitals as of April 1, 2007, report directly to their Local Health Integration Network (LHIN) rather than to the Ministry, the Ministry is still responsible for the development of policy relating to the operation of hospitals. In this regard, we noted that the Ministry has undertaken a number of recent initiatives designed to promote peri-operative best practices.

Peri-operative processes include the scheduling of patients for surgery, the preparation of patients for surgery (such as pre-operative testing and patient education), the preparation of patients for

discharge, the operation itself, and recovery-room care. Efficient and effective peri-operative processes help hospitals ensure that patients are provided with required patient care on a timely basis. To help ensure efficient peri-operative processes at Ontario hospitals, the Ministry has introduced a number of initiatives, many of which are key components in its Wait Time Strategy (Strategy). Announced in November 2004, the Strategy is focused on reducing the time that Ontarians wait for specific types of surgery (cancer, selected cardiac, cataract, and total hip- and knee-joint replacements), and magnetic resonance imaging (MRI) and computed tomography (CT) scans. (See the Wait Times section of the report for more details.) These initiatives include the following:

- A Surgical Process Analysis and Improvement Expert Panel (Expert Panel), with hospital, academic, health-care consultant, and ministry representation, was established in October 2004. The Expert Panel reported in June 2005 on its examination of peri-operative processes to determine best practices for increasing capacity within available hospital resources, and made a number of recommendations to promote efficient surgical practices in the Ontario health-care system.
- Additional expert panels were established. For example, the General Surgery Expert Panel had the mandate to review non-cancer surgeries performed by general surgeons, recommend areas of focus, and develop a priority rating scale with access targets for general surgery; and the Quality Expert Panel was examining quality-of-care and patient-safety indicators for surgery. We were informed that the Ministry anticipated receiving a report from the General Surgery Expert panel in the fall of 2007 and that the Quality Expert Panel would be providing informal feedback rather than a report.
- Peri-operative Improvement Expert Coaching Teams were established to work with hospitals

to identify areas and develop strategies for improving surgical-management processes. At the time of our audit, these teams had visited about 35 hospitals, including one of the hospitals we visited.

- The Wait Time Information System (System) was introduced in March 2006 (subsequent to an interim system implemented in July 2005) to track and thereby help in the management of surgical wait times. All of the approximately 80 hospitals receiving funding under the Strategy were using the System by June 2007.
- The Surgical Efficiency Targets Program (Program), which is an initiative to measure surgical processes in hospitals and target areas for improvement, produces a set of four performance indicators (including surgical start time indicators and accuracy of case-duration estimates) that are comparable among hospitals. The Ministry indicated that the Surgical Process Analysis and Improvement Expert Panel was reviewing other key performance indicators that might be added to the Program in the future. Results are expected to be produced for each participating hospital and to be summarized for each Local Health Integration Network and for the entire province. As of June 2007, almost 60 hospitals had implemented the Program, and the remaining hospitals participating in the Strategy were expected to do so as well by the end of summer 2007.

The Ministry has also introduced a number of projects in various clinical areas as part of the Strategy aimed at increasing surgical capacity, improving surgical efficiencies, and reducing patient wait times. These projects use collaborative approaches and partnerships among health-care providers such as hospitals and surgeons. Examples of projects include a centralized referral system and a centralized patient-assessment system to determine

whether surgery is the most appropriate course of action. A more specific example is a regional eye medicine and surgery centre that provides patients with the option of choosing the surgeon with the shortest wait list or seeing the surgeon their family doctor referred them to. Another project is a joint health-and-disease management program, which has a multidisciplinary team assess patients' needs for joint-replacement surgery, freeing up the surgeons' time to allow them to perform more surgeries. We noted that a June 2007 evaluation by the Alberta Bone and Joint Health Institute of its hip- and knee-replacement project, which included these and other initiatives, indicated that the wait to see a surgeon fell from an average of 145 working days to 21 days, and the wait from consultation with the surgeon to the date of surgery fell from an average of 290 working days to 37 days.

We believe that, if successful, the approaches to patient care piloted in many of these projects may be more widely used to improve access to health-care services across Ontario. To reap the full benefit of these initiatives, the Ministry should ensure that the health-care projects introduced as part of the Wait Time Strategy are evaluated, once fully implemented, and, if warranted, promote their province-wide implementation.

## ACCESSING SURGERY

### Information on Operating Room Availability and Use

The three hospitals we visited had a total of 42 surgical operating rooms, as well as a number of minor-procedure rooms. Hospitals determine the hours to run their operating rooms on the basis of various factors, such as the availability of staff (including nurses, anaesthetists, and surgeons) and funding. At the hospitals we visited, operating rooms were generally used for elective surgeries from 7.5 to 9 hours a day, Monday through Friday, excluding statutory holidays. There were no regularly scheduled elective

surgeries on the weekends. Emergency and other urgent surgeries were performed as needed any time of the day or week, and could require that elective cases be rescheduled to accommodate them.

During the summer months, December holidays, and March school break, fewer operating room hours were available for elective surgeries, owing primarily to planned service reductions to accommodate vacation schedules. For example, for approximately nine weeks during the summer of 2006, only about 60% of the operating rooms were used during weekdays at the hospitals we visited, owing primarily to individuals taking vacation time. As well, during other times of the year, not all 42 operating rooms were used every day; on average, five of the 42 operating rooms were not in use on most weekdays. According to hospital staff, not all operating rooms were used, in general, because of insufficient funding to staff the rooms and/or insufficient availability of staff, such as anaesthetists. However, in 2007, one of these hospitals began using its previously unused operating rooms, primarily owing to Strategy funding from the Ministry. Yet we were informed that, even with Strategy funding, another hospital we visited was unable to sufficiently extend its operating room hours to complete the targeted number of surgeries because of a lack of staff and of in-patient beds, and therefore had to return Strategy funds to the Ministry.

At the time of our audit, the Ministry did not have information available on the number of hospital operating rooms in Ontario and their utilization. In February 2005, the Expert Panel conducted a survey to determine the number and location of operating rooms in Ontario hospitals, because this information was not maintained by the Ministry. However, the results of the survey were inconclusive, partly because some hospitals counted only operating rooms while others also included rooms used to conduct other lower risk procedures not requiring a general anaesthetic. Moreover, some hospitals did not complete the survey. Without

specific data on the number of operating rooms that exist in the province and their hours of operation, it is difficult for the Ministry or Local Health Integration Networks to determine whether operating room capacity is sufficient to meet the surgical needs of Ontarians.

## RECOMMENDATION 1

To better ensure the efficient use of operating rooms to meet patient needs, the Ministry of Health and Long-Term Care, in conjunction with the Local Health Integration Networks and hospitals, should obtain and review information on the number of operating rooms across Ontario and the extent of their use.

## SUMMARY OF HOSPITALS' RESPONSES

All of the hospitals agreed with this recommendation. One of the hospitals indicated that conducting an annual inventory of operating room capacity (similar to the critical care capacity analysis that was done after the SARS outbreak) should involve the development of standard definitions of capacity. This hospital also highlighted the importance of the distinction between physical capacity and operating capacity, the latter of which can be limited by financial and human resources. Another hospital indicated that it has two fully equipped operating rooms that are not being used because of a lack of operating funding.

## MINISTRY RESPONSE

At the time of the audit, this information was unavailable. However, this information will be tracked in the Surgical Efficiency Targets Program and will be used by Local Health Integration Networks to support planning and management of their services.



## Allocation of Operating Room Time to Surgeons

To ensure that patients are provided with timely surgical care and that wait lists are actively managed, hospitals need to allocate operating room time to surgical departments and surgeons in an effective manner that best meets patient needs.

