Special Report

March 2012

Ornge Air Ambulance and Related Services

Office of the Auditor General of Ontario

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To the Honourable Speaker
of the Legislative Assembly

I am pleased to submit to you my Special Report on Ornge Air Ambulance and Related Services to lay before the Assembly, as requested by the Minister of Health and Long-Term Care and in accordance with Section 17 of the *Auditor General Act*.

Jim McCarter
Auditor General

March 2012

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Background

The *Ambulance Act* (Act) requires that the Minister of Health and Long-Term Care ensure the "existence throughout Ontario of a balanced and integrated system of ambulance services and communication services used in dispatching ambulances." The Act further states that the "Minister has the duty and the power to fund and ensure the provision of air ambulance services."

Until about five years ago, the Ministry of Health and Long-Term Care (Ministry) contracted with private operators to provide its air ambulance program's aircraft, pilots and paramedics. The Ministry directly operated the central air ambulance dispatch centre and was responsible for overseeing the overall effectiveness of the air ambulance program.

In 2005, the Ministry announced that it was appointing a not-for-profit corporation called the Ontario Air Ambulance Corporation (Corporation) to become responsible for all air ambulance operations. This was done partly to address an independent accreditation review that recommended clearer lines of authority among the different components of Ontario's air ambulance operations. Having an arm's-length corporation deliver air ambulance services was also consistent with the Ministry's long-term objective of moving away from direct service delivery, with health-care services being provided by external entities accountable to the Ministry.

Under the original contractual arrangement, the Corporation was primarily to provide air ambulance services. Under a subsequent amendment, the Corporation was also to provide certain land ambulance services.

The Corporation changed its name to Ornge (the name reflects the colour of the company's aircraft and corporate logo and is not an abbreviation). Ornge and its associated companies employ more than 400 people, including paramedics, pilots and aviation specialists. Ornge has its own aircraft and land ambulances, stationed at 12 bases across Ontario. It also contracts with independent service providers throughout the province to transport patients. These subcontractors have their own aircraft and pilots, and generally employ their own paramedics, although one uses Ornge paramedics.

In the 2010/11 fiscal year, Ornge was responsible for the transport of more than 19,000 patients, medical teams and organs for transplant (subsequently referred to as patients). More than 90% of these are "inter-facility" transfers of patients between health-care facilities. Figure 1 provides a breakdown of total transports in 2010/11.

Ornge received $150 million in ministry funding in the 2010/11 fiscal year. It also borrowed about $300 million between June 2009 and January 2011 to finance various items, including the purchase of aircraft and a new head-office building. This debt

Figure 1: Total Patient and Other[1] Transports, 2010/11
Source of data: Ornge

Type of Patient Transfer	Number[2]
Transfers conducted only with Ornge-owned vehicles	
On-scene emergency airlifts	437
Other air ambulance transports[3]	6,382
Land transfers[3]	1,487
Total	**8,306**
Transfers conducted with both Ornge-owned and private-operator vehicles	
Air transports	596
Total	**596**
Transfers contracted out by Ornge	
Private-operator air transports[3]	7,858
Scheduled commercial airline flights[4]	1,174
TEMS[5] land transfers[3]	1,340
Total	**10,372**
Total	**19,274**

1. About 3% of transports are for organs and medical teams.
2. An individual patient transported by both land and air is counted in both the land and air transport numbers. There were 273 of these instances in 2010/11.
3. Primarily the inter-facility transport of patients.
4. To transport people to medical appointments; no paramedic required.
5. Toronto Emergency Medical Services, which conduct land transfers under an agreement with Ornge.

is included in the provincial debt in the province's consolidated financial statements. Ornge uses ministry funding to make the required financing payments on this debt.

Audit Objective and Scope

Our audit objective was to assess whether air ambulance and related services were:

- meeting the needs of Ontarians in a cost-effective manner; and
- in compliance with ministry and legislative requirements.

Senior management at the Ministry and Ornge reviewed and agreed to our audit objective and associated audit criteria.

We conducted our audit work primarily at Ornge's head office, and we went to an Ornge base that houses air and land ambulances. We also conducted work at the Ministry; reviewed relevant files, systems and administrative policies and procedures; interviewed Ornge and ministry staff; reviewed relevant research obtained from air ambulance programs in other jurisdictions in Canada and around the world; and spoke with senior management from other Canadian air ambulance programs.

In addition, we reviewed and analyzed Ornge's data on requests for air ambulance services, as well as several of its more significant transactions. We also engaged independent consultants with expert knowledge of air ambulance services, property appraisals and real estate law to assist us.

Ornge's management, with the approval of Ornge's board, created a number of for-profit and not-for-profit subsidiaries and other companies. The relationships between these entities are complex. Ornge has entered into financial arrangements with many of these entities—for example, they provide most of Ornge's air ambulance and administrative services and then bill Ornge for the cost of services rendered. Ornge advised us that these complex interrelationships were necessary to meet legal, tax and other objectives relating to, among other things, acquiring new sources of funding to enhance its services.

In order for us to fully understand the fiscal and operational context of Ontario's air ambulance services, we requested a number of documents relating to these arrangements. We were given access to only those documents relating to entities that were controlled by Ornge or of which Ornge was the beneficiary. We were refused access to the records of any of the other entities. Ornge's management and the board advised us that this was because the Ministry was not funding the other entities directly or indirectly (under the *Auditor General Act*, we are generally allowed access only to organizations funded by the government). Examples of records that we were unable to access to included:

- lists of the shareholders or owners of these other entities and what each individual's proportionate ownership interest was;
- the "Founders' Equity Plan," which we understand includes potential monetary benefits for initial shareholders of these entities;
- compensation contracts and bonus arrangements for members of senior management and the board who were receiving remuneration through these entities;
- the agreement relating to a payment of several million dollars that a European corporation, which had sold aircraft to Ornge for $148 million, made to one of these entities to provide future marketing and other services (Ornge told us the payment was about $4.8 million, although a higher amount has been subsequently reported); and
- records from the entities that provide Ornge's aviation, purchasing, payroll and accounting services, and that bill Ornge for the cost of these services.

Accordingly, the scope of our work generally excluded any observations that we might have made had we obtained full access to these records. Our work did not focus on administrative processes such as general purchasing, accounts payable and employee expenses because a consultant engaged by the Ministry's internal auditors had already conducted a review of Ornge's administrative processes that covered a number of these areas.

In January 2012, the Ministry essentially took over Ornge— an interim president and CEO was appointed and Ornge's board of directors was replaced. The Ministry also sent in a large team of forensic auditors to investigate issues such as Ornge's arrangements with the companies created by Ornge's management. We therefore did not conduct any further work or request any additional documentation after that time.

Summary

The Ministry has a responsibility to ensure that the services it is paying for are being provided cost-effectively and that Ornge is meeting the needs of the public and Ontario's health-care system. In outlining its plans to the Standing Committee on Public Accounts in February 2006 regarding the corporation that would be responsible for Ontario's air ambulance services, the Ministry committed to set standards and monitor performance against those standards to ensure that the "end result will be improved care, improved access to service, increasing effectiveness and efficiency of the delivery of service, and the assurance of greater fiscal and medical accountability." As well, the Ministry's original submission to Management Board of Cabinet requesting approval for the Ornge arrangement specified that obtaining and evaluating performance information of this nature would be an essential part of the Ministry's oversight function.

However, the Ministry has not been obtaining the information it needs to meet these oversight commitments. For instance, it does not periodically obtain information on the number of patients being transferred or assess the reasonableness of the cost of the services being provided on a per-patient basis (something it could do by comparing Ontario's costs to costs being incurred in other jurisdictions or examining changes in Ontario's average costs over time). We noted in this regard that the funding Ornge received for air ambulance services increased by more than 20% between the 2006/07 fiscal year (Ornge's first full year of operations) and the 2010/11 fiscal year. However, over the same period, the total number of patients transported by air decreased by 6%. Also over the same period, Ornge received $65 million to perform inter-facility land ambulance transfers, projected to number 20,000 annually. However, Ornge is currently providing only about 15% of the projected transfers.

From a quality-of-care perspective, the Ministry receives limited information on whether requests for patient pick-up and transfer are being responded to in a timely and appropriate manner or whether patients are receiving the appropriate level of care during transport. As well, we questioned whether the Ministry had adequate oversight over Ornge's procurement practices and its intercompany arrangements with management and the board to ensure that Ornge was following appropriate public-sector business practices.

We suspected that the changes Ornge made to its corporate structure were not contemplated when the Ministry originally negotiated the performance agreement that governs the accountability relationship between the two parties. The Ministry acknowledged this and indicated that these changes hindered its ability to obtain the information needed to exercise adequate oversight.

It should be acknowledged that Ornge has made improvements to certain aspects of service delivery, including a new paramedic training program, and ongoing upgrades to the dispatch system to improve functionality and reliability. It has also assumed additional responsibilities, including certain critical-care land ambulance services in 2008. Furthermore, Ornge has obtained and maintained certification by the International Commission on Accreditation of Medical Transport Services. Consequently, some increase in operating costs may be justified. However, the Ministry needs better information if it is to ensure that the increase in annual funding has been well spent on improving the timeliness, volume and quality of services provided.

Examples of areas about which the Ministry had not been receiving the information it needed for proper oversight and which would have warranted follow-up included the following:

- Ornge management, with approval of its board, created a network of for-profit and not-for-profit subsidiaries and other companies with which Ornge has entered into complex financial arrangements to deliver air ambulance services. In fact, much of Ornge's operation is being delivered by these other entities, which bill Ornge for those services. In a detailed January 2011 letter to the Minister of Health and Long-Term Care, Ornge outlined its plans to establish a number of independent for-profit companies effective January 1, 2011. These entities were not covered by the performance agreement Ornge has with the Ministry, and therefore the Ministry would likely not have access to the records of these entities. Despite this, however, the Ministry did not obtain sufficient additional information about these entities. As a result, the Ministry cannot periodically spot-check whether the costs incurred by these entities and billed back to Ornge are reasonable or whether potential conflicts of interest have been avoided. Avoiding potential conflicts would be especially important given that the January 2011 letter indicated that some members of Ornge's management and board were shareholders of certain of these entities.
- The building that houses Ornge's corporate head office was purchased for $15 million using funding borrowed through a bond issue. Ornge then entered into a complex arrangement with some of the other entities it created to sell the building and lease it back to itself. An independent real-estate appraiser we engaged estimated that, under its lease with a related Ornge company, Ornge's rent payments are 40% higher than the fair-market rent. Over the first five years of the 25-year lease, this amounts to Ornge paying $2 million more than it would pay if the building's cost per square foot were comparable to that of similar buildings in the area. Ornge's above-market rent enabled one of the entities involved in the arrangement, Ornge Global Real Estate, to obtain $24 million in financing for the building that Ornge paid $15 million for. We understand that the $9 million "profit" generated as a result was being flowed to a company called Ornge Global Holdings LP for

Ornge's future purchase of limited partnership (ownership) units of that company. At the time of our audit, Ornge Global Holdings LP was owned by members of Ornge's senior management and the board.

