Chapter 3
Section
3.05

Hospitals—Administration of Medical Equipment

Background

There are 155 public hospital corporations in Ontario, each providing patient services at one or more physical locations. Public hospitals in the province are generally governed by boards of directors and are, for the most part, incorporated under the *Corporations Act*. 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. The *Public Hospitals Act* and its regulations provide the framework within which hospitals operate.

Hospital boards are also accountable to the Ministry of Health and Long-Term Care (Ministry), and provincial payments provide approximately 85% of total hospital funding, some of which is for specified purposes (for example, purchasing a specific type of medical equipment). Other funding sources may include internally generated surpluses, such as those from parking revenues or cafeteria sales, as well as donations, which may also be restricted for specified purposes. In the 2005/06 fiscal year, the total operating cost of the 155 hospital corporations was approximately $17.5 billion.

Public hospitals in Ontario have a large variety of medical equipment ranging from small, less expensive items—such as vital signs monitors costing several thousand dollars that are used throughout the hospital—to expensive, complex equipment costing millions of dollars—such as magnetic resonance imaging machines (MRIs). The acquisition, preventive maintenance, and repair of this medical equipment is essential for providing quality patient care in hospitals.

While hospitals report their overall equipment spending to the Ministry, they are not required to report separately on the type or total value of medical equipment purchased or the cost to maintain this equipment. The three hospitals we visited spent a total of $20 million to acquire medical equipment in the 2005 calendar year. None of these hospitals had readily available information on the overall cost of maintaining and repairing their medical equipment.

Audit Objective and Scope

This audit and the one in Section 3.06 constitute the first value-for-money (VFM) audits conducted of the hospital sector, enabled by an expansion of the mandate of the Office of the Auditor General of Ontario effective April 1, 2005. The expansion

allows us to conduct VFM audits of institutions in the broader public sector, such as hospitals, children's aid societies (see Section 3.02), community colleges (see Section 3.03), and school boards (see Section 3.11).

The objective of our audit was to assess whether adequate policies and procedures were in place at selected hospitals to ensure that medical equipment was acquired and maintained in a cost-effective manner that supports quality patient care.

We conducted our audit work at three hospitals of different sizes that provide services to a variety of communities: Grand River Hospital serving the Region of Waterloo and area, Mount Sinai Hospital in Toronto, and the Thunder Bay Regional Health Sciences Centre, serving Thunder Bay and northwestern Ontario. In conducting our audit, we reviewed relevant files and administrative policies and procedures, met with appropriate hospital and Ministry of Health and Long-Term Care (Ministry) staff, conducted preliminary visits to familiarize ourselves with medical equipment operations at two other hospitals, and reviewed relevant literature, including publications by the Institute for Clinical Evaluative Sciences on Access to Health Services in Ontario and the Canadian Institute for Health Information's Medical Imaging in Canada.

Our audit was conducted in accordance with the standards for assurance engagements, encompassing value for money and compliance, established by the Canadian Institute of Chartered Accountants and accordingly included such tests and other procedures as we considered necessary in the circumstances. The criteria used to conclude on our audit objective were discussed with and agreed to by senior hospital management.

We did not rely on the Ministry's internal audit to reduce the extent of our audit work because the Ministry had not recently conducted any audit work on the acquisition, maintenance, and repair of medical equipment located in hospitals. None of the hospitals we visited had an internal audit function.

Summary

All the hospitals we visited had administered some parts of their equipment management processes well, but in other areas we noted opportunities for significant improvement. Specifically, all hospitals had areas where procedures were not adequate to ensure that medical equipment required to meet patient-care needs was acquired and maintained in a cost-effective manner. For instance, we noted that hospitals often did not use multi-year planning processes, competitive selection, or other key elements of effective purchasing processes normally used by other organizations to acquire equipment.

More specifically, we noted that:

- Multi-year strategic plans were not used by two of the three hospitals to determine and prioritize medical equipment needs. This is a common best practice in other organizations that have recurring large equipment purchases, and we noted recommendations from other jurisdictions indicating that this was a best practice for hospitals as well. While annual equipment requests from their various departments were prioritized at all the hospitals, one hospital, based on available funding, approved $10.4 million of the $39 million in department requests it received for the 2005/06 fiscal year—however, it had no documented rationale for determining which purchases were approved for acquisition versus which were not. At another hospital, while most of the purchases we sampled were made outside of the annual prioritization process, hospital management indicated that purchases made with funding from sources such as the hospital's foundation did not need to go through the hospital's annual prioritization process.
- Hospitals did not consider certain relevant criteria in assessing proposed medical

equipment purchases. For example, one hospital purchased laboratory equipment for $534,000 without a documented assessment supporting why this equipment was needed, such as anticipated demand for the services in the hospital, or an assessment of whether another laboratory could perform the work within required time frames. Hospital management indicated that a clinical assessment was completed, but not fully documented.

- The majority of medical equipment acquisitions we reviewed were purchased directly from a vendor without any evidence of other suppliers being considered. Hospitals indicated that this was due primarily to the standardization of medical equipment, which was necessary for various reasons, including ensuring compatibility with other hospital devices or minimizing incidents relating to staff being unfamiliar with other vendors' medical devices. While we recognize the benefits of standardizing certain types of medical equipment, we found that none of the hospitals had guidelines on what medical equipment should be standardized. This increases the risk that medical equipment will not be standardized when it should be, or that it will be standardized, and subsequently purchased without competitive selection from one vendor, without justification.
- One of the hospitals purchased its medical equipment through a buying group, which we expected would result in lower prices. However, none of the items that we sampled were purchased by the buying group using an open competitive process. These items included many that cost well in excess of $100,000, including a computed tomography machine (CT) that cost over $1.1 million.

We acknowledge that in most cases, given the specialized nature of the medical equipment purchased, we were unable to assess whether hospitals could have acquired equipment that met their patients' needs at a lower price had they followed a competitive selection process.

We also had concerns with the maintenance of medical equipment, which included the following:

- All hospitals relied on equipment vendors to maintain their magnetic resonance imaging (MRI) machines and CTs. We noted that the vendors' maintenance varied and was often less frequent than the standard set in the Clinical Practice Parameters and Facility Standards by the College of Physicians and Surgeons of Ontario (College) for MRIs and CTs located in independent health facilities. For example, while one hospital had preventive maintenance on its MRIs conducted monthly in 2005, which was consistent with the Clinical Practice Parameters and Facility Standards, another hospital did not have maintenance performed on its MRI until seven months after it was installed. We also noted that MRIs and CTs were not always subject to normal quality assurance procedures, such as phantom scans, to ensure that they were operating properly.
- Medical equipment was often not maintained in-house as frequently as required by service manuals or hospital plans. For example, 75% of defibrillators at one hospital did not receive scheduled maintenance during 2005, including 45% that went over a year without maintenance.