At the hospitals we visited, we were informed that the allocation of operating room time to each surgical department—such as orthopaedics or urology—was performed either by the chief of surgery, jointly with the medical director and director of surgery, or by an operating room committee composed of the chief of surgery and representatives from anaesthesiology, hospital administration, and other surgical and clinical departments. The head of each surgical department allocate that department's operating room time to each surgeon within the department. The time allocated to each surgeon is commonly referred to as the surgeon's "surgical block." At the hospitals we visited, a new surgeon generally took over a departing surgeon's operating room time. If no surgeon was leaving, the surgical department would generally provide operating room time to the new surgeon from within that specialty's existing block of time, which would require a reduction of existing surgeons' operating room hours.

Staff at the three hospitals we visited indicated that the allocation of operating room time to the surgical departments—and subsequently to each applicable surgeon—was primarily based on past allocations. The Expert Panel reported in 2005 that this method of allocating operating room time does not take into account various factors such as the urgency of the patient's condition compared to the conditions of patients of other surgical departments. As a result, there is not always a relationship between patient needs and the operating room time allocated to surgeons. The Expert Panel therefore recommended that hospitals allocate their operating room time based on patient needs,

the strategic priorities of the organization, the importance of retaining physicians by ensuring that they have sufficient operating room time, and the community priorities determined by Local Health Integration Networks.

### RECOMMENDATION 2

To better ensure the most effective use of surgical resources and that patient needs are met in as timely a manner as possible, hospitals should adopt the recommendations of the Ministry of Health and Long-Term Care's Surgical Process Analysis and Improvement Expert Panel on allocating surgical operating room time to surgeons, which place more emphasis on patient needs than on the time that each surgeon has historically been allocated.

### SUMMARY OF HOSPITALS' RESPONSES

The hospitals generally concurred with the recommendation in principle. However, two hospitals indicated that implementing this recommendation would be challenging, as allocating sufficient and predictable operating room time to all surgeons is important for retaining surgeons as well as for enabling surgeons to co-ordinate their other professional activities (such as on-call responsibilities, research, and teaching), among other reasons. One of these hospitals commented that, in order to ensure predictability, a reasonable time frame for review would be about every 24 months. The other of these hospitals indicated that current funding does not allow for operating room time allocations to be based solely on patient needs, since the cost of one surgery is not equivalent to the cost of another surgery. Therefore, reallocation of surgical operating room time is also limited by financial resources.

## MINISTRY RESPONSE

The Ministry agrees with this recommendation and, working with the Local Health Integration Networks, will continue to encourage hospitals to implement the recommendations of the Expert Panel report.

## Scheduling of Patients for Surgery

### Elective Surgery

When a surgeon and a patient decide to proceed with surgery, the surgeon determines the date of surgery based on various factors, including the patient's clinical need, the patient's personal choice, and the surgeon's available time.

Accurately estimating the time to complete each surgical case is an important aspect of surgical efficiency. For example, if more surgeries are scheduled than can be completed in the allocated time, it will either result in staff working overtime (which can lead to additional cost for the hospital and potential staff burnout) or the cancellation of scheduled surgeries. On the other hand, if the time estimated is more than required, operating rooms may be idle and patient waiting times for surgery may be longer than necessary.

The Expert Panel's June 2005 report listed a number of characteristics of an effective scheduling process, one of which was to schedule cases based on the average actual time for each surgeon to complete a case, including the average actual time to set up and clean up the operating room. At the hospitals we visited, the surgeons' offices generally informed the hospital of the date and time of each patient's surgery, from about three months to two weeks, on average, before the date of surgery. The hospitals recorded this information in their scheduling systems. In addition, the hospitals estimated the expected total time to complete each surgery, including the time to set up and clean the operating

room. The hospitals estimated this time slightly differently, but generally included factors such as the surgeon's historical average operating time, as determined by the hospital's scheduling software, and the amount of time requested by the surgeon.

The Expert Panel also recommended that hospitals review and annually assess whether best-practice targets are being met. This review would include determining whether the scheduled time for a surgery approximates the estimated time for that surgery. One of the hospitals we visited had reviewed these times, and found that for the 2006/07 fiscal year, 46% of elective surgical cases were estimated accurately (within plus or minus 15 minutes of estimated duration), with 25% of cases taking more time than estimated, and 29% taking less time.

## RECOMMENDATION 3

Hospitals should periodically compare the actual time taken for surgeries—including operating room set-up and cleanup—with the time estimated for completing those surgeries (as indicated by the time booked for the operating room) and identify any recurring significant deviations, so that adjustments can be made to improve operating room utilization.

## SUMMARY OF HOSPITALS' RESPONSES

The hospitals all agreed with this recommendation, and one indicated that it was now complying. The hospitals commented that the Surgical Efficiencies Target Program should help to address this recommendation. In addition, one hospital indicated that it is developing an operating room information system through which it will monitor in real time a number of performance statistics, including scheduling accuracy, which will better enable it to take corrective action where necessary.

## MINISTRY RESPONSE

The Ministry agrees with this recommendation and, working with the Local Health Integration Networks, will continue to encourage hospitals to implement the recommendations of the Surgical Process Analysis and Improvement Expert Panel report.

### Emergency Surgery

In addition to pre-scheduled surgeries, hospitals also have patients who require surgery immediately or within a specified number of hours. The Expert Panel noted that these urgent cases can account for up to 25% of a larger hospital's total surgeries. At the hospitals we visited, information indicated that urgent cases ranged from about 12% to 19% of their total surgeries. In addition, one hospital also set aside up to 45 hours per month of scheduled operating room time for trauma cases (for example, trauma caused by a car accident).

### Prioritizing Urgent Patients

In order to ensure that patients with the greatest needs are provided with timely access to surgery, hospitals usually prioritize or triage urgent cases, including emergency ones. According to surgeons at the hospitals we visited, two types of problems may occur if hospitals do not use well-defined and agreed-on priority levels to triage patients. First, disagreements between surgeons may arise over whose cases should receive surgical priority, especially if there is limited operating room time. Second, surgeons may classify their non-urgent patients as urgent in order to gain additional operating room time and thereby provide faster access to surgery for their patients. The Expert Panel noted that a standard priority-rating system would help ensure that patients are provided with timely surgical care based on their clinical need. The Ministry indicated that it was working with the

Expert Panel to develop standard priority ratings for urgent patients.

All three hospitals we visited prioritized urgent surgical cases into three or four different categories with associated time frames for commencing surgery, based on the severity of the patient's condition. As well, the hospitals all had a process to arbitrate differences among surgeons to help ensure that the most urgent cases were given top priority. However, with the exception of the most urgent category—which each hospital generally defined as having an imminent threat to life, limb, or organ requiring immediate surgery—the other urgent categories were not defined at any of the hospitals. Instead, the urgency categorization of the surgical case was generally based on the surgeon's judgment, although surgeons at one hospital had agreed-on guidelines for prioritizing a few types of non-emergency, urgent surgeries, such as acute appendicitis.

The consultants that had been hired by two of the hospitals we visited to review their peri-operative processes both noted that, while each hospital had a policy for prioritizing urgent cases, it was often not followed or enforced. In fact, the consultant at one hospital noted that the process appeared highly politicized and that the patient priority identified was not always accurate. As well, a review of the peri-operative process at one hospital by the Ministry's Peri-operative Improvement Expert Coaching Team noted that there was not a shared understanding of the priority levels and of the types of cases that could be considered urgent.