- Previously, Ontario's air ambulance operations contracted with various private-sector aircraft providers to transport patients. Ornge decided that, rather than relying on private-sector operators, it would purchase new helicopters and airplanes to provide much of Ontario's air ambulance services. Because of certain features that Ornge wanted its aircraft to have, an open public competitive tender was not used. Rather, three helicopter and two airplane suppliers were invited to bid. Although Ornge's own analysis indicated nine helicopters and six airplanes were needed, Ornge purchased 12 new helicopters and 10 new airplanes. Ornge advised the Ministry that the excess capacity could be made available to its other business ventures.
- After buying 12 new helicopters for US$148 million, Ornge arranged to install seating for 12 people in two of them. As a result, these helicopters could not be used to transport patients. Ornge told us it was considering selling these two helicopters.
- After Ornge bought the 12 helicopters, their European manufacturer agreed to donate US$2.9 million to Ornge's charitable foundation "to provide improved patient care and facilitate the education and training of transport medicine professionals." Of this amount, US$500,000 was spent to have two custom-made motorcycles built and to use them to promote Ornge, including having them appear on *American Chopper*, a television show featuring a California company called Orange County Choppers that makes custom motorcycles. One of the motorcycles was also used in a promotional event at a Blue Jays baseball game and at the time of our audit was on display in the lobby of Ornge's office building. Ornge recently informed us that the second motorcycle may still be with Orange County Choppers in the United States.
- We understand that in August 2010, the European helicopter manufacturer agreed to pay Ornge another $4.8 million (subsequently reported to be a higher amount) for future marketing and other services. Shortly after our audit fieldwork began, the responsibility for this contract was retroactively transferred from Ornge to one of the for-profit corporate entities that we were refused access to, and, as noted in the Audit Objective and Scope section, we were unable to review the contract as part of our audit.
- In addition to purchasing 12 new helicopters, Ornge spent $28 million for 11 used and aging helicopters, planning to use them for less than two years while it waited for the new ones to be delivered. At the time of our audit, Ornge told us it believed this would be more cost-effective than entering into another service agreement with the service provider. Ornge obtained an external consultant's opinion that supported its decision. At the time of our audit, Ornge was in the process of disposing of the 11 used helicopters for what was expected to be less than $8 million.
- Ornge has borrowed almost $300 million to finance, among other things, the purchase of the 12 new helicopters, 10 new airplanes, the 11 used helicopters and the new office building. This debt is included in provincial debt in the province's financial statements, and the Ministry is funding the ongoing financing payments.
- At the time of our audit, there was a lack of transparency surrounding the compensation of many senior management staff and board members. (Since that time, at the request of the Ministry, Ornge has publicly disclosed certain of these compensation payments.)
- Since the 2007/08 fiscal year, the Ministry has given Ornge more than $13 million annually to

provide certain inter-facility transfers by land ambulance without finding out how many transfers Ornge has actually made, the type of transfers or whether this transfer arrangement is cost-effective. In fact, Ornge is currently providing only about 15% of the 20,000 transfers it initially projected. As a result, the cost per patient that Ornge is incurring for these transfers is about $7,700. This is much more than the $1,700 per patient that Ornge pays Toronto Emergency Medical Services to provide inter-facility patient transfers on its behalf and almost as high as the cost Ornge incurs to transport a patient by air ambulance. The Ministry made the arrangement with Ornge because municipalities prefer to devote their ambulance resources to emergency calls rather than use them for inter-facility transports. The arrangement also included providing Ornge with funding to purchase its own land ambulances.

- Ornge's dispatch system does not automatically record the times of key events in the dispatch and patient transfer process. Without this information, it is difficult to objectively assess Ornge's success in meeting the two performance standards for responding to requests for an air ambulance. In those cases where relevant data was entered, we were able to determine that Ornge was successful in responding to about 85% of on-scene emergency calls within 10 minutes of call receipt, the required standard. However, only about 40% of the emergency and urgent inter-facility calls were accepted or declined within 20 minutes of call receipt. Although Ornge has reported it almost always meets the performance agreement standard, it measures this time from when it has obtained all patient details, not from the time of the call receipt, which we believe to be a more applicable benchmark from the patient's perspective. Our analysis is also more consistent with the results of a survey in which almost half of the medical professionals who responded said that Ornge rarely or never provided inter-facility ambulance service within a "reasonable time."

The Ministry also needs to consider the long-term impact of Ornge having created its own airline and relying much less on other well-established air ambulance service providers. Significant dependence on one service provider poses potential risks, especially if other private-sector air ambulance providers can no longer stay in business. With fewer potential service providers, the Ministry will have reduced negotiating power in future funding agreements because it will have no option but to rely on Ornge for the delivery of Ontario's air ambulance services.

It should be acknowledged that, as a result of our bringing a number of these observations to the Ministry's attention during the course of our audit, as well as later media reports concerning Ornge, the Ministry has recently taken substantive action to address many of the issues raised in this report. Certain issues will take additional time to resolve in the most cost-effective manner given that Ornge's first priority must be to ensure the safe and timely transport of patients needing air ambulance and related services.

Detailed Audit Observations

OVERVIEW OF THE PATIENT TRANSPORT PROCESS

Ontario covers an area of over 1 million square kilometres, with much of northern Ontario sparsely populated. This makes meeting patient needs for air ambulance services in a cost-effective manner an ongoing challenge.

More than 90% of the calls Ornge responds to are transfers of patients from one hospital to another rather than on-scene accident transports. Generally, the Ornge Communication Centre (Centre) arranges flights after requests from either

a physician or CritiCall, an organization funded by the Ministry of Health and Long-Term Care (Ministry) that helps arrange transfers. Land ambulance dispatch centres operated primarily by the Ministry or municipalities may also ask the Centre to pick up persons injured in an accident. Ornge will typically approve an air or land ambulance if certain criteria are met, examples of which are described in Figure 2. Ornge's transport-medicine physicians, with expertise in emergency medicine and critical care, generally make the final decision on whether to send an ambulance.

Ornge's computerized dispatch system determines the level of care a patient needs during transport and then identifies paramedics with the appropriate qualifications (basic primary care, intermediate advanced care, or extensive critical care) to provide the service. If the appropriate paramedics are not available for inter-facility transfers, a hospital escort, such as a nurse, may need to accompany a patient.

Once they reach a patient, paramedics stabilize the individual as required and transfer him or her to the ambulance. An Ornge transport-medicine physician provides medical guidance to paramedics as needed during this process. Ornge paramedics are also responsible for completing a call report within 24 hours of delivering the patient, which is provided to the admitting hospital.

When Ornge assumed responsibility for air ambulance services, it identified a number of issues that it planned to address. Some examples were the need for a communications centre disaster recovery plan, aging information technology systems, aging assets and a lack of performance metrics. Ornge has made a determined effort to improve the air ambulance system, including updating the dispatch system and furthering paramedic training. The Ministry is the steward of Ontario's air ambulance system and, although it gave Ornge responsibility for service delivery, it is still responsible for ensuring that Ornge is meeting patient needs in a cost-effective manner. Much of its ability to do so is governed by the Ministry's performance agreement with Ornge. In the following sections, we raise some issues regarding this agreement and the Ministry's monitoring of Ornge.

Figure 2: Selected Criteria for Dispatching Ornge Ambulances

Source of data: Ornge

Criteria for Air Transport
Transport distance exceeds 240 km
Patient location has no roads that land ambulance can use
Land ambulance would take more than 30 minutes to reach emergency patient at accident scene
Criteria for Land Transport
Critically ill patient requires transfer to another hospital and the transport-medicine physician has determined the patient can travel safely by land
Patient meets air ambulance criteria but circumstances such as bad weather prevent flight from taking off

ORNGE'S PERFORMANCE AGREEMENT WITH THE MINISTRY

In 2005, the Ministry was operating Ontario's air ambulance service, with a division of Sunnybrook Health Sciences Centre in Toronto providing medical oversight. At that time, it contracted with private operators to transport patients, using these operators' aircraft, pilots and paramedics. In our *2005 Annual Report*, we raised a number of service-delivery issues and noted the observation by the Commission on Accreditation of Medical Transport Systems (an independent American organization) that the system had no clear lines of authority. That year, Management Board of Cabinet decided to award the contract for Ontario-wide air ambulance services, without a competitive process, to the Ontario Air Ambulance Services Corp (Corporation), which was renamed Ornge in 2006. The Corporation was a small organization based at Sunnybrook that was providing medical oversight for Ontario's air ambulance service. As a result of the contract, the Corporation acquired the Ministry's air ambulance assets, such as its dispatch system and the right to use the air ambulance bases.

The contract, which was essentially a performance agreement, became effective in January 2006 and has no expiry date.

The decision to appoint a single new supplier to meet the needs of the entire province, rather than, for example, conducting a public request for proposals or continuing to contract with a variety of established regional service providers, was a policy choice of the government. The government's objectives in making this choice included improving patient care and optimizing safety, increasing efficiency and integration with the health-care system, and developing and renewing human and technological resources. In a July 2005 announcement, the Ministry said that "having all air ambulance services under one organization will make the system more accountable, more efficient, and easier for front-line health-care workers and Ontarians to use and to trust."

The performance agreement gave Ornge responsibility for making all key operating decisions relating to the service it was to provide, including:

- how to provide service (for example, whether to use Ornge's own aircraft or to contract with private operators);
- how many and which type of aircraft are to be available for use;
- how to establish and evaluate medical oversight;
- when to dispatch ambulances and which type of transport to choose; and
- which paramedics, based on level-of-care qualifications, should assist each patient transported.