Detailed Audit Observations

PRIORITIZING MEDICAL EQUIPMENT ACQUISITIONS

Strategic Planning

Strategic long-term planning for medical equipment purchases is essential given the substantial

variety of equipment available, current and future hospital priorities, and funding constraints. Such plans enable hospitals to better manage the costs of acquiring and maintaining medical equipment. We also noted recommendations in other jurisdictions indicating that multi-year strategic plans for medical equipment was a best practice.

A long-term planning process should assess future equipment needs using criteria to prioritize those needs, and it should detail the planned acquisition, maintenance, repair, and timely replacement of equipment over a multi-year period. Such planning is necessary to help ensure that required medical equipment is available to meet patient-care needs (for example, equipment malfunctions that can result in delayed patient care), that emergency purchases are minimized, and that acquired equipment is not significantly underutilized.

We found that the medical equipment planning processes at the hospitals we visited varied. Only one of the hospitals we visited had an up-to-date plan for medical equipment purchases that included planned acquisitions over a three-year period for all major hospital departments, with reasons provided in most cases outlining why the equipment was required. One of the other hospitals focused only on current-year acquisitions. This hospital had previously recognized the need for a multi-year strategic plan for the acquisition of diagnostic imaging equipment, but had not conducted multi-year planning since 2002; however, hospital senior management informed us that they would use a two-year planning process for the 2006/07 and 2007/08 fiscal years. At the third hospital, senior management indicated that a three-year equipment acquisition plan was initiated in 2001, with purchases completed in 2004, as part of this hospital's relocation to a new site. As well, equipment acquisition plans for the 2004/05 and 2005/06 fiscal years had been combined, and there was an intention to develop a five-year planning process for the hospital's medical equipment needs starting in the 2006/07 fiscal year.

Annual Assessment

Hospitals need appropriate medical equipment to support the delivery of patient care, and therefore a process to identify and prioritize equipment requirements is needed to enable hospital management to make informed and timely decisions. Equipment that is underutilized or unnecessarily advanced is potentially wasteful, while insufficient or outdated equipment may impact negatively on patient outcomes.

The hospitals we visited all had an annual process in place for determining medical equipment priorities. In all cases, a medical equipment committee, including management and sometimes medical representatives, or senior management received and summarized medical equipment requests from the various hospital departments—some of which included support for why the item was required—and prepared a prioritized list of medical equipment. However, only one of the three hospitals used documented criteria to prioritize the potential equipment purchases for the 2005/06 fiscal year. Factors considered by that hospital included clinical patient-care needs, operational safety concerns, expected equipment life and current age, reductions in hospital costs resulting from new equipment, and increases in revenues resulting from new equipment. We were informed by the other two hospitals that they used similar criteria as well as judgment to evaluate and prioritize the medical equipment requests. Neither senior management nor the medical equipment committee at any of the hospitals documented the needs-assessment prioritization process used or why certain equipment was determined to be of a higher priority. We noted areas where we expected some documentation to support acquisitions. These included:

- At one hospital, the initial requests from the various hospital departments totalled $39 million for the 2005/06 fiscal year. The hospital informed us that, based on available funding, it approved $10.4 million of the $39 million in requests—however, there was no documentation explaining or justifying how medical equipment was short-listed for approval.
- At another hospital, we noted that during 2005, two new CTs were purchased for $2.4 million, replacing two existing CTs that were still operational. We were informed that the hospital moved both of the older CTs to storage on an interim basis until one could be moved to the emergency department and the other to a new location for research. The dates for these moves had not been finalized by May 2006, and the older CTs remained in storage. Although we noted that there was no documented assessment supporting the CT reallocations and no assessment of whether the new CT would have better met patients' needs if it had been installed in the emergency department rather than in another hospital department, hospital management indicated that such an assessment had been completed but was not fully documented.

Given the potential impact on patient care and hospital operations, we believe that the criteria used to prioritize potential equipment acquisitions and the application of these criteria should be documented.

The boards at the hospitals we visited approved the total annual amount to be spent on medical equipment acquisitions. While two of the hospitals had no documented policies on when board approval was needed for an individual item of medical equipment, the boards at these hospitals approved individual medical equipment acquisitions of items costing over $500,000 or $1 million, depending on the hospital. One of these hospitals indicated that, when no acquisitions are over the threshold amount, it would have the board approve the three largest purchases. The third hospital's policy did not require board approval for the acquisition of individual items of medical equipment regardless of the cost, unless the equipment was leased for over $2 million. No such medical equipment leases were entered into during the period we reviewed.

Emergency and Other Special Purchases

Hospitals also acquired medical equipment in contingency or emergency situations, in which a piece of equipment had unexpectedly stopped working or been damaged. We found that all of the hospitals we visited had a process requiring that senior management approve emergency requests. In addition, two hospitals had established at least some formal policies and procedures surrounding the emergency acquisition of medical equipment. However, the third hospital did not have any formal policies on emergency purchases (although hospital management informed us that it followed informal practices) and only tracked certain emergency purchases. More comprehensive tracking of emergency purchases would enable the hospital to determine if there were reasons why the medical equipment was not included in the annual prioritization process and to take action to identify other equipment requiring replacement, prior to the need for an emergency purchase.

Our sample of emergency purchases of equipment indicated that the reason for acquiring the medical equipment was often not documented or, where it was, it often did not seem to be of an emergency nature. In addition, in our view, many of these emergency purchases could reasonably have been included and approved in the annual equipment prioritization process. For example, at one hospital in 2005, the reason for the emergency purchase of a $25,000 esophagoscopy set (a scope used to examine the esophagus) was that a significant

patient situation arose during surgery due to the old age of the equipment. However, although the age of the equipment was known during the annual medical equipment planning process, hospital management indicated that replacement equipment was not approved because the older equipment was still functional.

At another hospital, most of the purchases we sampled were not part of the overall equipment prioritization process, although senior management indicated that only one of these was considered an emergency acquisition. We were informed that the remaining items were acquired with funding from other sources, such as funding provided by the hospital's foundation. However, there was no documentation to show why these purchases could not be included in the overall equipment prioritization process. For example, $354,000 was spent on 14 extra workstations used to review images from the Picture Archiving and Communication System (PACS—a database that stores medical images from diagnostic equipment such as CTs and enables the images to be displayed, manipulated, and printed). These were acquired without any documented reason why they could not have been planned for and considered in the annual hospital-wide prioritization process. Senior management indicated that the workstations were funded by the hospital's Foundation, and such purchases did not need to be prioritized through the hospital's annual process.

RECOMMENDATION 1

To ensure that decision-makers have adequate information to prioritize medical equipment purchases to maximize the value to patient care, hospitals should:

- conduct multi-year equipment needs assessments and document the application of formal prioritization criteria for requesting and approving equipment purchases; and
- minimize exclusions from the hospital-wide prioritization-and-approval process and, where equipment is purchased outside this process, require appropriate approvals and documentation to support the reasons for the exclusion.