Only one of the three hospitals we visited performed a monthly review of each surgeon's urgent patients to ensure that they were properly prioritized as urgent. We were informed that this process was established to reduce manipulation of the system by surgeons attempting to gain more surgical time and to ensure that scheduled elective cases were not unnecessarily delayed or cancelled. According to staff at this hospital, surgeons who

improperly prioritize patients are initially warned; after three instances of improperly prioritizing patients, the applicable chief of surgery must review and approve all of the surgeon's subsequent requests for urgent surgeries. We were informed that this process was effective, since, as of the time of our audit, a chief of surgery's involvement had never been required.

#### Meeting Targeted Time Frames

All three hospitals we visited had time frames associated with each of the priority levels for urgent surgical cases, based on the severity of the patient's condition. In addition, the hospitals all indicated that they collected information that could be used to determine whether they were staying within these time frames. However, none of the hospitals reviewed the information for this purpose. In fact, one of the hospitals discarded this information after one month, and the other two hospitals did so after six months. For the two hospitals that had six months' worth of data available, we reviewed a sample of urgent surgical cases and found that the most urgent emergency cases generally received surgery in accordance with each hospital's targeted time frames. However, approximately 13% of the patients requiring urgent, non-emergency surgery (such as an acute appendectomy) were not operated upon within the established time frames. These patients' surgeries were performed from about one hour to almost four days past the targeted time frame. One of the hospitals took a median time of four hours longer than the targeted time frame; the second took about 24 hours longer. One hospital indicated that cases could be delayed or deferred because of a number of factors, such as use of the operating rooms by higher priority cases, the non-availability of a surgeon, or clinical concerns relating to the patients.

We were informed that the Expert Panel is examining the use of urgent priority classification systems across Ontario hospitals with a view to

recommending the consistent use of one priority system, including associated time frames.

#### Reserving Operating Room Time for Urgent Patients

According to the Expert Panel, it is a best practice to set aside operating room time each day for urgent patients, rather than to extend operating room time at the end of the day after the scheduled elective cases are completed. This is owing to various reasons, including helping to avoid unnecessary patient waits. Studies completed in the United States also indicate that a dedicated operating room for urgent surgical cases increased hospital efficiency by reducing elective surgery cancellations, reducing staff overtime, and reducing administration time spent on rescheduling cases.

We noted that two of the hospitals we visited set aside operating room time for surgeries for urgent cases. The consultants who had been hired by the third hospital to review its peri-operative processes had also recommended that the hospital investigate the benefits of co-ordinating urgent surgical cases with its planned operating room schedule.

### RECOMMENDATION 4

To better ensure the equitable and timely treatment of patients requiring urgent surgery, hospitals should:

- in conjunction with the Ministry of Health and Long-Term Care (Ministry) and Local Health Integration Networks, and considering any recommendations from the Ministry's Surgical Process Analysis and Improvement Expert Panel, complete the development of and implement a consistent patient priority classification system across Ontario hospitals for emergency and other urgent surgical cases;
- review whether urgent patients are being prioritized by all surgeons in accordance with hospital policy, as well as whether these patients are receiving surgery within the

established time frames, and take corrective action where necessary; and

- review the costs and benefits of dedicating operating room time each day for urgent surgical cases as part of their regular planned activity, in accordance with recommendations from the Ministry's Surgical Process Analysis and Improvement Expert Panel.

## SUMMARY OF HOSPITALS' RESPONSES

The hospitals concurred with this recommendation. One hospital commented that it was important for standards to reflect the clinical needs of the patients, not just hospital practice. Another hospital commented that province-wide standards would further support the hospital's prioritization of patients requiring urgent surgery. As well, this hospital indicated that its scheduled "trauma blocks" of operating room time are cost-effective, and that if there is a reasonable critical mass of urgent and semi-urgent cases it may be more cost-effective to do them together in a pre-planned block of time as well.

## MINISTRY RESPONSE

The Ministry agrees with this recommendation and, working with the Local Health Integration Networks, will continue to encourage hospitals to implement the recommendations of the Surgical Process Analysis and Improvement Expert Panel report.

### Pre-operative Patient Screening and Testing

The Expert Panel noted that all elective patients should be screened, either by telephone or in person, to minimize surgical delays and cancellations

by ensuring that patients are ready for surgery. Patient screening should include any required tests (for example, blood work or x-rays requested by the surgeon), as well as patient education and discharge planning. The Expert Panel also noted that all patients who have similar clinical conditions and are scheduled for similar surgical procedures should be screened in a similar manner, regardless of who the surgeon or anaesthesiologist is.

All of the hospitals we visited had in place a screening process, called a patient pre-assessment, which was scheduled by the surgeon or the hospital anywhere from about five weeks to two weeks prior to a patient's date of surgery, depending on the type of surgery. The pre-assessment process at the hospitals varied somewhat, with one hospital requiring all patients to have a pre-assessment visit in person, including an appointment with an anaesthesiologist. The Peri-operative Improvement Expert Coaching Team that visited this hospital recommended that the hospital examine whether it was necessary to screen all patients in person (particularly healthy, ambulatory patients undergoing elective surgery) and consider pre-operative screening via telephone for selected patients based on their condition. The other two hospitals triaged patients and performed telephone pre-assessments with patients who met certain conditions. In addition, patients assessed at these hospitals generally met with an anaesthesiologist only if there was a medical issue specific to anaesthesiology.

Clinical guidelines, such as those endorsed by the Ontario Guidelines Advisory Committee, which is a partnership of the Ministry and the Ontario Medical Association, indicate that most medically stable patients undergoing low- and intermediate-risk surgical procedures do not require pre-operative electrocardiograms (ECGs) or chest x-rays. Research conducted by the Institute of Clinical Evaluative Sciences (ICES) in Ontario, based on data from April 2000 to March 2002, recently found that, despite these guidelines, patients in Ontario often

had ECGs and x-rays prior to low- or intermediate-risk surgery. The research also found that the rates of this testing varied dramatically among hospitals. For example, the rate of patients having an ECG and/or a chest x-ray prior to low-risk surgical procedures varied among hospitals from a low of 1% to a high of 98%.

The Guidelines Advisory Committee began a project in May 2003 to reduce the excessive use of pre-operative chest x-rays and ECGs in hospitals. Hospitals were provided with information on the number of their pre-operative chest x-rays and ECGs, as well as summaries of best-practice guidelines, including those to help surgeons determine when certain pre-operative tests should be ordered. The project found that, overall, these interventions resulted in a relatively small 2.6% reduction in the use of chest x-rays, and, as expected, hospitals with high rates of pre-operative chest x-rays had larger decreases in utilization. In addition, no overall change was noted in the use of pre-operative ECGs.

### RECOMMENDATION 5

To increase the efficiency and cost-effectiveness of pre-operative patient screening, hospitals should:

- establish policies, based on the patient's needs, on whether the patient's screening prior to surgery should be completed at the hospital or by other means, particularly for healthy, ambulatory patients undergoing elective surgery;
- determine specifically which patients, based on their condition, should be required to see an anaesthesiologist as part of the screening process, rather than requiring all such patients to be seen by an anaesthesiologist where this is the current practice of the hospital; and
- incorporate into their screening policies guidelines on pre-operative patient tests

endorsed by the Guidelines Advisory Committee of the Ontario Ministry of Health and Long-Term Care and Ontario Medical Association.

### SUMMARY OF HOSPITALS' RESPONSES

All of the hospitals agreed with this recommendation. One hospital commented that it had established clear guidelines for pre-operative testing based on predetermined clinical indications and specific procedures. Another hospital indicated that screening patients pre-operatively is a key component of patient safety, and therefore the hospital is working with its anaesthesiologists to establish the level and intensity of screening that is most efficient and reflects best practice.