In light of the high degree of responsibility and decision-making power the performance agreement gave Ornge, it was important for the Ministry to have adequate processes in place to protect its interests.

Monitoring of Ornge's Performance

Both in appearances before the Standing Committee on Public Accounts and in its submission to Management Board of Cabinet for approval to outsource air ambulance services, the Ministry committed to establishing performance standards and monitoring the performance of its external service provider against those standards. In particular, in outlining its plans for the Corporation (later renamed Ornge) to the Standing Committee on Public Accounts in February 2006, the Ministry committed to set standards and monitor performance against those standards to ensure that the "end result will be improved care, improved access to service, increasing effectiveness and efficiency of the delivery of service, and the assurance of greater fiscal and medical accountability." As well, the Ministry's original submission to Management Board of Cabinet requesting approval for the Ornge arrangement specified that obtaining and evaluating performance information of this nature would be an essential part of the Ministry's oversight function. Performance measures, if well defined and specified in a performance agreement with its service provider, would be a critical step in enabling the Ministry to ensure that Ornge was meeting patient needs in a cost-effective manner.

We noted that the performance agreement did contain a number of administrative and reporting requirements that Ornge must comply with. For example, Ornge must establish procurement policies that are consistent with government policies and directives. There are also various operating requirements—Ornge must ensure that medical staff are qualified, maintain the confidentiality of sensitive information and document each call manually if electronic recording is unavailable. The agreement also states that the Ministry can terminate the agreement if Ornge does not comply with the requirements within a certain time. However, the performance agreement has only two specific and measurable response-time requirements relating to requests for air ambulance services. As well, we understand that the additional corporate entities that Ornge unilaterally created were not covered by the performance agreement, even though they were providing a number of key services.

The Ministry reviews Ornge's funding needs as part of its annual estimates process and receives from Ornge an annual budget, audited financial statements, five-year business plans and quarterly financial reports. The Ministry advised us that, in addition, it meets periodically with Ornge to discuss plans and issues. The Ministry also reviews Ornge every three years for compliance with service requirements specified in the *Ambulance Act*, in much the same way that it reviews land ambulance service providers. However, it does not routinely receive basic operational data, such as the number of patient transports by type of transport and the average cost of transports.

In 2008, the Ministry contracted through its Internal Auditor to have a special review done to determine whether Ornge was complying with several aspects of the performance agreement and had adequate administrative processes in place. The review covered the period from Ornge's commencement of air ambulance operations to November 2008. It focused on the 12-month period ending March 31, 2008. The results, issued in September 2010, indicated that Ornge had a number of good policies and processes in place to manage its affairs economically and efficiently. The review also made several recommendations to further strengthen some of Ornge's internal management processes and to improve communications between the Ministry and Ornge. They included improving the timeliness and usefulness of the information Ornge reported to the Ministry. Examples of the review's findings included the following:

- The performance report, called a "balanced score card," that the performance agreement required Ornge to complete every year beginning in July 2007 had not been provided.
- There had been disagreements regarding each party's interpretation of performance agreement provisions that required clarification and agreement.
- The Ministry needed to obtain more comfort regarding Ornge's corporate structure and its impact on the delivery of air ambulance services in Ontario.

We had similar concerns based on our review of more recent information. For example, although Ornge provided the Ministry with its first balanced score card in 2009, the score card did not contain the kind of performance information that would allow the Ministry to assess the level of service Ornge was providing relative to the costs it was incurring. One reason for this is that the performance agreement does not specify the service expectations, performance indicators or other information that the balanced score card ought to include.

Ornge's descriptions of its accomplishments were quite brief and not very helpful in assessing performance. For example, one activity was to "review and revise [the] Ornge Communications Centre processes related to requests for service." Ornge reported that it had complied with this requirement, stating that the "process for call triage and level of care required has been reviewed." However, it did not provide the Ministry with the results of this review or any related actions taken. The Ministry did not request additional information or verify the accuracy of the information it received.

At the time Ornge and the Ministry entered into the performance agreement, the information systems the Ministry was using could not provide all the information needed to effectively monitor air ambulance operations. Therefore, it may have been initially difficult to establish targets and other performance measures that Ornge could readily report on. However, at the time of our audit five years later, there were still few measures in place. We believe the Ministry ought to have established more specific performance expectations and obtained reports more regularly from Ornge comparing actual performance to those expectations.

The performance agreement has two air ambulance response-time indicators: one is how long Ornge takes to determine its ability to respond to an on-scene call, and the other is how long Ornge takes to determine its ability to respond to a request for an inter-facility transfer. But other key

performance indicators are not reported on, such as the percentage of requests being serviced and the percentage of calls where an air ambulance was supplied at the appropriate level of care. Other important information needed for monitoring performance would include the main reasons for which requests could not be serviced.

Funding Provided to Ornge

Under the agreement between the Ministry and Ornge, Ornge was to receive $111 million in provincial funding for the 2006/07 fiscal year and $115 million a year in each of the next four fiscal years, along with possible additional funding for increased costs. The Ministry and Ornge were to annually negotiate the amount of funding thereafter (there is no end date in the agreement). Figure 3 summarizes actual ministry funding to Ornge from the commencement of Ornge's air ambulance operations in January 2006 to the 2010/11 fiscal year.

Since the Ministry and Ornge signed the agreement, the Ministry has given Ornge increases averaging about 4% each year on top of the contracted amount. As well, the Ministry provided additional funding for specific initiatives that it introduced since signing the agreement. For example:

- $9.4 million in one-time start-up funding in the 2006/07 fiscal year to create a land ambulance program for the inter-facility transfers of certain patients;
- $13 and $16 million in the 2007/08 and 2008/09 fiscal years, respectively, and then $13 million starting in 2009/10, with annual increases thereafter, to provide land ambulance services to critically ill patients, such as those in a hospital intensive-care unit who require transfer to another hospital; and
- $3.7 million in the 2007/08 fiscal year and $6.6 million in each fiscal year thereafter to provide more air ambulance services through two additional aircraft (the Ministry indicated that this funding was originally to provide air ambulance support for the Thunder Bay angioplasty program, but only three of the program's patients have required an air ambulance since the program began, and therefore Ornge used this funding for regular operations).

The 2004/05 fiscal year was the last full fiscal year in which the Ministry provided air ambulance services, and it spent $93 million on them. In 2005/06, the Ministry delivered the services for the first nine months of the fiscal year at a cost of $73.7 million and provided Ornge with $30.9 million plus $5.1 million in transitional funding to provide the services for the last three months. The number of patients transported that year increased by 5%.

The 2006/07 fiscal year was the first full fiscal year of Ornge's operations, and the Ministry gave Ornge $112 million to provide air ambulance services plus an additional $9.4 million in one-time funding to establish the land ambulance program. While the Ministry had no analysis supporting the reasonableness of the $112 million, it indicated that it based the amount negotiated with Ornge on past expenditures and on anticipated increases resulting from expected future renegotiations of air-carrier contracts. However, there is no documented explanation for the $19-million, or 20%, increase from what the Ministry spent in 2004/05. The

Figure 3: Ministry Funding to Ornge, January 2006–2010/11 ($ million)

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

Type of Funding	Jan–Mar 2006	2006/07	2007/08	2008/09	2009/10	2010/11	Total
Air ambulance	36.0	111.5	121.2	126.6	131.1	135.9	662.3
Land ambulance	–	9.4	13.2	16.2	13.1	13.7	65.6
Other	–	0.4	0.7	1.1	–	–	2.2
Total	**36.0**	**121.3**	**135.1**	**143.9**	**144.2**	**149.6**	**730.1**

increase in the total number of patients transferred between 2004/05 and 2006/07 was 2%, excluding the transfers that Toronto Emergency Medical Services performed that were dispatched by Ornge but were directly funded by the Ministry.

We noted that in 2006, at a hearing on our 2005 audit of air ambulance services that the Standing Committee on Public Accounts conducted, the Committee Chair questioned a ministry official about whether the agreement with Ornge would result in a "more expensive, costly system." The official replied, "The agreement with [Ornge] calls for the same funding that we have in the base at the Ministry of Health and Long-Term Care for air ambulance. It will be no more expensive [than] for the government to provide that type of service."

Factoring in the above additions, including the 4% average annual increase, annual ministry operating funding to Ornge increased by more than 30% in the first four full fiscal years that Ornge delivered the service. By 2010/11, Ornge was receiving $150 million a year, about 90% of which related to air transports. Over the same four-year period, the number of patients transported by air decreased by about 7%, as shown in Figure 4. The number of land transports in 2010/11—more than 2,800—was far lower than the number the Ministry had anticipated when it determined how much funding it would provide for Ornge to take on these land ambulance responsibilities. In total, patient transports have stayed about the same over the four-year period.

Monitoring of Ornge Spending

For a variety of legal and business reasons, Ornge created a number of organizations between 2006 and 2010. They include:

- Ornge Peel, which provided administrative support such as human-resources and accounting services, and which employed most of Ornge's senior executives; and
- Ornge Issuer Trust, a financing vehicle for Ornge, which issued bonds in 2009 (we discuss this transaction in detail in the Debt Financing of Air Ambulance Services section).

The boards of directors of these organizations were composed entirely or primarily of the individuals who comprised Ornge's board.

Subsequent to January 1, 2011, Ornge no longer controlled the two organizations providing most of the services to Ornge on a cost-recovery basis. Furthermore, in 2011, almost all of Ornge's senior management became employees of a new for-profit international business they began operating. It included such companies as Ornge Global Air Inc.,

Figure 4: Number of Patient and Other Transports[1] by Type, 2006/07–2010/11

Source of data: Ornge

Transport Type	2006/07	2007/08	2008/09	2009/10	2010/11
Air Transport					
Air ambulance flights	16,286	14,895	15,355	15,691	15,273
Scheduled commercial airline flights[2]	1,331	1,215	950	1,102	1,174
Total	**17,617**	**16,110**	**16,305**	**16,793**	**16,447**
Land Transport[3]					
Ornge	–	34	556	1,365	1,487
Toronto Emergency Medical Services	1,808[4]	1,449	1,342	1,117	1,340
Total	**1,808**	**1,483**	**1,898**	**2,482**	**2,827**
Grand Total	**19,425**	**17,593**	**18,203**	**19,275**	**19,274**

1. Up to 3% of transports are for organs or medical teams.
2. To transport people to medical appointments where no paramedic is required.
3. An individual patient transported by both land and air is counted in both the Air Transport and Land Transport numbers.
4. In 2006/07, the Ministry directly funded Toronto Emergency Medical Services for land ambulances dispatched by Ornge.