ACQUISITION OF MEDICAL EQUIPMENT

Justification of Need for Medical Equipment

All the hospitals we visited had a process in place to gather basic information about proposed equipment purchases, such as a description of the equipment and estimated cost, including any necessary renovation and installation expenses. We noted, however, that the process often did not consider all relevant costs or criteria. For example, based on the items we reviewed, only one hospital considered whether additional training costs would be incurred as a result of purchasing new equipment. Yet even this hospital did not consider whether increased staffing levels would be required to operate the equipment. In addition, only one hospital considered whether sufficient access to the equipment was already otherwise available to patients in the region. In this regard, we understand that in the future, Local Health Integration Networks may be responsible for planning for capital funding needs, including hospital needs, within their health area and ensuring the effective and efficient management of resources, including hospital resources.

As well, our review of equipment purchases indicated many instances in which there was no supporting documentation to show why an item was required. For example:

- Laboratory equipment, the functions of which include cell sorting and cell counting, was purchased for $534,000. Although hospital management indicated that a clinical assessment was completed and that the equipment was needed to develop expertise at the hospital, there was no assessment documenting

the anticipated demand for the services in the hospital or whether another laboratory could perform the services within required time frames.

- An additional MRI was purchased for $2.5 million without specific documentation supporting why a second MRI was required to meet patient needs.

We also found that hospitals sometimes purchased the most recent medical equipment technology without conducting adequate due diligence, such as adequately determining the operating capabilities, or adequately assessing whether the technology purchased was the best way to meet anticipated patient needs when compared to less expensive technology. For example, one hospital decided in 2003 to purchase what was then new technology: a digital, large-field-of-view (LFOV) mammography unit. Hospital management indicated that part of the hospital's role is to acquire "cutting-edge" technology that may be unproven but meets established standards and regulations. After a competitive selection process, the hospital made a $100,000 down payment in March 2004 and took delivery of most of the equipment in the summer of 2004. Upon installation, the hospital immediately encountered significant operational problems—including poor image quality and lengthy image transfer time. By December 2004, the vendor had not resolved the problems and had refused to accept the return of the equipment. However, as a result of a June 2006 settlement, the vendor agreed to pay the hospital about $54,000. In addition, hospital management indicated that it planned to sell the equipment to further recover its costs. In the meantime, in 2005, the hospital considered other options but decided to purchase one small-field-of-view digital mammography unit, which was established technology, from another vendor without a competitive selection process. Hospital management indicated that this vendor was chosen because the equipment was compatible with other hospital equipment. The hospital paid $497,000 for the equipment, which was to be replaced with that vendor's LFOV digital mammography unit when it became available, for an upgrade cost of $135,000. The hospital anticipated that it would receive the new equipment by September 2006.

In another case, one hospital purchased two CTs in 2005, one of which was a then-new technology 64-slice CT, which cost approximately $288,000 more than a 16-slice model that the hospital had also recently purchased. We found no documented analysis to substantiate why the 64-slice CT was required to meet patient needs rather than a second 16-slice CT.

To make effective purchase decisions for replacement equipment, hospital management needs accurate and complete information on repair histories and expected future repair costs. Such information includes costs incurred to maintain equipment, either in-house or by third parties, and the reasons and duration of time equipment has been out of service. While all three of the hospitals informed us that they conducted a "beyond economical repair" evaluation with certain equipment to determine whether it was more economical to replace the equipment than repair it, none of the hospitals documented their analyses. One of these hospitals indicated that it was incorporating documentation requirements into its policies. In addition, none of the hospitals had any documented criteria indicating when devices should be removed from service and disposed of. We were informed by hospital management that disposal decisions were generally made as part of the annual medical equipment acquisition process or on an emergency basis when necessary.

RECOMMENDATION 2

To better manage resources, hospitals should, before purchasing medical equipment—especially new state-of-the-art equipment, consider:

- all relevant costs;
- patient needs;
- the proven capabilities of the new technology;
- adequate performance agreements to protect the hospital when the decision is made to acquire unproven technology; and
- in conjunction with their Local Health Integration Network, whether sufficient access to the equipment is already otherwise available to patients in the region.

Acquisition Process

Although there is no provincial legislation that specifically addresses the acquisition process for medical equipment, a federal statute—the *Agreement on Internal Trade Implementation Act*—which applies to all Canadian provinces, stipulates procurement practices for the broader public sector, including hospitals. These practices require a fair and open process in the procurement of goods and services costing in excess of $100,000 and that suppliers in different provinces be treated equally. Exceptions for sole-sourcing are permitted in certain circumstances—for example, to ensure compatibility with existing products. Such open competitive procurement practices are also commonly accepted as a best practice to ensure the right equipment is acquired at the best price.

Competitive Selection of Vendors

When purchasing medical equipment, hospitals determine whether or not to conduct a competitive selection process, such as through requested quotes, verbal or written, or through a public tender. The advantages of a competitive process include providing an equal opportunity to vendors as well as ensuring the best quality and price are obtained. We expected hospitals to have outlined this decision process in a purchasing policy that clearly states when a competitive selection process should be used, such as for equipment items costing over a certain dollar value.

We found that one hospital did not have any documented policies and procedures for medical equipment acquisitions, although we were informed by hospital management that it followed informal policies, including threshold limits for competitive processes. The two other hospitals had documented policies and procedures, which included some threshold limits above which verbal or written quotes should be obtained and requests for proposals (RFPs) issued. However, neither hospital's purchasing policies encompassed all relevant details. For example, one hospital's policies did not define the minimum dollar value for conducting a public tender and did not indicate what circumstances qualified as valid exceptions to the requirement to conduct competitive acquisition procedures (for instance, where equipment was purchased from one vendor to ensure equipment compatibility).

Policies, either formal or informal, at two of the hospitals generally required a public RFP for medical equipment acquisitions costing over $100,000. We reviewed a sample of medical equipment acquisitions at these hospitals and found that neither issued public RFPs for many purchases over $100,000. Furthermore, when one hospital purchased an MRI for over $2.5 million, it excluded a known vendor from its selection process. We were informed by senior hospital management that the vendor was excluded for a number of reasons, including the vendor's limited market share and related potential service-capacity issues in the hospital's region.