### MINISTRY RESPONSE

The Ministry agrees with this recommendation and, working with the Local Health Integration Networks, will continue to encourage hospitals to implement the recommendations of the Surgical Process Analysis and Improvement Expert Panel report.

### WAIT TIMES

In September 2004, as part of *A 10-Year Plan to Strengthen Health Care*, the provincial first ministers agreed to improve access to certain surgical services and to target reductions in wait times in five areas, including four surgical areas (cancer, heart, joint replacements, and sight restoration) by March 31, 2007.

As a result, Ontario's Wait Time Strategy (Strategy) was announced by the Minister of Health and Long-Term Care in November 2004 to improve access to health-care services by reducing wait

times for adult Ontarians by December 2006 in a number of areas, including cancer surgery, selected cardiac procedures, hip and knee replacements, and cataract surgery. The goals of the Strategy included creating a system to monitor and manage wait times, and making wait time information available to the public and providers. The Strategy also aimed to make hospital boards more accountable for equitable access to services in their organizations. As well, a benefit of the Strategy was to provide information to help surgeons manage their wait lists and guide patient-scheduling decisions.

According to the Ministry, since the inception of the Strategy in November 2004, \$896 million has been paid to hospitals to provide over 1.2 million additional medical procedures in the five priority health services, including \$722 million for about 228,000 surgical procedures. The funding to hospitals was based on various factors, including the type of surgery, the number of procedures performed, and whether the hospital was designated to train medical professionals. Literature indicates that hospitals training medical professionals have higher costs, generally because of factors such as their early adoption of new technology and their carrying out of clinical research. One hospital we visited indicated that although it was a community hospital, it was designated to train orthopaedic medical professionals. However, it received the lower, non-teaching, funding rate under the Strategy for these procedures. The hospital noted that it was still able to complete the additional procedures with the lower funding and provide appropriate training for orthopaedic medical professionals, and therefore questioned whether the Ministry's funding methodology should be reviewed.

Surgeons usually manage their own wait lists and prioritize their patients for surgery based on each patient's condition. As a result, historically, the number of patients waiting and the time patients waited for most surgical procedures were generally not known by hospitals or the Ministry.

To help address this, the Ministry implemented an interim system in July 2005 at about 75 hospitals (later expanded to about 80 hospitals) to track wait times in the five Strategy areas. According to the Ministry, these hospitals perform about 90% of the total services provided across Ontario hospitals in the five areas.

In March 2006, the Ministry introduced a new Wait Time Information System (System), which was implemented in all hospitals participating in the Strategy by June 2007. Similar to the interim system, the new System tracks the wait time by patient, from the "decision-to-treat date" (that is, the date when the surgeon and patient decided to proceed with the surgery) to the date the surgery or test was performed. Unlike the interim system, it also tracks, for example, the urgency or priority level of each patient. According to the Ministry, 55 hospitals were utilizing the System as of March 31, 2007. The three hospitals that we visited had all implemented the System in March, September, and October 2006 respectively.

The June 2006 report from the Federal Advisor on Wait Times, engaged by the federal government to provide recommendations and advice to ensure the reduction of wait times for health-care services, noted that there were concerns, raised by both the public and health-care professionals, that concentrating on the five service areas may come at the expense of other health-care services. While the hospitals that we visited did not specifically monitor this, a May 2007 report by the Institute for Clinical Evaluative Sciences (ICES) found that, based on a sample of surgical procedures, there was no evidence of adverse impact on other surgeries across Ontario. However, ICES recommended that future research evaluate access on a regional and an institutional basis, and assess effects of the Strategy on surgical waits, particularly for urgent procedures where evidence suggests that delay may compromise outcomes. The Federal Advisor on Wait Times also made a number of recommendations

to adopt best practices, including the use of single common wait lists, and an approach that prioritizes patients by need and offers them the first available appointment. The Ministry indicated that it has activities under way aimed at addressing these recommendations.

In addition, in its 2006 Budget, the federal government introduced the concept of a patient wait time guarantee. This is similar to initiatives introduced in other countries, such as the United Kingdom and Sweden. This guarantee—to ensure that all Canadians receive necessary medical treatment within medically acceptable waiting times—allows patients the option of receiving treatment for selected services at another hospital, even outside of their home province, if their wait time exceeds the targeted provincial wait time. By April 2007, all provinces and territories had selected one priority area for which to establish health-care wait time guarantees by 2010. In March 2007, Ontario announced that it would implement a wait time guarantee for cataract surgery by January 1, 2009. Under this guarantee, cataract patients waiting longer than the 182-day access target can opt to receive their surgery elsewhere in Ontario, and have costs, such as travel and accommodation, paid for by the hospital unable to provide the service.

### Patient Priority Levels

The System incorporates patient priority levels and associated targeted maximum wait times. For example, a “Priority 4” patient for a hip and joint replacement would have minimal pain and disability, and a targeted maximum wait time of 26 weeks, while a “Priority 1” patient would have maximum pain and should have surgery immediately, according to the target. The priority levels and associated maximum wait time targets for hip, knee, and cancer surgery, as well as a target percentage of patients to receive cataract surgery, were based on recommendations from expert surgical panels

established by the Ministry. The Ministry indicated that it had provided training on these priority levels to hospitals participating in the Wait Time Strategy. Methods to determine wait time targets for cardiac surgery patients had previously been developed by the Cardiac Care Network. At the hospitals we visited, a number of surgeons, as well as hospital staff, expressed concern that both the decision-to-treat date and the priority levels were interpreted inconsistently among surgeons.

### Wait Time Reporting

#### Actual Reported and Targeted Wait Times

The Ministry publicly reports wait time information on its website for the hospitals participating in the Strategy. This information shows the number of days that it took 90% of patients (excluding all emergency patients and other urgent cardiac patients) to receive their surgery. In addition, this information is compared to the targeted time frames for Priority 4 (the least urgent priority) patients to receive their surgery, as shown in Figure 3.

**Figure 3: Actual and Targeted Wait Times by Type of Surgery, February–March 2007**

Source of data: Ministry of Health and Long-Term Care

Type of Surgery	Priority 4 (least urgent)		
	Targeted Maximum Wait Time (Days)	% of Surgeries Completed within Target	Days Taken to Complete 90% of Surgeries
angiography	n/a*	n/a*	24
angioplasty	n/a*	n/a*	18
bypass surgery	182	100	42
cancer surgery	84	93	70
cataract surgery	182	92	159
hip replacement	182	81	252
knee replacement	182	74	321

\* no provincially established targets under the Wait Time Strategy



At the time of our audit, the Ministry used Priority 4 as the overall maximum targeted wait time because hospitals not yet on the System did not have the previously mentioned priority levels assigned to most of their surgeries. Senior ministry staff noted that reporting wait times for each priority level would provide the public with more meaningful information and indicated that the Ministry planned to report this information by the spring of 2008.

According to the 2006/07 wait time funding agreement between hospitals and the Ministry, hospitals are to ensure that no patient waits for surgery longer than 10 months without a reassessment by his or her surgeon. However, although the Ministry indicated that the chief of surgery at each hospital participating in the Wait Time Strategy signed the agreement on behalf of all surgeons, none of the three hospitals we visited received information on whether surgeons reassessed patients waiting more than 10 months, although two of the hospitals periodically forwarded to some surgeons a list of patients waiting longer than their targeted wait time and asked surgeons to verify the accuracy of the information. Staff at one of these hospitals indicated that most surgeons did not respond for various reasons, such as not having time to follow up. We reviewed the wait time data at the third hospital and noted that, from October to December 2006, 67% of Priority 4 hip replacement patients had waited longer than their targeted wait time. As well, the System indicated that 37 hip and knee replacement patients were still waiting after at least three-and-a-half years. The hospital did not review this data, so it was unable to determine whether there were reasons that such patients were still waiting or if its information was inaccurate.