Ornge Global Corporate Services Inc. and Ornge U.S. Inc. (collectively referred to as Ornge Global and described further in the Ornge Global section).

Ornge has made complex financial arrangements with many of these companies. One example involves Ornge Issuer Trust, which owns the airplane and helicopter ambulances and leases them to Ornge Global Air Inc. Ornge guarantees the lease payments and will pay them if Ornge Global Air Inc. does not. In turn, Ornge Global Air Inc. subleases all helicopter air ambulances to an external air ambulance service provider under agreements that are to expire March 31, 2012. Ornge then contracts to have Ornge Global Air Inc. provide service either through contracts with independent service providers (including the one that leases the helicopters from Ornge Global Air Inc.) or with its own leased aircraft and pilots. Ornge Global Air Inc. charges Ornge for the aviation services, including associated administration costs, whether it provided the services directly or through a service provider.

The performance agreement allows the Ministry to examine those Ornge records that relate to service provision. But it does not allow the Ministry to recover any unspent air ambulance funding (the Ministry can recover unspent land ambulance funding, but land ambulance funding amounts to less than 10% of its total funding to Ornge). Furthermore, because the performance agreement applies only to Ornge and not to any other entity, it does not entitle the Ministry to access the books and records of any of the entities that Ornge directly controls or of the other for-profit business entities involved in many aspects of Ornge's air ambulance operations. In essence, the Ministry has no right of access to the supporting records of the costs being incurred by these companies, which then bill Ornge for the operational and administrative services they provide.

The Internal Audit review of Ornge transactions to 2008 that the Ministry commissioned concluded that the Ministry's contract with Ornge should be revised to give the Ministry more comfort regarding Ornge's corporate structure and its impact on the delivery of air ambulance services. We agree.

The performance agreement also requires Ornge to periodically submit various financial reports to the Ministry. These include quarterly variance reports that explain any differences between planned and actual expenditures. The variance reports have generally been submitted each year but in most cases lacked detailed explanations. We noted that the Internal Audit review that the Ministry commissioned also recommended that Ornge include more detail in its explanations of variances. We agree.

Ornge is also required to submit audited financial statements within three months of the end of the fiscal year. Since the 2008/09 fiscal year, Ornge has consolidated the financial-statement information of entities it controls or is the beneficiary of in its audited financial statements. The Ministry's performance agreement with Ornge does not require a further breakdown by consolidated entities. Therefore, at the time of our audit, the Ministry did not have the information needed to separate out the many transactions that involve Ornge's consolidated entities from those that do not.

The agreement also requires Ornge to submit an operating budget to the Ministry each year, and Ornge has submitted five-year operating budgets.

Ornge's Transactions With Entities It Controls or Of Which It Is a Beneficiary

Under the *Auditor General Act*, we were entitled to unrestricted access to all of the entities Ornge consolidates in its financial statements. However, the operations of the new for-profit international businesses, collectively referred to as Ornge Global, are not included in Ornge's financial statements, and therefore Ornge Global did not allow us to access the records of these entities.

Our examination of selected transactions that we were able to scrutinize found numerous examples where ministry oversight would have been useful, including the following:

- Millions of dollars were paid to one law firm between the 2008/09 and 2010/11 fiscal

years for various matters, including structuring and procurement advice, financing issues and numerous business agreements.

- In 2010, Ornge's top five senior executives received a total of $2.5 million (this amount was subsequently reported to be higher). We were advised that, because most of Ornge's senior executives were employed by an Ornge for-profit subsidiary that year, there was no requirement for their compensation to be disclosed under the *Public Sector Salary Disclosure Act* or the performance agreement. Despite this, however, we still feel the Ministry should have had access to this information (certain of this information was disclosed after we completed our audit fieldwork).
- Ornge's six board members were paid a total of $643,000 in the 2010/11 fiscal year as a "retainer," with one board member receiving more than $200,000. This did not include reimbursement for any other expenses incurred by board members.

Ornge told us that ministry funding was not used for certain of these payments. Instead, other means, such as Ornge Global borrowing money from Ornge, were used. Ornge also informed us that the borrowed money had not been originally obtained from the Ministry.

We also noted that Ornge transferred $8.4 million of ministry funding in 2008 to its charitable foundation (we understand that this foundation is being wound down). The foundation used the money to purchase items such as a mobile trailer for training paramedics, computer hardware and patient simulators. These items were made available for Ornge's use and subsequently for Ornge Global's use. Ornge advised us that it can have the equipment gifted back to itself should the need arise.

Ornge Global

In October 2010, a committee of three non-management Ornge board members began to assess a plan, prepared by Ornge's management at the board's request, to create new entities to pursue revenue opportunities outside Ontario. Ornge indicated that it had determined that it required third-party investment to obtain non-ministry income. These opportunities included providing medical services to travelling executives and consulting services to foreign governments. It was expected that the new entities would seek investments from other countries, including the United States.

Ornge indicated that a share of the revenues generated by the proposed new entities (a group of companies collectively called Ornge Global), along with additional funding from the Ministry, would help Ornge service more patients. For example, this money would allow Ornge to hire more pilots and paramedics. A master licence agreement set out how much Ornge would receive from Ornge Global (3% of gross revenues from non-Ontario system activities) for use of Ornge's intellectual property, such as operating manuals and the Ornge name. A consulting firm that Ornge hired to examine the agreement reported in January 2011 that, with qualifications, the agreement was "fair and reasonable" to Ornge. Ornge Global Management Inc. (one of the Ornge Global entities) had also pledged to make voluntary donations to Ornge. Under both the licence agreement and the pledge, no payments would be required to be made to Ornge for at least three years, and the combined lifetime maximum payable under both was $200 million. The pledge was also subject to first satisfying financial obligations under Ornge Global Management Inc.'s shareholder's agreement.

The board committee was also to consider the "commercial reasonableness" of transferring ownership of two Ornge subsidiaries to Ornge Global for $2. Ornge management indicated that it felt this was their fair-market value. The staff of the two subsidiaries were also transferred, as well as Ornge's agreements with these two subsidiaries. The agreements included the companies providing accounting, payroll processing, aviation, aircraft maintenance and pilot management services "at cost." Another agreement moved Ornge's CEO and

two other senior executives to the new entity, which would then sell back their services to Ornge, also "at cost." (Ornge continued to employ paramedic, dispatch and medical staff.)

The risk with such arrangements is that "at cost" could be more expensive than what Ornge might otherwise pay if, for example, the new entity pays higher salaries, enters into complex arrangements requiring considerable administration and professional fees or acquires more capacity than it needs. Further, as already noted, under the performance agreement, the Ministry would be unable to verify that the amounts it pays directly or indirectly reflect actual costs or that these costs are fair and reasonable. Senior executives might, for example, work primarily on the international side of the business, and therefore it might be difficult for the Ministry to periodically verify how much time management spent on the affairs of each organization.

In fall 2011, after we had completed our fieldwork, Ornge indicated that three of the existing agreements between Ornge and various Ornge Global entities would be amended to provide Ornge with the right to audit the calculation of all "at cost" fees. However, unless the Ministry could select the auditor and direct the scope and frequency of such audits, we questioned whether this would provide the Ministry with the assurance it needs.

In addition, since Ornge's agreements with the subsidiaries were also transferred to Ornge Global, the committee did not review whether Ornge could buy services such as accounting, payroll processing, aviation, aircraft maintenance and pilot management for less than what Ornge Global would charge.

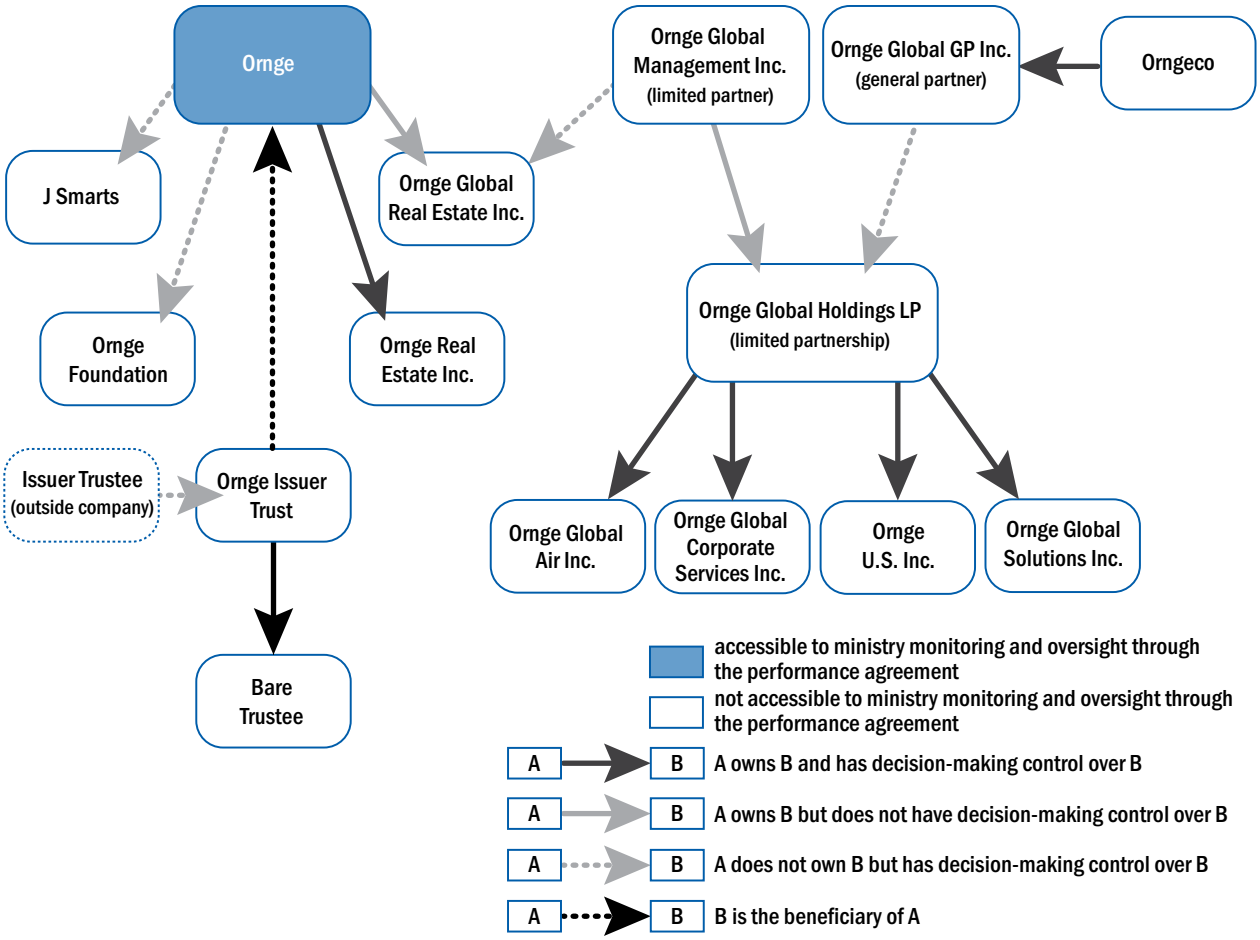
In November 2010, on the basis of preliminary feedback from its committee, the board authorized the creation of the Ornge Global structure. That month, a new entity, Ornge Global Management Inc., came into being, and companies affiliated to it began to be formed. The decision to further proceed with these arrangements was contingent on the findings of several reports still to be received, including one from the board committee. The board received all these reports two months later, in January 2011.