The third hospital purchased its equipment in conjunction with a buying group involving two other hospitals. For the purchases we reviewed, none of them had a public RFP and in only one instance were pre-qualified vendors invited to bid on a non-public RFP. This occurred even though

many of the purchases exceeded $100,000, including a CT that cost over $1.1 million. Senior management at the buying group, which was acting on behalf of the hospital, indicated that it issues only non-public RFPs to vendors pre-qualified by the hospital because hospital management believes this reduces overall costs and improves the timeliness of the acquisition process. While the hospital indicated that vendors have the opportunity to be pre-qualified by contacting the hospital or the buying group, we noted that the hospital's pre-qualification process was not publicly advertised and that there was no formal process in place to inform vendors that they had to be pre-qualified in order to bid on a contract. Senior management advised us that vendors were pre-qualified by the hospital based on a number of factors, including their financial soundness and reliability, as well as whether they carried equipment that met the hospital's safety standards. In addition, with regards to the CT acquisition, hospital management advised us that it believed it had a sufficient process in place to ensure the CT was acquired at a competitive price.

Requests for Information

Requests for information (RFIs) are used by hospitals to obtain information on the types of equipment available and the vendors that carry the equipment. With this information, a hospital can more effectively refine an RFP's specifications, especially if the RFP is for a product that the hospital has not recently, or perhaps ever, purchased.

Two of the hospitals we visited considered RFIs a valid way of obtaining information on available equipment. However, none of the hospitals used public RFIs effectively to obtain information on the types of equipment available and the vendors that carry the equipment. Furthermore, the purchases we reviewed included two RFIs, but they were not used to assist in drafting RFPs. In fact, in both cases, the hospital used the RFI to select the vendor.

We also found instances, particularly with medical equipment acquisitions costing over $100,000, in which an RFI could have ensured a more effective purchase process. For example, one hospital issued an RFP with very broad criteria for a CT. In particular, the RFP did not specify the number of CTs to be purchased or the number of slices per image the machine would take (more slices provide a more detailed image but these machines are more expensive to purchase). Requirements were specific in only a very limited number of areas, such as for start-up procedures. We were informed that a hospital selection committee short-listed the vendors based on a clinical evaluation and a committee member's familiarity with one manufacturer's equipment. However, vendors were eliminated either without documented explanation or because, even though they met the minimum RFP criteria, the hospital later decided that certain operational features were lacking or insufficient—for example, the hospital decided that the vendor's workstations were not user-friendly or that the vendor should be able to provide a 64-slice CT. As a result, multiple revised bids were required from the short-listed vendors in order to address the hospital's subsequent specifications, with the purchased CTs being delivered to the hospital about 16 months and 21 months, respectively, after the RFP was released.

Sole-sourced Purchases

The majority of acquisitions we reviewed at the hospitals we visited were purchased directly from a vendor without any evidence of other suppliers being considered. While some medical equipment may have only a single vendor, the most common reason provided for sourcing from a single vendor (sole-sourcing) for the items we sampled was equipment standardization.

We recognize that there are benefits to standardizing certain types of equipment. Medical devices that are used widely across a hospital—such as intravenous infusion pumps—are often standard-

ized. This helps minimize incidents related to staff being unfamiliar with a device when providing patient care in different areas of a hospital. Equipment standardization can also be necessary where medical devices are required to interface with other devices or systems.

However, none of the hospitals we visited had documented criteria specifying when equipment should be standardized. The lack of such policies increases the risk that medical equipment will either not be standardized when it should be or that it will be standardized, and subsequently sole sourced, without valid justification. We were informed, for example, that a light source that connects to a videoscope (an instrument used to internally view body cavities) was sole sourced due to standardization requirements. These light sources cost the hospital about $8,000 each. However, we were also informed by expert staff within this hospital that the scopes would work with other manufacturers' light sources—although an assessment to determine compliance with the manufacturer's requirements must be completed and documented. Senior management at this hospital indicated that assessments are not completed in most cases due to limited resources, and therefore the hospital generally standardized and therefore sole-sourced all medical equipment maintained by hospital staff. At another hospital, a colonoscope (an instrument used to visually examine the interior of the colon) costing $105,000 was sole sourced, and at the third hospital, an ultrasound machine costing $267,000 was sole sourced. Both these hospitals indicated that the equipment was sole sourced because it was considered standardized. Again, we saw no analysis to support the initial standardization of this equipment with one vendor, although one hospital indicated that two vendors were considered in creating the standard. The other hospital indicated that its selection was based on a clinical assessment, a previous positive experience with the vendor, and an existing service contract with the vendor that could be expanded to include the ultrasound machine.

Only one of the hospitals we visited had an official list of standardized equipment. We noted that this list consisted of over 550 items, of which only 45 had been formally assessed. Of these 45 assessments, only 15 included a comparison with other equipment. A specialized laser and its accessories, for example, were sole sourced for $150,000 because they were the standard. However, there was no formal assessment or comparisons with other equipment considered as part of establishing the standard.

We also noted some other cases in which non-standardized equipment was sole sourced without documented rationale. For example, one hospital sole-sourced the purchase of an eye laser for $46,000, while another hospital sole-sourced the purchase of a $25,000 piece of equipment used to examine the esophagus. While the reasons for sole-sourcing varied, in the case of the eye laser, hospital management indicated that an RFP was not used because a clinical trial of two products indicated that this product met the hospital's specifications.

Buying Groups

An effective hospital buying group can attain savings through the combined purchasing power of member hospitals to negotiate better terms with vendors, including price. In addition, group purchasing organizations can improve efficiency by centralizing expertise in purchasing strategies and eliminating administrative duplication at each hospital.

Two of the three hospitals we visited did not participate in a medical equipment buying group. While both hospitals indicated that they had acquired some medical equipment in co-operation with other hospitals, none of the purchases we sampled were acquired this way, with the exception of one significant purchase co-ordinated by the Ministry.

The third hospital created a buying group with two other hospitals to purchase supplies, services,

and equipment for the three hospitals. Each participating hospital was responsible for the cost of the items purchased as well as for an additional fee to cover the buying group's expenses. Management at the hospital we visited indicated that, along with clinical leadership from the participating hospitals, it expected that the use of the buying group would result in lower prices, including lower prices for medical equipment. However, the hospital had never completed an analysis to determine whether any quantifiable savings had been achieved for any of the medical equipment purchases we reviewed, which amounted to about 60% of the hospital's total medical equipment acquisitions during the 13-month period ending December 31, 2005. Furthermore, as previously noted in the Competitive Selection of Vendors section of this report, the buying group did not conduct an RFP for any of the equipment purchased in our sample.

The amount paid by the hospital we visited to the buying group for its services was approximately $1 million for the 2005/06 fiscal year. Although hospital management indicated that these costs were reviewed for reasonableness as part of the hospital's annual budgeting process, we noted that the hospital had not formally analyzed in the past five years whether the amount paid to the buying group was reasonable when compared to the expected costs of operating the buying group, based on the volume of purchases conducted.