We noted that the wait time funding agreement for the 2007/08 fiscal year includes the expectation that hospitals ensure that no patient waits longer than the Priority 4 target unless the patient has been reassessed. In addition, as part of the agreement, hospitals are expected to review and analyze the reasons patients are waiting beyond target

time frames and act to improve performance. One hospital indicated that accomplishing this required ongoing collaboration between the surgeons and the hospital.

### Wait Times by Priority Level

To assess whether patients received surgery within the targeted wait times established by the Ministry, we requested wait time information by priority level for the hospitals that had implemented the System at the time of our audit. This information is shown in Figure 4.

As Figure 4 shows, while patients with more urgent needs generally received their surgery sooner than other patients, they were less likely to receive surgery within the access targets established by the Ministry based on their priority level. Further, the information we received indicates that the timeliness of surgery varied significantly in some cases, depending on the hospital at which the surgery was done or the Local Health Integration Network in which the hospital was located. For example, some hospitals were able to perform Priority 3 cancer surgeries more quickly than other hospitals performed more urgent Priority 2 cancer surgeries. Because hospitals had been required to collect this information only since implementing the System, the Ministry indicated that, as of the time of our audit, there had not been an overall analysis of the accuracy of this information and it had therefore not been publicly reported. However, as previously indicated, the Ministry plans to make wait time information by priority level available by spring 2008.

Because cardiac procedures are tracked by the Cardiac Care Network (Network), with only summary data posted on the Ministry's website, we obtained wait time information for cardiac procedures by priority level directly from the Network. As shown in Figure 5, cardiac patients generally received their procedures within their targeted maximum wait time.

**Figure 4: Wait Times by Priority Level for Four Types of Surgery, April 2007**

Source of data: Wait Time Information Office, Cancer Care Ontario

Type and Priority of Surgery	Targeted Maximum Wait Time (Days)	% of Surgeries Completed within Target	Days Taken to Complete 90% of:	
			All Surgeries	Surgeries Not Meeting Target
<b>Cancer</b>				
1	Immediate	41	24	34
2	14	41	44	56
3	28	63	57	91
4	84	85	102	170
<b>Cataract</b>				
1	Immediate	—*	—*	—*
2	42	68	90	146
3	84	82	125	253
4	182	92	167	489
<b>Hip Replacement</b>				
1	Immediate	—*	—*	—*
2	42	63	88	159
3	84	60	195	297
4	182	69	307	516
<b>Knee Replacement</b>				
1	Immediate	—*	—*	—*
2	42	49	111	202
3	84	55	219	300
4	182	62	375	531

Note: Data are from the hospitals that had implemented the Wait Time Information System as of April 2007. The Wait Time Information Office had not yet verified the data.

\* Hospitals are not required to report on Priority 1 in these categories.

### Wait Time to See Surgeon

Some surgeons we spoke with were concerned that the System did not track the time patients waited between the date of their family physician's referral and the date of the patient's appointment with the surgeon. As well, a 2006 report by the Fraser Institute noted that, in Ontario, the waiting time to see a surgeon varied among surgical areas. For example, in the four surgical areas included in the Wait Time Strategy, wait times to see a specialist varied from an average high of 14 weeks for orthopaedic surgery to an average low of three weeks for cancer surgery. The January 2007 report of the Ministry's

Primary Care—Family Practice Wait Times Expert Panel recommended that the Ministry develop a framework that would incorporate, among other items, targeted maximum wait times for appointments with specialists.

According to the Ministry, by the end of the 2007/08 fiscal year, the System would be able to track information on the wait time from the date of a family physician's referral to the date of the appointment with a specialist, such as a surgeon. The Ministry will then need to begin collecting this information, as it indicated that it plans to report this information publicly by 2010.

**Figure 5: Provincial Wait Time by Priority Level for Cardiac Procedures, April 2007**

Source of data: Cardiac Care Network

Type and Priority Level of Cardiac Procedure	Cardiac Care Network's Targeted Maximum Wait Time (Days)	% of Procedures Completed within Target	Days Taken to Complete 50% of Surgeries
<b>Angiography</b>			
1	0-7	90	1
2			
3	8-28	72	7
4	29-84	100	9
<b>Angioplasty</b>			
1	0-7	94	1
2			
3	8-14	86	7
4	15-28	95	6
<b>Bypass Surgery</b>			
1	0-14	82	3
2			
3	15-42	86	6
4	43-180	94	20

### Wait Time Reporting in Other Provinces

In February 2007, the Canadian Institute for Health Information (CIHI) compared wait time reporting among the provinces. CIHI noted that:

- There is wide variation in reporting methods, including how wait times are defined, making comparisons among provinces challenging.
- The availability of information on wait times outside of the five priority areas varied among provinces. For example, Alberta and British Columbia reported wait time information on surgeries in other areas, such as neurosurgery and gall bladder surgery.
- Several provinces reported wait times against wait time benchmarks. For instance, Newfoundland and Labrador reported against national wait time benchmarks, while Alberta,

similarly to Ontario, reported against only the province-specific wait time targets associated with the least urgent patients.

- Alberta and British Columbia reported wait time by surgeon for certain surgeries, such as joint replacements, cardiac surgeries, and eye surgeries.

Since the surgeries covered under the wait time initiative only account for about 14% of all surgeries, the Ministry indicated that it plans to use the System to track the wait times for all surgeries by June 2009. However, at the time of our audit, there were no plans to publicly report wait times by surgeon. While we believe that this type of information would be valuable both to referring physicians and patients in determining which surgeon could offer patients the quickest access to surgery, the Ministry told us that it had indicated to surgeons that it would not make this information public.

## RECOMMENDATION 6

To enable both patients and health-care providers to make informed decisions and to help ensure that patients receive the surgery that meets their needs within an appropriate length of time, the Ministry of Health and Long-Term Care—in conjunction with Local Health Integration Networks, hospitals, and surgeons—should monitor patient wait times by each priority level and by surgeon for all types of surgery. As well, the Ministry should make information on patient wait times by priority level available to the public and reconsider its decision not to report at a future time wait times by surgeon or, as a minimum, make this information available to referring physicians.

## SUMMARY OF HOSPITALS' RESPONSES

All the hospitals agreed with the first part of this recommendation. Two hospitals indicated that

they were now monitoring patient wait times. One of these hospitals indicated that it would have monitored wait times earlier but was unable to because of system limitations that have since been rectified. Another hospital indicated that while it was moving forward in reviewing the monthly priority of the patients waiting for surgery, this had resulted in additional administrative time spent by both the hospital and the surgeons. This hospital also indicated that hospitals would benefit from having a wait time co-ordinator on staff, but that there was no specific funding provided for this position. As well, the hospital stated that it was working with its Local Health Integration Network to improve wait times. The third hospital indicated that it now monitors patient wait times on a more in-depth and ongoing basis, and provides a list of patients waiting longer than the provincial target to surgeons for review. In addition, it has established a Wait Times Steering Committee to monitor wait times and address identified areas for improvement.

All the hospitals agreed with public reporting of wait time by priority level. With respect to public reporting of wait time by surgeon, one hospital indicated that this information may be misinterpreted and that while public reporting would be beneficial in the future, it should wait until information on other factors, such as surgical outcomes, is also available.

### MINISTRY RESPONSE

The Ministry is planning on publicly reporting wait time data by priority but will not be reporting information by specific surgeon.

The Wait Time Information System was created to support hospital accountability of wait time management. The System does report by surgeon; however, this information is

only reported to the surgeon's hospital to assist it, and in particular peri-operative teams, with wait list management.