Members of the committee, as well as the other board members and certain members of senior management, became 99.999% owners of the new entity. Members of senior management owned about 94%. Members of the board committee informed us that they were not aware they were going to be owners until after they had approved the decision to create the new entity. Our request to see a listing of the initial owners was refused. Ornge management indicated that they expected their ownership share to decrease subsequent to future investments by third parties.

The decision to go ahead with the creation of Ornge Global ultimately resulted in the creation of a complicated network of new companies that Ornge indicated was warranted for various legal, tax, accounting and other reasons. This corporate structure, existing independently of Ornge and its subsidiaries, is illustrated in Figure 5. In December 2010, Ornge requested a meeting to brief the Ministry on the new business ventures, and subsequently, in January 2011, met with the Ministry to provide an overview of its new ventures. The board chair also sent a very detailed letter to the Ministry and other senior government officials outlining many of its corporate restructurings.

Ornge management told us that non-ministry sources were funding the new business venture. For example, Ornge management described for us an agreement that one of its subsidiaries transacted, effective August 2010, to provide marketing services for a fee of $4.8 million (subsequently reported to be a higher amount) to the European company that sold the helicopters to Ornge. However, the agreement appeared to us to be the agreement envisioned in the original helicopter purchase contract, signed in 2008, which said that Ornge and the helicopter supplier would "use their best efforts to develop a joint marketing program for the purpose of promoting each other's products and services on a non-exclusive basis in mutually agreed upon countries." Ornge management, who

Figure 5: The Ornge and Ornge Global Corporate Structure at March 31, 2011
Source of data: Ornge



also are senior management of Ornge Global, told us that this particular clause had been waived and that the marketing agreement with Ornge Global was a totally unrelated transaction.

Although the marketing agreement with the helicopter supplier was signed by an Ornge subsidiary, we were denied access to it because Ornge indicated that the Ornge subsidiary had been working on behalf of Ornge Global when transacting it.

In this regard, in December 2010, shortly after our audit fieldwork began, Ornge's CEO (representing an Ornge Global entity) and Ornge's Executive Vice President of Corporate Services (representing the Ornge subsidiary) signed a preformation agreement stating that the Ornge subsidiary was acting on Ornge Global's behalf in this and other matters since April 2010. We were advised that the preformation agreement was necessary for legal, tax and other business reasons. However, it also had the effect of denying us access to all transactions that the agreement indicated Ornge had performed on Ornge Global's behalf since April 2010. Ornge advised us that because our legislation allows us access only to organizations receiving direct or indirect government funding and Ornge Global was not such an organization, we were not entitled to access.

Debt Financing of Air Ambulance Services

The performance agreement does not require that Ornge obtain ministry approval to borrow money.

In 2009, Ornge informed the Ministry and the Ontario Financing Authority that it was planning to borrow $275 million through a bond issue. It said it would use the money for "general corporate purposes" and capital purchases, such as space for its corporate head office, as well as for aircraft as it moved from contracting with external providers to deliver air ambulance services to delivering certain of those services itself.

Ornge Issuer Trust issued the bond in June 2009. The bond bears annual interest of 5.727% and will mature in June 2034. It requires payments of only interest until June 2012 and then principal as well as interest thereafter. The cost to arrange this financing was $2.5 million. Key to securing the financing was Ornge's performance agreement with the Ministry, given that the Ministry was funding 99% of Ornge's operations. The credit rating Ornge was assigned in June 2009 was primarily based on factors that included the "strong support from the province, a high degree of integration with the provincial health system, [and] the essentiality of the services provided…"

According to Ornge, about $16 million in interest payments were paid in the first year of the bond, using $4 million of ministry funding and $12 million of the bond funding itself. In the second year, Ornge was expected to use about $16 million in ministry funding for bond interest payments. Beginning in the 2013/14 fiscal year, principal and interest payments will total about $22 million a year. Because Ornge has few sources of revenue other than the Ministry, we expect that ministry funding will need to be used to make continuing interest and principal payments.

Although Ornge required no approval from the Ministry to borrow the money, Ornge has guaranteed that it will repay the debt. Further, the $275 million is part of the province's liabilities for accounting purposes and appears in Ontario's financial statements as part of the province's total debt. One concern we have is that under the new organizational structure, the assets acquired with the bond proceeds are mostly controlled by companies to which the Ministry does not have access under the performance agreement. The performance agreement states that Ornge "shall not sell, lease or otherwise dispose of any assets, other than in the usual and ordinary course of business, purchased with Ministry Grant Funding without the Ministry's prior written consent." It further states that "all of the Assets which continue to be in the possession of [Ornge] as well as the assets of [Ornge] that were paid for with the Grant Funding shall become the property of the Ministry upon the termination of the Agreement." However, as a result of arrangements whereby assets are held outside of Ornge, $210 million worth of assets being funded by the Ministry were not the property of Ornge as of December 31, 2010. At that time, only about $5 million in assets being bought with ministry funding belonged directly to Ornge. Ornge indicated that its position is that the Ministry has no legal interest in any of Ornge's assets because they were purchased with funds borrowed from non-ministry sources. Ornge stated that, rather, it is using ministry funding to pay third parties, such as its consolidated entities, for the use of these assets. Given, among other things, that the purchase of these assets was funded by a bond that is part of the province's reported liabilities, we believe the Ministry needs to satisfy itself that its interests are protected.

Significant Purchases

The performance agreement makes Ornge responsible for "the procurement necessary for the delivery of the Air Ambulance Services."

Corporate-head-office Space

When Ornge assumed responsibility for air ambulance services, it initially received only the space the Ministry had been leasing for the dispatch centre. Ornge therefore leased 34,000 square feet at that time to house its head office and consolidate other functions such as dispatch and medical oversight. It

subsequently determined that it needed more space and that it needed to obtain cash for Ornge to invest in Ornge Global. The series of events that followed these decisions is illustrated in Figure 6.

As described in Figure 6, Bare Trustee, a subsidiary of Ornge Issuer Trust, originally bought the head-office property in July 2009 for $15 million using some of the money borrowed through the $275-million bond issue. In January 2011, Bare Trustee sold legal interest in the property to Ornge Global Real Estate Inc. for $15 million and transferred beneficial ownership (that is, the right to benefit from the property) to Ornge. Ornge Global Real Estate Inc. then leased the property

Figure 6: Chronology of Key Events Relating to Head-office Space

Source of data: Ornge

Pre 2009	Ornge leases 34,000 sq ft of space to house its operations and subsequently decides it needs more space.
June 2009	Ornge Issuer Trust, a financing vehicle used by Ornge, issues a $275-million bond.
July 2009	Part of the bond proceeds is used to buy 72,000 sq ft of head-office space for $15 million. Bare Trustee, a subsidiary of Ornge Issuer Trust, owns the property and leases it to Ornge.
October 2010	A committee of the Ornge board begins to examine the reasonableness of a plan to create an international for-profit business venture, to be called Ornge Global.
November 2010	Ornge board authorizes the creation of the Ornge Global organizational structure.
	Ornge Global Management Inc. and Ornge Global GP Inc. are officially created.
December 2010	Ornge creates a subsidiary: Ornge Global Real Estate Inc.
	Ornge Global Holdings LP is officially created.
	Ornge issues a Declaration of Trust placing Ornge Global Real Estate Inc.'s single share of capital in trust with the newly created Ornge Global Management Inc. and giving it authority to make all decisions for Ornge Global Real Estate Inc.
January 2011	Ornge creates a subsidiary: Ornge Real Estate Inc.
	Ornge's board, after receiving reports from its committee, gives final approval to all organizational changes and agreements involving Ornge Global, subject to informing the Ministry of the details of its decision. The chair advises the Ministry in writing of its new business ventures and its new organizational structure.
	$9 million is obtained to finance Ornge Global's operations as follows: • Bare Trustee sells the head-office property to Ornge Global Real Estate Inc. for the original July 2009 price of $15 million. • Ornge Global Real Estate Inc. leases the property to Ornge Real Estate Inc. at above-market rent for 25 years. Ornge subleases the property from Ornge Real Estate Inc. on the same above-market-rent terms. • Ornge guarantees rent payments to Ornge Global Real Estate Inc. through an indemnity agreement that makes Ornge legally responsible for rent payments. • Ornge Global Real Estate Inc. borrows $24 million by issuing mortgage bonds, financed by a third-party financial-services company, based on the combined worth of the above-market-value lease and the property value. This is $9 million more than the $15-million purchase price of the property. • Ornge Real Estate Inc. and Ornge Global Real Estate Inc. issue debentures to guarantee payment of the mortgage bonds. • Ornge Global Real Estate Inc. pays $15 million to Ornge Issuer Trust to complete the transaction as described above.[1] • The remaining $9 million is to be loaned to Ornge Global for Ornge's future purchase of ownership units of Ornge Global Holdings LP.[2] • The provincial debt increases by the $24 million borrowed by Ornge Global Real Estate Inc.