In March 2006, this buying group became part of another organization that was established to eventually manage certain functions, including purchasing, for 12 hospitals. At the time of our audit, it was too early to evaluate the success of this new organization in achieving savings for the hospital that we visited. However, we did note that as of May 2006, two months into the new service arrangement, the hospital was still determining some aspects of its agreement with the organization, including the amount it would pay for the buying group's services. In addition, our preliminary review of the hospital's draft contract with the new organization indicated no requirement for medical equipment to be acquired through competitive acquisition strategies, such as RFPs.

RECOMMENDATION 3

To ensure that medical equipment is being purchased as cost-effectively as possible, and to meet hospital-specific needs, hospitals or their buying groups should commit to establishing and ensuring compliance with competitive acquisition procedures, including:

- requirements regarding the use of public requests for proposals for medical equipment purchases above a certain amount;
- criteria for equipment standardization versus an open competitive process; and
- requirements on when and how requests for information to determine vendors with available equipment that meets the hospital's needs are to be used.

To help ensure that hospitals participating in co-operative purchasing arrangements for medical equipment are achieving savings, hospitals should formally monitor the co-operative arrangement's success in acquiring medical equipment.

Leasing Versus Buying

One consideration in long-term planning for the use of limited hospital financial resources is whether to lease or directly purchase medical equipment. This decision affects available cash flows because leases are generally paid over a period of time, while direct purchases, unless otherwise financed, are generally paid for up front. Depending on a variety of factors, either leasing or purchasing can be more economical. For example, in some cases, a hospital may plan on retaining equipment for a limited period of time due to anticipated obsolescence.

In such cases, leasing may be the more economical choice. As well, leasing for a few years may be a more cost-effective alternative in situations where equipment repair costs are expected to escalate as the equipment ages.

None of the hospitals we visited had policies that provided guidance on when to lease medical equipment rather than purchase it. In addition, none of the acquisitions we reviewed included an analysis of the impact of leasing versus purchasing equipment to determine the most economical option.

We noted that hospitals rarely leased medical equipment. We reviewed two leases related to one hospital's Picture Archiving and Communication System (PACS). After this hospital determined the equipment technology requirements, its primary deciding criterion in selecting the leasing packages was whether the leases could be reflected as an operating expense, rather than an asset, in the hospital's audited financial statements. There was no documented assessment of which leasing packages would be most financially favourable to the hospital—for example, the one with a lower rate of interest—or which lease would best match the hospital's intended period of use. Hospital management indicated that acquisition arrangements are generally based on which kind of funding—operating or capital—is available. For example, if operating funding is available, then the hospital would seek a lease arrangement where the lease is an operating expense.

RECOMMENDATION 4

To help ensure that major pieces of medical equipment are acquired in the most economical manner, hospitals should formally assess all acquisition options, including leasing.

MAINTENANCE AND REPAIRS OF MEDICAL EQUIPMENT

Hospitals need effective preventive maintenance and repair processes to help ensure that medical equipment functions as intended. Malfunctioning equipment could delay patient treatment, result in poor patient-treatment decisions, or even be potentially harmful to patients or hospital staff.

Because medical equipment can be very complex, maintaining the equipment can require expertise in a broad range of areas, including electronics, computer technology, and mechanical systems. To address these requirements, hospitals generally use a combination of in-house maintenance staff for less complex equipment and external maintenance contracts—which can be with the equipment vendor or a third party—for more complex equipment like CTs and MRIs.

Each hospital we visited had a team of trained technicians who performed preventive maintenance and repairs on some of the hospital's medical equipment. For the remaining medical equipment, particularly equipment of a more complex nature, the hospitals generally contracted with the vendor to provide service. In some cases, hospitals negotiated shared-responsibility service agreements with vendors under which hospital technicians were trained to address simpler maintenance and repairs, while the vendor would be called in for more complicated malfunctions.

Service Options

Hospitals determine whether medical equipment is to be maintained and repaired in-house or through a third party. In reaching this decision, hospitals may consider whether the complexity of the equipment prevents in-house technicians from becoming as proficient as external technicians who specialize in the equipment, or whether in-house expertise is preferable in order to provide an immediate response to a problem. As well, in-house expertise

enables better identification of product deficiencies that can be taken into consideration in future purchasing decisions.

We expected that hospitals would have completed a reasonable analysis of the service options available for maintaining and repairing their medical equipment, including the costs and benefits of each option. However, for the equipment we reviewed, we found that none of the hospitals consistently documented their analysis of the service options available from vendors—such as packages with various service levels—or why they chose the service package that they did. One hospital that acquired a new CT entered into a basic-level service agreement for five years, beginning in 2006, with a set annual cost of $157,000. If vendor charges for repairs and maintenance outside of the agreement exceed the pre-set limit of $38,000 annually, then the hospital may be billed additional fees of up to $23,500 annually. A full-service contract that would cover all repairs and maintenance would have cost the hospital only $167,000 annually. We noted that there was no documented analysis of the expected future costs of repairs and maintenance, either with reference to the CT they had previously owned or other hospitals' CTs, to determine which would be the more economical option over the life of the service contract. We also found that the three hospitals entered into a range of different service options that had been negotiated with third parties. For example, one hospital negotiated a contract with one vendor to service various types of equipment from different manufacturers. As new equipment was added and old equipment removed from service, the annual price of the contract was adjusted.

With respect to tracking maintenance costs, two of the hospitals did not track these costs by significant pieces or classes of equipment for in-house preventive maintenance and repairs, although one of these hospitals indicated that it did track the cost of replacement parts. The third hospital estimated its annual in-house maintenance costs and, while it had not used this information to perform a detailed analysis of other service options, it believed that third-party maintenance would cost three to six times more than performing the maintenance in-house.

RECOMMENDATION 5

For significant pieces or classes of medical equipment, hospitals should formally assess:

- whether or not the capability to cost-effectively service and maintain the equipment exists in-house; and
- what third-party service options are available to meet the hospital's needs in the most economical fashion.

Conduct of Maintenance and Repairs

Medical equipment should be maintained in accordance with appropriate standards, which may be based on manufacturers' recommendations, professional guidelines, level of use, and past history of equipment problems. Ensuring that medical equipment operates according to these standards is necessary to provide accurate diagnostic information to assist in patient-care decisions, as well as to maintain patient and staff safety.

To ensure medical equipment is operating properly and will continue to operate properly, both preventive maintenance and functional testing are required. Preventive maintenance procedures reduce the risk of the equipment malfunctioning, while functional testing determines whether equipment is operating within normal parameters. For example, maintenance procedures for an infant ventilator include preventive maintenance to replace parts after a certain number of hours of use and functional testing to ensure the proper functioning of emergency breathing valves. Insufficient or incomplete preventive maintenance and functional

testing can result in medical equipment producing inaccurate test results, which could lead to: incorrect patient-care decisions; patient backlogs due to repeat tests; and increased equipment repair costs.