### Use of the Wait Time Information System by Surgeons and Hospitals

According to the Ministry, the System is intended to help surgeons and their staff manage their patient wait lists and guide patient-scheduling decisions by using the information tracked by the system. The surgeons we spoke with noted that provincial tracking of patient wait times is a significant step forward for the health system. However, the majority of these surgeons noted that additional administrative time was required to enter information into the System, there was no specific funding provided to enter this information, and they already knew how many of their patients were waiting for surgery and their next available surgical date.

At two of the hospitals we visited, information on each patient's decision-to-treat date and priority level was generally entered in the System by the surgeon's administrative assistant, while at the third hospital, staff entered the information. As well, two of the hospitals we visited had purchased computer equipment for some surgeons to facilitate their entry of System information. The Ministry required this information to be entered within two business days of the decision-to-treat date, and one hospital we visited had a policy generally requiring surgeons to input a patient's decision-to-treat date in the System before the hospital would allow operating-room time to be scheduled for the patient. The actual date the patient received his or her treatment (that is, the date the surgery was performed) was either entered in the System by hospital staff or electronically extracted from the hospital's information system.

The tracking and monitoring of patient wait times is an important means to assist hospitals in

ensuring that patients receive required surgery within a reasonable time frame. Hospitals can use the System to produce a standard set of reports, such as the hospital's median patient wait time by surgical area, for hospital management to access. In addition, hospitals can download data from the System, from which they can produce reports to meet their local information requirements. However, we found that none of the three hospitals we visited used the System to monitor and manage patient wait lists. We noted that one hospital had tried to download data, but encountered system limitations, which the Ministry indicated were subsequently corrected. In addition, we were informed that data were rarely downloaded at the other two hospitals because no staff were dedicated to managing the System. The hospitals we visited all indicated that, rather than developing each report themselves, they would benefit from more standard System reports for managing surgical activities. Such reports could include:

- median and 90% patient wait time by each priority level for every surgeon;
- number of patients waiting for surgery by each priority level for every surgeon; and
- number of patients not meeting the wait time targets by surgeon and by priority level.

The hospitals also indicated that they would be interested in accessing comparative data from other hospitals on the number of patients waiting by surgical area. The Ministry advised us that the system was still under development and indicated that it was working with hospitals to implement system improvements.

The hospitals we visited also expressed concerns about the accuracy of some data in the System. Therefore, one hospital reconciled information on the number of completed surgeries in its internal reports with the information in the System on a monthly basis.

## RECOMMENDATION 7

To monitor and manage patient wait lists more efficiently, the Ministry of Health and Long-Term Care and hospitals should continue to jointly develop more standardized reports, utilizing data from the new Wait Time Information System, that would readily provide hospitals and surgeons with useful and comparative information on patient wait times. As well, hospitals should periodically test the accuracy of their key data elements in the System.

## SUMMARY OF HOSPITALS' RESPONSES

The hospitals generally concurred with this recommendation, and that they anticipated more standardized reports as the system was further developed. One hospital commented that it is difficult for the hospital to manage the data collection and ensure data accuracy, as hospitals are unable to ensure that the information they receive from surgeons is timely, accurate, or complete. Therefore, this hospital suggested that the Ministry and Local Health Integration Networks should make the physicians responsible for providing the information directly to them, rather than to the hospital. Another hospital commented that it is addressing this issue by comparing monthly the volume of surgeries in the Wait Time Information System to the actual number of surgeries completed according to hospital records, and working with the surgeons' offices to help ensure data accuracy.

## MINISTRY RESPONSE

The Ministry agrees with this recommendation and will continue to support hospitals by providing standardized reports. The development of standardized reports is an ongoing function and

is guided by input from the hospitals participating in the Wait Time Strategy, which had not all implemented the Wait Time Information System until June 2007. The Wait Time Information Office has developed a reporting strategy that includes the development of a business intelligence/decision support module that will provide more dynamic, detailed reports to hospitals and Local Health Integration Networks, including all of the standardized reports suggested within the Auditor General's report.

There is also new functionality on the website, added in March 2007, which allows hospitals to compare their wait time performance with that of other hospitals.

## OPERATING ROOM EFFICIENCY

The management of surgical processes has been the focus of much study in a number of jurisdictions, including the United Kingdom, United States, and Canadian provinces such as British Columbia and Saskatchewan, as well as Ontario. All of these studies have reviewed peri-operative processes and proposed ways to increase their efficiency, such as monitoring various performance measures and documenting the peri-operative processes to identify areas for improvement.

The Expert Panel's June 2005 report recommended a plan to improve surgical efficiencies in Ontario's hospitals, and indicated that surgical efficiencies were critical to the success of reducing patient wait times for certain types of surgery and procedures. The Expert Panel also noted that adequate human, financial, and capital resources were needed to increase the number of these surgeries, but that improving surgical efficiencies, including the efficiency of peri-operative processes, would increase the number of surgeries even further.

## Monitoring of Performance Indicators for Operating Room Use

Hospitals participating in the Wait Time Strategy signed funding agreements with the Ministry. One requirement in both the 2005/06 and 2006/07 fiscal year funding agreements was that hospitals track and summarize information affecting operating room efficiency, such as cancellations on the day of surgery, cancellations that occur within 48 hours of the day of surgery, delays caused by the late start of the first surgery of the day, and unplanned operating room closures.

All of the hospitals that we visited had participated in the Strategy and collected some of the required information on operating room efficiency. In addition, the hospitals also had some information on other performance measures, such as the number of surgeries finishing late and the accuracy of surgical case duration estimates. However, none of the hospitals tracked all of the required information. For example, none of the hospitals tracked unplanned operating room closures.

Performance measures are also useful tools to evaluate how a hospital is performing relative to other comparable hospitals, and to identify areas for improvements. At the time of the Expert Panel's 2005 report, Ontario hospitals with surgical programs did not collect and assess information on surgical performance measures against benchmark targets on a provincial basis. The Expert Panel therefore recommended that the Ministry support the development and implementation of Ontario-wide surgical benchmark targets. As a result, the Ministry introduced the Surgical Efficiencies Target Program (Program) in the summer of 2006, and expected it to be implemented in the approximately 80 hospitals participating in the Strategy. As of June 2007, almost 60 hospitals had implemented it. One of the hospitals we visited had implemented the Program in November 2006, and the other two implemented it in May 2007. The Program tracks

information on a number of performance measures, including start-time accuracy for the first case of the day (+/-5 minutes) and subsequent cases (+/-15 minutes). We obtained 12 months of data, ending in the spring of 2007, on start time accuracy for the almost 60 hospitals. We noted that median start time accuracy for the first surgery of the day was 69%; for subsequent surgeries, the median was 58%. We also noted some significant variations in hospital performance. For example, the best start-time-accuracy rate for the first case of the day was 95%, while the lowest rate was 17%. Similarly, start-time-accuracy rates for subsequent cases during the day ranged from a high of 98% to a low of 25%. At the hospitals we visited, the start-time-accuracy rates for the first case of the day ranged from 27% to 76%, while the start-time-accuracy rate for subsequent cases was generally around 55%. We understand from the Ministry that the Ministry has not publicly reported this information because the system is new and it has not yet verified the data.

One of the hospitals we visited had monitored its actual use of operating rooms at one of its sites versus both its planned use of the rooms and its operating room capacity during weekdays for the 2006/07 fiscal year. As shown in Figure 6, the actual use of operating rooms versus the planned use was fairly consistent, although the actual use versus the operating room capacity showed some unused capacity. Unused capacity can result from various reasons, including a lack of funding, a lack of staff, a lack of available beds, and holiday schedules.