1. Ornge indicated that Ornge Issuer Trust used these funds for capital acquisitions and to reduce non-bond debt.
2. Ornge indicated that $5.6 million had been loaned at the time of Ornge Global Holdings LP's bankruptcy in early 2012.

to Ornge Real Estate Inc. for 25 years. Ornge subleased the property from Ornge Real Estate Inc. on the same terms and conditions.

Under the lease, Ornge Real Estate pays Ornge Global Real Estate Inc. a rent of $20 per square foot a year in the first five years, $23 per square foot annually in years six to 10 and further increases every five years thereafter. A fairness opinion commissioned by Ornge concluded with qualifications that the lease rates fall "within a reasonable range of prevailing market rates."

We obtained an independent appraisal based on a comparison of similar properties in the same area. Our appraisal concluded that the annual fair-market-value rate for the first five years of Ornge's lease should be about $14 per square foot, not $20. The appraiser judged the annual market rate for the second five-year period of the lease to be $16 per square foot rather than $23. The appraiser also noted that most leases of this kind are for shorter periods than 25 years and found that, if it were vacant and not leased, the property would be worth only about $9.4 million.

One result of these transactions is that the Ministry is funding what we believe are above-market rent payments for 25 years on the head-office property. Another is that the high lease rates being paid over a 25-year term substantially increased the value of the building. Specifically, on the basis of the value of the building and the lease, Ornge Global Real Estate Inc. secured a $24-million mortgage bond through a third-party financial-services company. It paid Ornge Issuer Trust the $15 million for the property with money from the bond. According to Ornge, this $15 million was not used to pay down any of the $275-million bond because the penalties to do so would be onerous.

At the time of our audit fieldwork, Ornge indicated that it planned to loan the remaining $9 million to Ornge Global Holdings LP, whose sole limited partner is owned by certain members of Ornge's senior management and board. Furthermore, Ornge stated that it planned to use the $9 million for Ornge's future purchase of limited partnership (ownership) interest in Ornge Global. Since the time of our audit, Ornge Global Holdings LP has been declared bankrupt. Ornge informed us that, at the time of its bankruptcy, Ornge Global Holdings LP had been loaned $5.6 million of the $9 million.

Ornge advised us that it bought the bigger space in 2009 because it anticipated significant growth in staffing and business activities over the next five years. For example, it established a school to train air paramedics and it planned to offer consulting and other services as part of its private business ventures. Subsequent to our fieldwork, Ornge informed us that its most recent analysis indicated that 88% of the building would be used for Ontario-based activities by the 2013/14 fiscal year, with the other activities occupying and paying for the remaining space.

Aircraft

The performance agreement transferred the Ministry's contracts with 20 aircraft service providers to Ornge. Ornge used these and other service providers exclusively during the first two years of its existence. All of the service providers performed mainly inter-facility transfers. Three of them provided a higher level of patient care when needed and could perform pickups at accident scenes.

In 2008, Ornge issued an open and competitive request for proposals to aircraft service providers. Based on the detailed submissions it received, Ornge considered various air ambulance service-delivery options. Ornge indicated that, in light of factors such as its service providers' aging aircraft and the cost of maintaining them, it concluded that operating its own airline was the most cost-effective method of service delivery, as well as the best method for ensuring patient safety and quality of patient care. This would entail purchasing new aircraft, as well as some used aircraft while awaiting delivery of the new aircraft. Ornge also decided to continue to use the aircraft service providers primarily for patients requiring lower-level care.

Using funds borrowed through the $275-million bond, Ornge bought 12 helicopters (costing US$148 million) and 10 airplanes (costing US$42 million), for a total of about US$190 million. Ornge management told us that the specific features Ornge needed for the aircraft narrowed the field of possible suppliers. Therefore, instead of issuing a public request for proposals, it sent requests for information to only three helicopter suppliers (only one of which offered all the main features Ornge wanted) and two airplane suppliers. It subsequently entered into contracts with the helicopter supplier that offered all the main features (from Europe) and one of the airplane suppliers (from the United States). Ornge advised us that the new aircraft were faster and larger than those used by Ornge's service providers, could travel farther without refuelling and had de-icing capabilities.

In March 2009, 18 months before the scheduled delivery of the new helicopters, Ornge also purchased 11 used helicopters from one of its original service providers. It was to use these helicopters while awaiting delivery of the new aircraft. It paid about $28 million for the helicopters, which were more than 20 and, in some cases, 30 years old. It also paid about $2 million for four air bases and a crew facility. Ornge entered into a three-year agreement with this service provider to fly and maintain the helicopters. Ornge indicated that it had compared the cost of extending its agreement with the service provider with that of purchasing the 11 used helicopters and concluded that purchasing was the most cost-effective option. Ornge hired a consulting firm to examine the fairness of the agreement to acquire the air and base assets and to have the helicopter company provide pilot and maintenance services. The consulting firm's report concluded, with qualifications, that the agreement was financially fair to Ornge. With the arrival of its new helicopters, Ornge was in the process of disposing of the used helicopters at the time of our fieldwork in early 2011. It expected to receive less than $8 million for them.

Ornge's own analysis indicated that six airplanes and nine helicopters would be sufficient to serve the province's needs. However, Ornge bought 10 new airplanes and 12 new helicopters, as well as the 11 used helicopters to use while awaiting delivery of the new aircraft. It also planned to continue to use aircraft service providers for some flights.

In April 2011, we asked Ornge to outline how the new aircraft would be used given that Ornge purchased more than its analysis indicated were actually needed. Ornge indicated that its plans for the 10 airplanes were to operate five out of four air bases—with five extras for back-up, maintenance, rotation and training. This was two more than the three back-up airplanes it had in the 2006/07 fiscal year. Ornge did not have an analysis to demonstrate the need for these additional back-ups.

Ornge's plans for the 12 helicopters were to operate nine out of six air bases. Ornge said that the three other helicopters that it had no immediate need for were a reasonable purchase to ensure service availability in case any of the helicopters required more maintenance than anticipated. However, at the time of our audit, Ornge had requested the manufacturer to install seating for 12 people in two of the helicopters rather than having a medical interior installed, as was originally planned. The seating for 12 would have to be removed if the helicopters were to be used to transport patients.

Ornge advised the Ministry that its excess helicopter capacity could be made available to Ornge Global, depending on the needs of Ornge Global. Subsequent to our audit fieldwork, Ornge indicated that one of the three helicopters that it had initially determined it had no immediate use for would in fact be located at one of its bases and used to transport patients. It was considering selling the other two.

The European helicopter supplier subsequently pledged US$2.9 million over three years to Ornge's charitable foundation. The airplane supplier committed to about US$340,000 (2% of the purchase price of the airplanes). The helicopter supplier agreed to donate the funds "to provide improved

patient care and facilitate the education and training of transport medicine professionals." We noted that the helicopter supplier paid US$500,000 of its $2.9-million contribution to have two custom-made motorcycles built and to use them to promote Ornge. This included having them appear on *American Chopper*, a television show featuring a California company called Orange County Choppers that makes custom motorcycles. One of the motorcycles was used afterwards in a promotional event at a Blue Jays game and at the time of our audit was sitting in the lobby of Ornge's office building. Ornge recently informed us that the second motorcycle may be with Orange County Choppers in the United States.

Ornge indicated that it obtained input from, among others, paramedics and physicians when it designed the aircraft interiors. Despite this, Ornge paramedics still reported deficiencies with the interiors of the new helicopters. For example, there is not enough room to perform cardio-pulmonary resuscitation (CPR) without first rotating and manually lowering the patient's stretcher from the take-off and landing position. In addition, there is insufficient space to allow patients' heads to remain elevated for the entire flight. Some patients require elevation at more than 45 degrees to avoid breathing problems, and Ornge has determined that such patients would require a breathing tube (that is, intubation) in order to be transported by helicopter. Ornge estimated that these issues affect less than 200 patients annually and indicated that it has been working with the supplier to fully address these issues.

RECOMMENDATION 1

To ensure that the amount paid for air ambulance and related services is reasonable for the level of service provided, the Ministry of Health and Long-Term Care should:

- consider renegotiating Ornge's performance agreement to provide it with direct access to affiliated organizations with which Ornge has directly or indirectly entered into contracts, or develop an alternative mechanism to ensure that the public's interest in Ontario's air ambulance service is being protected;
- determine whether the amount it pays Ornge is reasonable by, for example, obtaining and evaluating information on the cost and delivery of air ambulance and related services compared to previous years and to costs incurred by other operators in Ontario and other jurisdictions; and
- establish, in consultation with Ornge, additional measurable performance indicators for air and land ambulance services, and obtain more frequent and informative reports on the extent to which these performance expectations are being met.

MINISTRY RESPONSE

The Ministry has informed Ornge that the performance agreement will be amended. The amended agreement will put a greater emphasis on performance standards and reporting to increase Ornge's transparency and accountability above that normally required of a transfer-payment recipient. The amended agreement will incorporate:

- increased emphasis on performance standards for operational and financial costs;
- increased reporting and disclosure obligations, including those for dispatch information;
- increased audit and inspection powers for the Ministry;
- requirements for Ornge to put a patient advocate-and-complaints process in place;
- more detailed financial planning, monitoring, control and reporting obligations;
- required compliance with legislation such as the *Public Sector Salary Disclosure Act, 1996* and the *Broader Public Sector Accountability Act, 2010*;

- required ministerial approval of any debt increases;
- required ministry approval before Ornge can change its corporate structure or form affiliations with for-profit entities;
- required ministry approval for any sale or encumbrance of assets;
- the granting of authority to the Ministry to approve annual budgets and make in-year and year-end funding recoveries;
- reduced funding for non-performance;
- a requirement that assets purchased with ministry funding be owned by Ornge and be transferred to the Ministry on the termination of the agreement;
- strengthened conflict-of-interest provisions;
- quality-improvement provisions based on the *Excellent Care for All Act, 2010*, including linking executive compensation to performance improvement targets in the annual quality plan;
- public reporting of specified information;
- protection for whistleblowers; and
- a reduced notice period for the Ministry to terminate the agreement.

The Ministry will also conduct an assessment of historical and interjurisdictional costs in the 2012/13 fiscal year to add to its knowledge base, using the costs as ongoing comparators.