While none of the hospitals we visited had policies for establishing maintenance standards, we were advised that hospitals generally used manufacturers' service manuals as the basis for establishing the maintenance procedures and frequency of maintenance for the equipment they maintained themselves. In addition, one hospital had a policy describing a numerical ranking system that was to be used to assist in assessing and assigning the need and frequency for preventive maintenance for medical devices. However, hospital management indicated that this ranking system was used primarily to prioritize which equipment should be maintained first on a given day and therefore was not used to determine maintenance needs for the medical equipment we reviewed.

Hospitals sometimes developed maintenance checklists to assist technicians in ensuring that required maintenance was completed. However, we noted that these checklists did not always incorporate all of the manufacturer's recommended procedures and that, in many cases, hospitals did not otherwise document that these procedures were performed. For example, at one hospital, the maintenance manual for a fetal monitor indicated that a series of tests—including an ultrasound test, fetal movement detection test, and dual heart rate test—were to be performed as part of the preventive maintenance procedures in order to determine whether the equipment was functioning properly. However, the step on the checklist used by hospital technicians comprised only two words—"Ultrasound transducers"—and there was no further documentation to show all the required tests had been completed.

For equipment maintained by third parties, in many of the cases we sampled, the hospitals relied on the vendor to determine the preventive maintenance to be performed as well as its frequency. In numerous instances, the vendors' reports on preventive maintenance did not detail the procedures performed or the results. Such reporting is important given that hospital staff were not trained in the maintenance of the equipment and therefore could not provide assurance that the preventive maintenance was adequate.

Maintenance and Repairs for CTs and MRIs

We noted that the American College of Radiology offers a series of accreditation programs, operating largely in the United States, for facilities such as hospitals that operate MRIs and CTs. The accreditation programs include an evaluation of the qualifications of personnel, equipment performance, effectiveness of quality control measures, and quality of clinical images. While there are no equivalent federal accreditation processes in Canada, the College of Physicians and Surgeons of Ontario (College) has developed Clinical Practice Parameters and Facility Standards (Clinical Practice Parameters) for CTs and MRIs operated in independent health facilities. These facilities provide diagnostic procedures and operate as independent clinics, generally unrelated to hospitals. The College uses the Clinical Practice Parameters to determine whether appropriate medical standards are met in these facilities, including ensuring that their equipment provides accurate results and that safety concerns are addressed.

We noted that the American College of Radiology's accreditation programs for MRIs included requirements for quality control procedures, such as the weekly monitoring of room temperature and humidity. In addition, the College of Physicians and Surgeons of Ontario's Clinical Practice Parameters for independent health facilities required somewhat similar quality control measures, including a daily record of the MRI room's temperature and humidity. Such measures are important because, for example, too low humidity levels can damage an

MRI magnet. One hospital we visited indicated that it had a sensor to alert staff if the temperature or humidity levels were outside an acceptable range. While the other two hospitals did not directly monitor humidity levels during 2005, at one of these hospitals, management indicated that humidity and room temperature monitoring were performed by the vendor through a remote connection. However, this hospital did not have any documentation to support that the vendor completed this monitoring or to indicate the results of the monitoring. We also noted that the third hospital began regular monitoring of humidity levels in early 2006 after preventive maintenance by the vendor found humidity levels to be too low. This hospital informed us that it had not previously monitored humidity levels because the vendor had never indicated that this was necessary.

The College's Clinical Practice Parameters also required phantom scans to be performed daily for MRIs and at least weekly for CTs. A phantom scan is a test in which a liquid-filled object, the "phantom," is test scanned; the test results are used to determine whether the equipment is operating properly. We reviewed the completion of phantom scans at the hospitals we visited and found that:

- One hospital had not performed any CT phantom scans during 2005. However, this hospital conducted MRI phantom scans every second week.
- Another hospital performed no phantom scans on either of their MRIs and only began performing phantom scans on one of their four CTs in operation in 2005. However, we were informed that, in April 2006, this hospital began routinely performing phantom scans on all of the MRIs and CTs in operation at that time. Senior hospital management indicated that the MRI scans commenced after the vendor providing maintenance identified problems with one of the machines.
- The third hospital indicated that it performed phantom scans on all of its MRIs and CTs every day the machines were used in 2005, although there was minimal documentation to support that some of these tests had been completed.

In addition, the College's Clinical Practice Parameters require that monthly preventive maintenance be performed on MRIs. However, management at one hospital indicated that, based on the vendor's recommendation, on-site preventive maintenance on one MRI was not performed until seven months after it was installed. At another hospital, while maintenance was to be performed four times in 2005 according to the vendor contract, it was only completed three times. The third hospital had completed monthly maintenance on both of its MRIs in 2005.

All of the hospitals we visited used the equipment vendor to perform appropriate preventive maintenance and repairs on CTs and MRIs during 2005, including functional testing to ensure the equipment was operating properly. For example, the hospitals generally relied on the vendors to ensure that the radiation produced by CTs during an exam was within acceptable limits. We were concerned that the hospitals would not be able to readily identify situations in which vendors were not adequately maintaining MRIs and CTs, because the operation of this equipment is generally not otherwise reviewed or assessed. While independent health facilities with MRIs or CTs are subject to a quality assessment process conducted by the College on behalf of the Ministry, and x-ray equipment is subject to requirements (such as machine features, their operations, and the qualifications of individuals operating them) under the *Healing Arts Radiation Protection Act*, and related inspections, the CTs and MRIs in hospitals are not subject to such external processes of quality assurance. Our concerns in this area are discussed in more detail in Section 3.06 Hospitals—Management and Use of

Diagnostic Imaging Equipment. At the end of our fieldwork, to reduce the dependence on the vendor, one hospital was negotiating a shared-service agreement for its two CTs then in use. This agreement would assign most of the preventive maintenance to trained hospital staff and most of the repairs to the vendor.

Equipment Uptime Guarantees

Most of the MRI and CT service agreements that we reviewed included an "uptime" guarantee that equipment would be operational between 95% and 99% of the time, depending on the contract, during certain hours each day. These hours generally corresponded to patient appointments.

We reviewed a sample of MRI and CT service agreements, and noted that most of the agreements did not include the time required to conduct preventive maintenance in equipment downtime, even though equipment was usually maintained during what would normally be patient appointment times.

Although MRI and CT downtime was sometimes recorded at the hospitals we visited, none of the hospitals tracked the total amount of downtime to determine if they were eligible for compensation from the vendor should the uptime guarantee be breached. Furthermore, none had policies providing guidance on when downtime should be tracked.

We were informed that the hospitals generally relied on the vendor to track downtime on their behalf. However, only one hospital requested reports of downtime from the vendor for the 2005 year, as a result of hospital staff concerns that significant periods of downtime had occurred for the hospital's two MRIs, both of which had 98% uptime guarantees. The vendor's downtime report did not support the staff's concerns and indicated that the number of hours of downtime incurred did not breach the uptime guarantee. However, the hospital had no way to confirm this because it had not tracked downtime during the year. If an uptime guarantee was breached, hospitals were generally to receive some type of compensation, for example, an extended coverage period of the service agreement.