We were informed that the Ministry plans to add other performance measures to the Program, although at the time of our audit these measures had not been finalized. According to the Ministry, performance targets are to be established on the basis of Ontario-wide data once all participating hospitals are using the Program. Results are

expected to be produced for each participating hospital, as well as summarized by each Local Health Integration Network and provincially. In addition, the Ministry indicated that, when the Program is fully implemented, it expected Local Health Integration Networks would review Program results to determine whether any regional efficiencies could be achieved.

**Figure 6: Actual Use of One Hospital's Operating Rooms as a Percentage of Planned Use and of Capacity, 2006/07**

Source of data: One of the audited hospitals

Time of Day	Actual Use of Operating Rooms as a % of:	
	Planned Use <sup>1</sup>	Total Availability <sup>2</sup>
8 a.m.-11:59 a.m.	85	77
noon-2:59 p.m.	83	75
3 p.m.-4:59 p.m.	100	48
5 p.m.-7:59 p.m.	82	14

1. "Planned Use" is based on the number of hours operating rooms are staffed Monday to Friday.
2. "Total Availability" is based on the maximum number of hours operating rooms could be available if all of the hospital's operating rooms were used Monday to Friday.

## RECOMMENDATION 8

To determine if surgical resources are being utilized efficiently and effectively, hospitals should utilize the information provided by the new Surgical Efficiencies Target Program to monitor key performance measures against performance targets (once the targets are established by the Ministry of Health and Long-Term Care), as well as against internal benchmarks and the performance of comparable hospitals.

## SUMMARY OF HOSPITALS' RESPONSES

All the hospitals concurred with this recommendation.

## MINISTRY RESPONSE

The Ministry agrees with this recommendation and will continue with the implementation of the Surgical Efficiencies Target Program.

## Surgical Bottlenecks

According to the Expert Panel, bottlenecks in the surgical process at hospitals can arise for various reasons, including a lack of available beds for post-operative patients and a lack of available staff, such as anaesthesiologists. These bottlenecks can lead to delayed and cancelled surgeries.

## Availability of Hospital Beds

Information at two of the hospitals we visited indicated that surgical bottlenecks occurred. More specifically, we were informed that these two hospitals either delayed or cancelled elective surgeries for reasons such as the impact of emergency patients and the unavailability of in-patient beds for post-operative patients. In some cases, patients remained in the recovery room until an in-patient bed was available, forcing other patients to wait in the operating room until a bed was available in the recovery room and therefore delaying the next surgery. Rather than cancel surgeries, one of these hospitals kept its recovery rooms open overnight 37 times in 2006 to accommodate 98 patients.

According to staff at these two hospitals, the main reason for the shortage of in-patient beds was that patients no longer requiring hospital care had to remain in hospital until appropriate alternative accommodation was available, such as in long-term-care homes. At the time of our audit, these two hospitals had a total of 148 such patients occupying about 13% of each of the hospitals' beds that would otherwise be available for surgical patients. We also noted that, in November 2006, one of the

hospitals had over 100 patients awaiting alternative accommodation occupying 23% of the hospital's beds. Furthermore, this hospital has been building a new facility since 2001, which is anticipated to have 12% fewer beds than the current hospital. Bed availability may therefore still be an issue when the new hospital opens (currently planned for 2010).

## RECOMMENDATION 9

To help ensure that patients receive the care they need and to reduce the cancellation of elective patient surgeries, the Ministry of Health and Long-Term Care, in conjunction with hospitals and Local Health Integration Networks, should develop and implement strategies to reduce the number of patients who no longer require hospital care but are occupying hospital beds.

## SUMMARY OF HOSPITALS' RESPONSES

All of the hospitals agreed with this recommendation. One hospital indicated that surgeries are cancelled if someone waiting for alternative accommodation (such as in a long-term-care home) is occupying a bed that the hospital anticipated would be available. Furthermore, finding the appropriate accommodation for these individuals would enable hospitals to redirect related funding to surgical services and other areas of need. Another hospital highlighted that the issue of patients remaining in hospital while they are waiting for alternative accommodation requires Ministry and Local Health Integration Network leadership, as it involves many stakeholders, including hospitals, long-term-care homes, and Community Care Access Centres, as well as patients and their families.



## MINISTRY RESPONSE

The Ministry has been working with the Local Health Integration Networks (LHINs) and their health-care partners on a number of initiatives to address this issue and improve patient flow through improved access to alternative services:

- On February 16, 2007, the government announced \$13.7 million in one-time funding over two years to alleviate pressures in hospitals by, for example:
  - increasing home care and community-support services;
  - placing additional Community Care Access Centre staff in hospitals to enable faster access to community services; and
  - funding temporary transitional beds in select communities.
- The Ministry's Ontario Health Performance Initiative is a quality-improvement project focused on improving patient flow in various ways, including enhanced capacity and improved discharge planning. The 18-month project began in July 2007 and involves 32 hospitals as well as the LHINs and Community Care Access Centres.
- On October 27, 2006, the Ministry announced a longer-term solution—1,750 new long-term-care beds and 662 replacement beds expected to be completed in 2010.

### Availability of Anaesthesiologists

All of the hospitals we visited were at least somewhat concerned about ensuring the availability of anaesthesiologists for surgery. As well, based on a 2002 study published in the *Canadian Journal of Anesthesia*, the Expert Panel estimated that Ontario was short 80 to 100 anaesthesiologists.

To help address the shortage of anaesthesiologists, in March 2007, the Ministry announced the

creation of anaesthesiology care teams to be piloted at nine medical sites. These teams include an anaesthesiologist who supervises anaesthesia assistants and nurse practitioners who provide services such as conscious sedation and the administration of anaesthetic gases and medication. One of the hospitals that we visited planned to use anaesthesiology care teams for cataract surgery. According to the Expert Panel, other hospitals have used anaesthesiology care teams, and this has doubled the throughput of cataract patients at some of these hospitals without affecting patient safety. However, the Expert Panel also noted that hospital global budgeting does not encourage facilities and providers to develop efficient processes to maximize throughput because, although the anaesthesiologists are paid through the Ontario Health Insurance Plan, the cost of the remaining team members is paid by the hospital. Therefore, it is less expensive for a hospital to have more anaesthesiologists than to use anaesthesiology care teams.

At one of the hospitals we visited, when the operating rooms were short of anaesthesiologists, some low-risk cataract surgeries were performed without an anaesthesiologist present. We noted that at least one other Ontario hospital also performed low-risk cataract surgeries without an anaesthesiologist present. Furthermore, a Manitoba study, published in the April 2007 *Canadian Journal of Ophthalmology*, indicated that topical anaesthesia with oral sedation with no anaesthesiologist present was not only safe but also an effective use of resources, allowing scarce medical resources to be allocated to areas of greater need. The UK's Royal College of Ophthalmologists' cataract surgery guidelines outline circumstances when an anaesthesiologist is not required to be present. While we were unable to find any similar Canadian guidelines, we noted that the College of Physicians and Surgeons of Ontario's Clinical Practice Parameters and Facility Standards for Ophthalmology at

Independent Health Facilities refers to the use of a non-anaesthesiologist physician, rather than an anaesthesiologist, to assist the ophthalmologist with local anaesthesia and sedation.

### RECOMMENDATION 10

To help ensure the best utilization of anaesthesiology services, while still ensuring that patients requiring anaesthesia receive it in a safe and efficient manner:

- the Ministry of Health and Long-Term Care should analyze the results of the anaesthesiology care teams pilot projects and, if warranted, encourage the expansion of this concept to other Ontario hospitals while reviewing current funding mechanisms to ensure that they support this initiative; and
- hospitals, in conjunction with the College of Physicians and Surgeons of Ontario, should determine under what circumstances an anaesthesiologist needs to be present for cataract surgeries.