LAND AMBULANCE SERVICES

Ornge's Commencement of Critical-care Land Ambulance Services

Prior to 2000, the Ministry's Emergency Health Services Branch provided land ambulance services, with vehicles deployed across the province primarily through ministry dispatch centres. The service gave priority to on-scene emergency calls but also performed inter-facility transfers.

In 2000, responsibility for land ambulances was transferred to Ontario's 40 upper-tier municipalities and 10 designated delivery agents in remote areas. The Ministry still had overall responsibility for the program and control over most dispatching. Our 2000 audit of land ambulance services expressed concern that municipalities would not want their ambulances operating outside their borders even if their ambulance was the closest to the patient needing pickup. This could result in inter-facility transfers being handled by ambulances that are not the closest ones, which ultimately could prove more costly.

In 2004, the medical director of a small organization that was providing medical oversight to Ontario's air ambulance service proposed to the Ministry the creation of a land ambulance system to transfer patients between health-care facilities. The medical director, who later became CEO of Ornge, proposed transferring about 26,000 acute-care patients each year, at a cost of about $15 million annually. At the time, the Ministry conducted no analyses to determine the actual number of patients requiring land ambulance transfers between health-care facilities each year. Ornge's 2005 formal business plan indicated that the organization will "directly provide service for up to 30,000 acute care land transfers annually." Ornge indicated at the time of our audit that this did not include patients served by Toronto Emergency Medical Services (TEMS). Ornge also indicated that the number of patient transfers was an estimate because no reliable data were available on the actual number of patient inter-facility transfers. In 2005, the proposed cost of doing this was $15 million for the 2005/06 fiscal year and $22 million per year thereafter until 2009/10.

In January 2006, an Inter-Facility Transfer Working Group, consisting of executives from the Association of Municipalities of Ontario and chaired by the CEO of Ornge, indicated that municipalities preferred to devote their ambulances to emergency calls rather than inter-facility transfers. As a result, the Working Group recommended a new system to exempt municipalities from having to perform inter-facility transfers of critically

ill patients. It recommended that such transfers instead be handled by a new service staffed with paramedics trained in critical care.

In October 2006, prior to approving the new critical-care land ambulance transfer program, the Ministry provided Ornge with $9.4 million for the purchase of vehicles and other start-up costs. At the time, the Ministry indicated that if the *Ambulance Act* (Act) was amended to enable Ornge to provide land ambulance services, Ornge would receive up to $15 million annually, starting in the 2007/08 fiscal year, to provide the service. The Ministry said that it did not use a competitive acquisition process to choose the service provider because it wanted to centralize the medical oversight for inter-facility critical-care transfers under Ornge. Ministry documents show the $15 million was expected to fund nine ambulances, which would operate out of eight land ambulance bases and transport about 20,000 patients a year.

Later in 2007, the Ministry did amend the Act to allow Ornge to provide land ambulance services. The following year, the Ministry contracted with Ornge, through an amendment in the performance agreement, to transfer critically ill patients by land ambulance between health-care facilities. The amendment provided Ornge with $13 million in the 2007/08 fiscal year and $19 million a year thereafter for this service. The annual amount included $2.9 million to be flowed to TEMS for transporting critically ill patients primarily between Toronto health-care facilities (previously, the Ministry funded TEMS directly for this). Ornge indicated that beginning in the 2010/11 fiscal year, funding to TEMS had been reduced to $2.2 million.

This amendment contained no specific level-of-service expectations or performance reporting to enable the Ministry to monitor actual inter-facility transports and compare them to the estimated number being funded. It did, however, state that Ornge was to provide services out of nine bases in certain specified municipalities across the province.

In 2008, Ornge determined in conjunction with the Ministry that there was only enough ministry funding to provide services using eight ambulances out of three bases—Ottawa, Peterborough and the GTA—instead of out of the nine bases specified in the amended performance agreement. However, Ornge had already purchased 18 land ambulances, as discussed further in the following section, when this decision was made. Beginning in the 2009/10 fiscal year, the Ministry reduced funding for critical-care land ambulance transfers to $13 million due to "budget constraints." Funding for the 2010/11 fiscal year was about 5% more than this amount.

Deployment of Land Ambulances

Ornge purchased 18 land ambulances for about $2.1 million between August 2006 and January 2007, and a municipality gave it a nineteenth ambulance, before it was decided to operate just eight ambulances out of three land bases to transfer critically ill patients. This left Ornge with 11 extra vehicles. In the 2007/08 fiscal year, as required under the performance agreement, Ornge funded TEMS to provide critical-care land ambulance services primarily in the Greater Toronto Area. In 2010, Ornge provided TEMS with two of the vehicles that it had not been using.

Ornge designated another four of the extra land ambulances for operational support, such as training paramedics and transporting paramedics and equipment. It positioned the last five extra land ambulances at four of its air bases for use when bad weather halted air traffic or when a patient's condition allowed for land transfer. This has resulted in more ambulances than paramedics being available at certain bases to respond to calls. For example, the Toronto base has three helicopters (two active and one back-up) and two land vehicles—but only enough paramedics to staff a maximum of two of these five vehicles at any one time.

Cost and Use of Land Ambulances

Ornge uses its land ambulances for inter-facility transports of patients who its transport-medicine

physician has determined can travel safely by land. Many of these patients do not require an accompanying critical-care paramedic. In fact, in the 2009/10 fiscal year, the most recent for which Ornge performed an analysis, only 900 of the almost 2,500 Ornge-funded land ambulance transfers were for critically ill patients where a critical-care paramedic was provided, and TEMS handled an estimated 60% of them.

Even though the land ambulance transports that Ornge dispatched increased by 50% between the 2008/09 and 2010/11 fiscal years, the total number for 2010/11 was still only 2,827, or just 14% of the 20,000 annual transfers anticipated in 2006. Ornge indicated that the number of patients to be transported was not within its control because hospitals generally had to request the transfers. Although the Ministry had reduced its funding by about 30%, to $13 million, actual transports were 86% fewer than the estimated number of transports originally funded.

The Ministry has the power to recover land ambulance funding that Ornge does not use. In 2008/09, the first full fiscal year that Ornge provided land ambulance services, Ornge spent $8 million less than it got from the Ministry because of a slow start in implementing the program. The Ministry approved Ornge's request to keep $5 million of this surplus primarily to pay for rate increases of contracted air ambulance service providers. Ornge later asked if it might instead spend the surplus primarily on paramedic training relating to new aircraft. The Ministry agreed and received a report from Ornge that indicated that the funds were primarily spent on costs relating to new Ornge aircraft. In the 2009/10 fiscal year, Ornge reported a $16,000 surplus and has not reported any more surpluses since then.

In the 2010/11 fiscal year, Ornge's average cost to transfer a patient by any means was about $7,800. The cost to transfer a patient by aircraft is about $8,300. Using the funding and transfers data, we calculated that, excluding funding to TEMS and patients transported by TEMS, Ornge's 2010/11 cost for transporting almost 1,500 patients by land ambulance was $7,700 per patient. This is only 7% less than the cost of transporting a patient by air. We would have expected land transfers to cost significantly less than air transfers. We also noted that under Ornge's contract with TEMS, TEMS's 2010/11 per-patient transport cost was $1,700, or $6,000 less per patient. We expect TEMS's cost to be less than Ornge's due to the number and proximity of patients and hospitals in Toronto, and we recognize that Ornge also incurs dispatch costs. But with actual transport volumes so much lower than anticipated, these services still appear quite costly on a per-patient basis. The Ministry needs a fuller understanding of the demand for services and the costs of the options for meeting that demand to better establish funding requirements.

RECOMMENDATION 2

Given that Ornge has been transporting critically ill patients between health-care facilities for more than three years, the Ministry of Health and Long-Term Care should conduct a formal program evaluation, including:

- assessing the current total demand for critical-care land ambulance transports in Ontario and whether the program is meeting the needs of the facilities that patients are being transferred between;
- since the number of transfers has been significantly less than expected, determining the optimal number of land ambulances Ornge requires;
- determining the capacity for municipal land ambulances—including those of Toronto Emergency Medical Services, which currently responds to most calls—to transport these patients instead of Ornge doing so; and
- comparing the costs of different service options to help determine whether patients can be safely transported more cost effectively than under the current model.

MINISTRY RESPONSE

In 2012/13, the Ministry will undertake a program evaluation to assess the operational demand, financial requirements and delivery model for these services.

DISPATCH OF AMBULANCES

The *Ambulance Act* requires that the Ministry ensure the existence throughout Ontario of a "balanced and integrated" system of ambulance services. This includes communication systems for the dispatch of ambulances.

The Ornge Communications Centre (Centre) receives calls primarily for inter-facility transfers, which are handled directly by Ornge, by one of the air ambulance service providers or by TEMS. The Centre also receives calls for other types of transports, including emergency airlifts at accident scenes. These are generally assigned to Ornge's helicopter service provider, which uses Ornge paramedics.

Information about patients requiring inter-facility transport is usually collected initially through the Provincial Transfer Authorization Centre (PTAC), managed by Ornge. This is a safeguard to help reduce the risk of infectious disease transmission. A patient must receive a PTAC number before he or she can be authorized for transfer. There is no such requirement for the pickup of patients not in hospital, such as those at the scene of an accident.

The Ornge Communications Centre usually approves the dispatch of an air ambulance if certain criteria are met, examples of which are included in Figure 2.

In 2006, Ornge inherited the 10-year-old air ambulance dispatch system that the Ministry had developed in-house and which had a number of limitations. Consequently, the following year it replaced the system with the Ornge Provincial Transport Information and Medical Algorithmic System (Optimas), a web-based application that receives transport requests through PTAC, collects medical and personal information about patients, helps plan transports, and helps prioritize patients and determine the required level of care.

Selection of Ambulances and Flight Planning

When it accepts an emergency call, Ornge's policy is generally to dispatch the air or land ambulance that would most quickly complete the call. Urgent calls, while less pressing than emergency requests, also require a speedy response. In the 2009/10 fiscal year, about 42% of calls were considered emergencies and required an ambulance as soon as possible; 20% were urgent and required an ambulance soon. For the remaining 38% of calls, Ornge scheduled transports using the option that met patient needs at the lowest cost. If a patient requires a critical-care paramedic, an Ornge paramedic generally must be used because the current air ambulance service providers do not have paramedics trained at the critical-care level. Because Optimas does not estimate the cost per flight, the Centre uses Aerosoft, a program inherited from the Ministry, to show the various options and costs for air ambulance dispatch. Aerosoft works only on a flight-by-flight basis, however, and provides no information on how to most efficiently plan all scheduled flights in a given day.