In-house Maintenance and Repairs

All three hospitals had automated, to some extent, their in-house equipment-maintenance activity. In fact, one of the hospital's systems automatically prompted hospital technicians when equipment was due for its scheduled maintenance. However, we found that none of the hospitals were consistently performing preventive maintenance as frequently as required by the vendors' service manuals or by the hospitals' planned maintenance schedules. For example:

- At one hospital, available documentation suggested that infant ventilator filters were not being checked and changed as frequently as the manufacturer recommended. The vendor manual recommended that specific filters be checked after every 1,000 or 5,000 hours of use, depending on the filter, and the filter be replaced when necessary. In one case, we noted that by January 2006, 18 filter checks (three checks of the first filter and 15 checks of the other filter) should have been conducted for one infant ventilator acquired in 1999, based on the hours the ventilator had been used. Maintenance records indicated that the first filter was examined five times during this period and replaced once. However, although hospital management indicated that the second filter was regularly checked and replaced when it failed, there was no evidence that this filter had ever been checked and replaced. Hospital management indicated that a new process was being implemented to better document this.
- At another hospital, the hospital's maintenance schedule required defibrillators to be maintained every six months. However, 75% were not maintained as required during 2005,

including 45% that went over a year without maintenance.

- At the third hospital, almost 50% of infusion pumps that were to be maintained once a year did not receive any maintenance during 2005 and, in many of these cases, had received no maintenance for two or more years.

We noted that, although certain equipment required more frequent testing, functional testing was usually done only in conjunction with preventive maintenance procedures—for example, one hospital included a series of functional tests with its in-house preventive maintenance program. We were concerned that this practice meant that equipment was not being functionally tested frequently enough, especially since preventive maintenance was often not conducted when required.

None of the hospitals we visited had analyzed whether preventive maintenance was being conducted in accordance with the hospital's procedures, or the impact of untimely maintenance or no maintenance at all on equipment performance. Nor had they assessed whether repairs to medical equipment were completed in a timely manner. As well, none had a reliable system to track repair costs or the amount of time the medical equipment, including major medical equipment, was out of service. While medical equipment records indicated that many of the devices we reviewed had required repair at some point during 2005, in most cases, there was insufficient data to determine the length of time the equipment was out of service. Therefore, the impact of any delays in repairing equipment in-house could not be assessed.

RECOMMENDATION 6

To ensure that medical equipment operates properly, hospitals should:

- perform preventive and functional maintenance according to manufacturer's or other established specifications and monitor such maintenance to ensure that it is being completed; and
- track downtime and other out-of-service time for major medical equipment and use this information to determine the impact on patient care and costs, and to assess whether operating performance uptime guarantees have been breached.

Tracking of Medical Equipment

To help track medical equipment, hospitals tag and record the equipment when it is purchased. In addition, an inventory that contains complete and up-to-date information on the acquisition, maintenance, and disposal of medical equipment is useful in planning and managing equipment needs. The benefits of such an inventory include identifying the age of the equipment to assist in determining whether new or additional medical equipment is needed, identifying equipment to be maintained and its location, and identifying equipment subject to a manufacturer's recall to reduce patient safety risks.

As noted previously in the In-house Maintenance and Repairs section of this report, all of the hospitals kept, to some extent, an inventory of their medical equipment. However, none of the hospitals had reviewed the completeness or accuracy of their inventories in the last three years. We reviewed a sample of medical equipment from their inventory listings and found significant inaccuracies in two of the hospitals' records. For example, the list of medical equipment used by in-house maintenance staff included many items of equipment that could not be located. In particular, in response to our inquiries, we were informed that 58 defibrillators included on the list and recorded as being in use had been disposed of. As well, according to hospital staff, manual records approving certain medical equipment disposals were not always prepared

and, when they were prepared, the medical equipment listing was not consistently updated. We were informed by hospital management that these problems resulted from the relocation of the hospital to a new facility in 2004. Hospital management could not estimate to what extent medical equipment might have been disposed of without documentation approving the disposals or to what extent the list of medical equipment contained assets that had been disposed of.

RECOMMENDATION 7

To assist in better managing medical equipment needs and identifying equipment for maintenance, hospitals should ensure that medical equipment inventory listings contain complete and up-to-date information on the acquisition, maintenance, and disposal of medical equipment.

OTHER MATTER

Conflict of Interest Declarations

Given the large dollar value of many of the medical equipment purchases made in hospitals, as well as the lack of consistent use of competitive public processes for acquiring medical equipment, as noted in previous sections of this report, it is especially important that all real or perceived conflicts of interest be identified and eliminated from the hospitals' processes of awarding contracts to vendors. Recognizing this, all of the hospitals we visited had some documented policies requiring board members and employees involved in purchasing medical equipment to declare conflicts of interest. For example, one hospital's policy stated:

> Unless a specific exception has been obtained from the Chief Executive Officer, bids shall not be solicited from, nor any order placed with, any company that: (1) Is owned, controlled or actively influenced by any hospital employee, member of medical staff or Board of Governors or immediate relative of the aforementioned; (2) Employs in a management, consulting or sales capacity on a full time basis any person who is a hospital employee, member of medical staff or Board of Governors; (3) Employs in any capacity a hospital employee, member of medical staff or Board of Governors who is in a position to influence the selection of, or conduct business with, such supplier.

While we were pleased that all hospitals had recognized the importance of eliminating conflict-of-interest situations, we had some concerns regarding these policies, as illustrated by the following examples:

- One hospital required all employees and medical staff to immediately disclose any perceived potential or actual conflicts of interest. The other two hospitals only required individuals participating in the purchasing process, or having control over hospital expenditures or policy, respectively, to complete a conflict-of-interest declaration if the individual believed an actual conflict existed.
- Although one hospital required board members to make an annual conflict-of-interest declaration, another hospital only required board member declarations when the member believed an actual conflict existed. The third hospital did not specifically require any conflict-of-interest declarations by board members, although, as noted earlier in this section, its policies did forbid conflict situations, unless an exception was obtained from the chief executive officer.
- None of the hospitals indicated the consequences of failing to declare an existing conflict of interest.
- Two hospitals provided examples of what would constitute a conflict of interest, such as disclosing confidential hospital information to

unauthorized persons; the other hospital did not.

In addition, we noted that two of the hospitals did not require prospective vendors to complete conflict-of-interest declarations except when an RFP was being conducted, which occurred infrequently. Our testing indicated that conflict-of-interest declarations by vendors were generally completed at these two hospitals for the few RFP purchases we reviewed. However, prospective vendors were not required to declare conflicts for the majority of medical equipment purchases, since most of these acquisitions were not completed through an RFP process.