### SUMMARY OF HOSPITALS' RESPONSES

The hospitals generally agreed with this recommendation, and one hospital commented that it was participating in the anaesthesiology care team pilot project. Another hospital indicated that there needs to be ministry funding for educational placements, such as respiratory therapists and nurse anaesthesiologists, as well as for nurse first assistants who assist with surgery.

### MINISTRY RESPONSE

The Ministry is encouraged by this recommendation and will continue with the evaluation of the Anaesthesia Care Team Program.

## SURGICAL INSTRUMENTS

Hospitals need to ensure that the correct instruments are available for each surgery and that these instruments are properly cleaned and sterilized before they are used. In this regard, the Expert Panel identified a number of best practices related to surgical instruments for hospitals, including:

- ensuring that there are sufficient surgical instruments to support the operating room schedule;
- using instrument-management systems to help track surgical instruments, including their cleaning and sterilization; and
- where possible, standardizing instruments used by procedure rather than having each surgeon use different types of instruments.

To ensure that surgeons have all the instruments required for each surgery, the hospitals we visited listed the number and type of instruments needed for a particular operation or for a particular surgeon performing an operation. Hospital staff used these lists to prepare trays of sterilized instruments. The number of instruments per tray varied depending on the type of surgery, with some having over 100 instruments; some surgeries required more than one tray. Because there are so many types of surgical instruments, two of the hospitals we visited used a system whereby staff could view a picture of each required instrument to help ensure that the trays were prepared accurately.

According to the Expert Panel, surgeries can be cancelled when hospitals have too few surgical instruments and not enough time between surgeries to clean and sterilize them. We found that staff at all the hospitals we visited were concerned about the lack of instruments, especially given the increased number of surgeries due to the Strategy. To reduce problems with unavailable instruments, all the hospitals had staff review the list of scheduled surgeries and modify the schedule as needed to prevent instrument shortages. However, all the

hospitals indicated that they also used a quick process, called “flash sterilization,” when there is not enough time to complete the regular cleaning and sterilization of instruments before they are needed for another surgery.

Health Canada’s infection control guidelines, the Ministry’s Provincial Infectious Diseases Advisory Committee’s (PIDAC’s) April 2006 “Best Practices for Cleaning, Disinfecting and Sterilization in All Health Care Settings,” and the U.S. “Guideline for Prevention of Surgical Site Infection” all indicate that flash sterilization is “not recommended” and should be used only in emergency situations (such as when a required instrument is dropped on the floor during surgery). The U.S. Association of Perioperative Registered Nurses’ “Recommended Practices for Sterilization in the Perioperative Practice Setting,” effective January 1, 2006, indicates that the use of flash sterilization should be kept to a minimum, as it may be associated with increased risk of infection to patients because of pressure on personnel to eliminate one or more steps in the cleaning and sterilization process. As well, according to PIDAC, effective sterilization is impaired if all the necessary parameters of the process are not met. The Canadian Standards Association’s Recommended Standard Practices for Emergency (Flash) Sterilization states that because of the difficulties associated with maintaining the sterile condition of a device sterilized by this method while delivering it to the point of use, as well as the device being used before the effectiveness of the sterilization cycle is known, the use of flash sterilization is not recommended if time permits the regular sterilization process. The U.S. Guideline and PIDAC both further clarify that a lack of instruments is not an acceptable reason to use flash sterilization.

PIDAC’s Best Practices recommend that a record should be maintained of the instruments that are flash sterilized, including the name of the surgeon who subsequently used the instrument and the name of the patient it was used on. One of the

hospitals we visited did not maintain a flash sterilization log but had established a working group in early 2007 to review PIDAC’s recommendations, including those related to flash sterilization. The other two hospitals maintained logs. Although the log book at one hospital listed the instruments that were flash sterilized, it did not list either the surgeon’s name or the patient’s name. However, when flash sterilized equipment was used, it was indicated in the patient’s file. The other hospital tracked all the required information as well as the reason the equipment was flash sterilized.

We found that one hospital had periodically reviewed its use of flash sterilization, and it indicated that it had implemented changes to reduce the risk related to cleaning and transporting the instruments and also had purchased additional instruments. We reviewed the log book at this hospital, covering a period of seven months, as it recorded the reasons for flash sterilizing instruments. Our review indicated that almost 73% of flash sterilizations occurred because of a lack of available surgical instruments. Another hospital we visited used flash sterilization relatively infrequently—less than eight times a month—but did not review the reasons for its use. The third hospital had not periodically reviewed the frequency or reasons for flash sterilizing instruments so that corrective action could be taken when necessary.

None of the hospitals that we visited had an instrument-management system (for example, a system using bar codes and scanning technology) to track instrument location by status—such as those awaiting cleaning; sterilized and awaiting use; in use; and being repaired. As a result, the hospitals only had a general idea of how many surgical instruments they had and did not know the number available for surgery on any given day. Furthermore, a report by the consultants hired by one hospital noted that there was no system at that hospital to ensure that all instruments were brought for cleaning after surgery. Therefore,

many instruments were lost (for example, accidentally thrown out). We did note, however, that all of the hospitals we visited had processes in place to ensure that medical instruments were not left in patients.

### RECOMMENDATION 11

To better ensure that cleaned and sterilized surgical instruments are available when needed for surgeries, hospitals should:

- in light of the Provincial Infectious Diseases Advisory Committee’s (PIDAC’s) best practices guidance, re-examine the practice of using flash sterilization in non-emergency situations;
- where flash sterilization is used, ensure that a record is maintained of the instruments that are flash sterilized, including the name of the surgeon who subsequently used the instrument and the name of the patient it was used on, in accordance with PIDAC’s recommendations; and
- review the costs and benefits of implementing an instrument-management system to track instrument location and status.

### SUMMARY OF HOSPITALS’ RESPONSES

All of the hospitals agreed with this recommendation. One hospital further emphasized that all the appropriate procedures are followed for the safe use of flash sterilization, including pre-sterilization cleaning and post-sterilization transportation of instruments in closed containers. This hospital also indicated that reducing flash sterilization would require substantial capital funding to be allocated toward instrument purchases each year. The hospital further indicated that since the completion of the audit, it has reduced its use of flash sterilization by 16%,

and that it was implementing a plan to purchase the required instruments, as well as making changes to its practices that should reduce its use of flash sterilization by a total of 70%. Furthermore, the hospital has now implemented an electronic flash sterilization monitoring system that tracks, among other things, flash volumes, the reason for the flash sterilization, and the physician’s and patient’s names. Another hospital noted that hospitals need clarification regarding when it is acceptable to use flash sterilization and suggested that hospitals should have a targeted maximum rate for the use of flash sterilization, and hospitals exceeding this rate should determine how to reduce their reliance on this sterilization method.

### MINISTRY RESPONSE

The Ministry supports the Auditor General’s recommendation and agrees that there is a need for hospitals to track instruments that have been flash sterilized, and notes that the Provincial Infectious Diseases Advisory Committee’s (PIDAC’s) recommendations are best practices. The Ministry has distributed PIDAC’s “Best Practices for Cleaning, Disinfection and Sterilization in all Health Care Settings” to all hospitals and related associations, as well as to professional colleges. Currently, the Ministry is working with the Infection Control Professionals in each hospital across the province and the Regional Infection Control Networks to assist hospitals and other health-care organizations to implement these best practices in all areas of cleaning, disinfection, and sterilization.

As indicated in the Auditor General’s report, the Ministry agrees that there is a role for flash sterilization in emergencies and that a threshold for this should be developed in consultation with experts.