RECOMMENDATION 8

To help ensure that medical equipment is acquired at the best price and to avoid potential conflicts of interest, hospitals should:

- require that all board members as well as individuals participating in, or having influence over, the purchasing process complete annual conflict-of-interest declarations that include actual and potential conflicts, and should require vendors to complete a conflict-of-interest declaration as part of the acquisition process; and
- provide guidance on what constitutes a conflict, to whom conflict-of-interest declarations should be provided, and the consequences of not declaring potential or actual conflicts of interest.

SUMMARY OF RESPONSES FROM HOSPITALS

In this section, rather than reproducing the individual responses from each of the three hospitals we visited as part of this audit, we have summarized the highlights of the responses we received. Overall, hospitals generally agreed with our recommendations but indicated that implementing certain recommendations may not be practical given their organization's unique circumstances or limited financial and human resources. For example, one hospital indicated that since health-care resources are limited, they are directed to patient-care priorities over administrative functions, such as providing supporting documentation for medical equipment acquisition decisions. Another hospital indicated that, due to its relocation to a new facility in February 2004, many of its capital acquisition practices for medical equipment did not follow its normal practices.

Recommendation 1

All of the hospitals agreed with conducting multi-year medical equipment needs assessments, and one hospital had such a process in place. While one hospital indicated that it should develop a rolling two-year capital plan, both this hospital and another hospital indicated that it is very difficult to further project future capital needs due to a number of factors, including rapid changes in health-care technology introduced to improve patient care.

In addition, all hospitals agreed that appropriate prioritization criteria should be used. While one hospital indicated that it was committed to improving documentation relating to its medical equipment prioritization-and-approval process, another hospital indicated that documenting decision-making throughout the capital process was unrealistic given its current financial and resource constraints.

The hospitals also agreed to require appropriate approvals and documentation to support purchases made outside of the hospital-wide prioritization-and-approval process. However, one hospital did highlight that, since capital equipment funds are very limited in hospitals, medical equipment is kept longer than the ideal replacement life, and therefore emergency purchases are expected to occur.

Recommendation 2

The hospitals generally supported this recommendation, and one agreed that the factors identified were relevant criteria to consider in medical equipment purchasing decisions. Another hospital indicated that, in some cases, medical equipment purchases are driven by strategic planning for future patient-care capabilities, as well as competitive medical-staff retention and recruitment.

Recommendation 3

All of the hospitals agreed that they should ensure that medical equipment is being purchased as cost-effectively as possible and to meet hospitals' specific needs. Furthermore, two hospitals indicated that they were in the process of updating and formally documenting policies and procedures for medical equipment acquisitions, including, in one case, ensuring consistency with the hospital's buying group's practices. One hospital indicated that having the Ontario Hospital Association assist in the development of medical equipment acquisition policies that could be used by all hospitals across the province would be useful and would maximize cost efficiencies.

As well, one hospital believed that when the request-for-information (RFI) process identifies a limited number of vendors, the use of the RFI to select the vendor is both cost and time effective. The third hospital indicated that, while its current policies identify dollar limits for equipment tendering, it would be expanding its policies to address standardization versus an open competitive selection process as well as the use of RFIs—although RFIs are not used very often by this hospital.

Recommendation 4

One hospital agreed with formally considering all acquisition options for major pieces of capital equipment (costing more than $1 million) but indicated that the acquisition decision may be based on which kind of funding is available—capital (to enable direct purchases) or operating (requiring leasing). The other two hospitals indicated that they had previously assessed acquisition options and found that purchasing medical equipment outright was the less costly alternative. Therefore, they believed that formally assessing all acquisition options was not practical.

Recommendation 5

For the most part, hospitals agreed with this recommendation. In addition, one hospital indicated that it followed this recommendation but would be improving the documentation of its assessment of maintenance provision options. Another hospital indicated that its maintenance provision decisions were generally straightforward but that it was also exploring alternative maintenance arrangements. The third hospital indicated that it would conduct an analysis of third-party service-contract options when appropriate and that other factors would also be considered in its analysis, such as technology upgrades and the impact on delivery of patient care.

Recommendation 6

The hospitals all agreed that medical equipment should be maintained in accordance with manufacturer or other appropriate established specifications. However, one hospital indicated that modifications to the specifications could

also be done by competent staff within its facility. Another hospital commented that, while it endeavours to always perform maintenance when scheduled, workload and available human resources sometimes prevent this from happening.

The hospitals also agreed to assess ways of obtaining complete information on downtime and other out-of-service time for major medical equipment. In this regard, one hospital suggested the possible involvement of the Ontario Hospital Association in creating a consistent definition of major medical equipment.

Recommendation 7

All of the hospitals agreed that medical equipment inventory listings should contain complete and up-to-date information on the acquisition, maintenance, and disposal of medical equipment. However, one hospital indicated that, given limited resources, this is not always possible and that the major concern was ensuring that equipment was appropriately maintained. Another hospital indicated that, in addition to keeping up-to-date information on acquisitions, it would consider the integration of maintenance information as new administrative systems were implemented and that it was working towards ensuring full compliance with its equipment disposal policies. The third hospital indicated that it had recently implemented new software to aid in maintaining a complete and up-to-date medical equipment inventory listing.

Recommendation 8

The hospitals all concurred with this recommendation, and one hospital's policies and processes complied with the recommendation. The second hospital indicated that its conflict-of-interest policy was due for review and that the Auditor's comments would be considered as part of the review process. The third hospital indicated that it would be revising its conflict-of-interest policy to include all board members as well as any other individual participating in the acquisition of medical equipment via a request for proposal, as well as having any potential conflicts declared at its Audit and Finance Committee meetings. This hospital also suggested the possible involvement of the Ontario Hospital Association in developing a conflict-of-interest template that could be used by many hospitals, rather than each hospital developing its own.

SUMMARY OF MINISTRY OF HEALTH AND LONG-TERM CARE RESPONSE

This report was also provided to the Ministry of Health and Long-Term Care. Rather than reproduce the full response we received from the Ministry, we have summarized highlights from it. Overall, the Ministry generally agreed with the recommendations.

With respect to Recommendation 2, the Ministry highlighted the fact that the Ontario Health Technology Advisory Committee, established in October 2003, provides objective, evidence-based advice to the Ministry and the health-care system regarding the implications of introducing new health technologies and removing obsolete ones. Potential purchasers of new health technologies such as medical equipment can refer an item to be purchased for the Committee's review. The Committee can thus be of assistance to hospitals as they consider the specific factors the Auditor recommended (such as all relevant costs, patient needs, the proven capabilities of new technologies, and the projected demand for medical equipment and services) before purchasing equipment.