Ornge conducts no regular reviews of decisions to determine if the most appropriate aircraft was chosen. At the time of our audit fieldwork, Ornge did not retain records of available options for any given air ambulance transport, so we could not determine whether the most appropriate options were consistently selected. Ornge indicated that it subsequently introduced a manual process to record this information and is planning to record it electronically in the future.

Concerns about Aerosoft's ability to choose the lowest-cost alternatives led Ornge to develop a new flight-planning program. The new program was designed to help plan non-emergency and

non-urgent transfers a day ahead of actual transport to minimize the number of times that aircraft fly empty.

Ornge policies also stipulate the type of ambulance—air or land—that should be used for different distances. Air ambulances must be used when the transport is more than 240 km, but they are generally used when the transport is more than 140 km. However, because Optimas contains no information on distance travelled for each leg of a trip (usually, the first leg is from base to the hospital to pick up the patient, the second is from hospital to hospital, and the third is back to base), Ornge cannot evaluate overall staff compliance with its policies. It has no way to determine, for example, whether air ambulances are being used more frequently than necessary for distances less than 140 km, or how frequently land ambulances are being used for distances greater than 140 km.

Co-ordination with Hospitals and Municipal Land Ambulances

In our 2005 audit of air ambulance services, we noted that the Ministry had planned for several years to create an electronic link between the air and land ambulance dispatch systems to accelerate the dispatch process and reduce the risk of patient transport decisions being made with incomplete or inaccurate information. A fully integrated emergency ambulance services system would have given dispatchers single-point access to flight and medical information, enabling them to communicate more efficiently with land ambulance dispatch centres.

Ornge flights, more than 90% of which are inter-facility transfers, often involve communication with a hospital. However, many inter-facility calls also involve communication with Ministry- or municipally-run dispatch centres, such as when transporting a patient to or from an airport using a non-Ornge land ambulance. As well, on-scene calls are always received through a land ambulance dispatch centre. However, all contact between the dispatch centres and Ornge is by fax or telephone, which poses the same risk of patient transport decisions being made with incomplete or inaccurate information as when the Ministry ran the system directly.

Level-of-care Determination and Paramedic Staffing of Ambulances

The performance agreement allows Ornge to make decisions on service levels, such as the number of paramedics required on each flight and the combination of paramedics needed to provide a certain level of patient care. Ornge has determined, for example, that an advanced-care paramedic and a critical-care paramedic working together can handle critical-care calls, and that such calls do not have to be handled by two critical-care paramedics. In contrast, we noted that the contracts with service providers that Ornge inherited from the Ministry in 2006 stipulated that critical care must be provided by two critical-care paramedics.

A key determination that must be made prior to dispatch is whether the paramedics are sufficiently trained to meet patient needs. While all emergency or urgent patients need care as quickly as possible, they do not necessarily require a high level of care during transport. Ornge indicated that many emergency calls, for example, can be handled by primary-care paramedics. On the other hand, individuals being transferred from the intensive-care unit of one hospital to another frequently require higher levels of care during transport. Ornge's critical-care paramedic training programs were developed for such patients.

Optimas's calculation of the level of care required for each patient depends on staff at the Centre entering the appropriate information into Optimas (for example, patient diagnosis, drugs required during transport and equipment needed to support the patient). If necessary, Ornge's transport-medicine physician can override Optimas's determination of the level of care. Optimas data shows that in the 2009/10 fiscal year, the physician made about 2,600 level-of-care changes out of

about 18,000 transports by ambulances dispatched by Ornge.

In May 2011, Ornge reviewed a week's worth of Optimas data to determine the extent to which the more than 40 staff at the Centre completed the more significant data fields that Optimas uses to calculate the level of care required. The review concluded that the data was frequently entered in inappropriate fields. Specifically, about 70% of staff entered data in the required fields 40% or less of the time, with most entering data in the required fields less than 20% of the time. Therefore, Optimas often could not reliably calculate the required level of care, which may help explain the need for overrides by the transport-medicine physician.

Current ministry policy requires two paramedics in every ambulance, whether land or air. Ornge's policy allows only one paramedic for patients requiring primary care, and Ornge indicated this had been approved by the Ministry. However, the policy says that if only one Ornge paramedic is available for an advanced- or critical-care interfacility transfer and the hospital decides not to wait for another Ornge paramedic to become available, the hospital must send an escort to ensure proper patient care during the transfer. As well, when patients are transported from one hospital to another for stays of 12 hours or so—for example, for tests involving specialized equipment—the receiving hospital may require that the originating hospital send an escort to take responsibility for the patient at the receiving hospital. Ornge does not regularly track the number of times an escort is sent or the reason why. According to a report Ornge produced at our request, more than 3,600 flights had a medical escort in the 2009/10 fiscal year. Furthermore, about 25% of all patients transported by airplane (rather than by helicopter) required a medical escort from the originating hospital.

In a survey primarily of medical professionals, conducted between December 2008 and January 2009 and commissioned by Ornge, 25% of respondents reported medical escorts were often or always needed to accompany the patient on Ornge ambulances, but that these escorts were generally away from hospital less than five hours. Ornge does not maintain information that would enable it to determine the extent to which a lack of available paramedics resulted in such escorts being needed.

Cancelled after Launch

In our 2005 audit of air ambulances, we noted that the rate of air ambulance cancellations after takeoff had increased to 33% in the 2004/05 fiscal year. Aircraft that have taken off are not available to take other calls, which increases wait times for patients. We recommended that the Ministry review the high rate of cancellations.

Optimas contains data on flights cancelled after takeoff, but this information can generally be accessed only on a case-by-case basis. Ornge had not tracked the total number of such cancellations. Based on our review of a sample of cancelled calls in the 2009/10 fiscal year, we found that about 30% were cancelled after takeoff. After our fieldwork, Ornge indicated that it had implemented new processes that were identifying these situations more consistently and that it would be taking action to try and reduce these instances.

Not-serviced Calls

Ornge defines "not-serviced" calls as those in which a request to transport a patient is received, but a patient is not ultimately transported for a variety of reasons, including:

- the request for an air ambulance does not meet Ornge's transport criteria (see Figure 2);
- Ornge cannot respond safely to the call;
- Ornge is unable to transport a patient within the requested time; or
- the call is cancelled either by the requester (for example, because the wait would be too long) or by Ornge (for example, because the aircraft was needed for a higher-priority patient).

Ornge indicated that it did not provide service for about 7,700 requests in the 2009/10 fiscal

year—4,700 emergency on-scene requests and another 3,000 inter-facility calls, of which about 1,900 were emergency or urgent requests.

When a request for service is not met, dispatch staff must either indicate that the call was cancelled or select from a list of other "not-serviced" reasons in Optimas. However, staff are not given guidance on choosing the most appropriate reason. Ornge produces a monthly summary report on cancelled calls and other not-serviced calls but does not report this information to the Ministry.

With respect to on-scene calls, Ornge received about 6,200 requests to pick up accident victims in the 2009/10 fiscal year. Of these, about 500 were actually picked up at the scene, and another 1,000 were picked up from an airport or hospital where they had been transported by land ambulance. Of the remaining 4,700 calls, about 70% were initially accepted by Ornge but later cancelled, usually by the land ambulance dispatch that had requested the air ambulance. For example, a call would be cancelled if a land ambulance reached the patient first and the air ambulance was no longer required. Although Ornge had some information on why calls were cancelled, it did not track or analyze this information. Ornge indicated that obtaining more information on why these calls had been cancelled could compromise patient care by taking paramedic time away from patients. The other 30% of calls—about 1,400—were declined by Ornge, including almost 900 requests declined due to the weather, about 250 where paramedics or aircraft were unavailable, and about 50 that did not meet Ornge's criteria.

Some 3,000 inter-facility calls were not serviced out of almost 20,000 requests, with 65% of them cancelled by the requester, but Ornge had little information about these. Of the remaining 35%, Ornge data indicated that about 330 were declined due to the weather, about 125 because paramedics or aircraft were unavailable, and about 140 because they did not meet Ornge's criteria.

We reviewed a sample of not-serviced requests and noted that in about 20% of them, transport was not provided due to factors under Ornge's control. In another 30% of cases, there was not sufficient information to determine whether or not the contributing factors were under Ornge's control. If Ornge had more complete data, it would be able to analyze whether improvements in service delivery might be possible—for example, in cases where the ambulances cannot be provided because of insufficient staffing levels at particular bases.

In 2009, Ornge commissioned a consulting firm to conduct a "gaps in service" review using Ornge data on emergency and urgent patient transports in the 2008/09 fiscal year, as well as data from sources such as the Canadian Institute for Health Information (a government-funded, independent, not-for-profit organization). The firm was directed to use Ornge's definition of what constitutes a service gap. The consultant's report, finalized in 2010, indicated that there was indeed a service gap but that 83% of this estimated gap came from including patient pickups that took place more than one hour after all patient details had been obtained. The consultant noted, and we agree, that this "one-hour target is not sensitive to geography (i.e., one hour may be an unrealistic target time [for patients] in more remote centres)…" Furthermore, the consultant recommended that Ornge review the appropriateness of the one-hour time target for identifying the service gap.

Ornge has indicated that it considers it primarily the Ministry's responsibility to provide funding to reduce the service gap. However, the Ministry does not routinely receive information from Ornge on not-serviced calls. Subsequent to our audit fieldwork, Ornge indicated that it had met with the Ministry to discuss the review of gaps in service but had not provided the Ministry with a copy of the report. Furthermore, Ornge does not report publicly on the reasons for not-serviced calls. With respect to the consultant's reported service gap, as previously noted, Ornge advised us that one of its main reasons for creating the Ornge Global entities was to generate more revenue that, along with additional ministry funding, would help service more patients.

New Dispatch System

Deficiencies in Optimas led Ornge to purchase a new dispatch system in October 2008. At the time, Ornge planned a phased implementation of this system, with components, such as one for crew scheduling, being rolled out starting in 2010. In March 2011, Ornge implemented a component that assists in selecting the most appropriate aircraft. Ornge planned to modify the system's medical component, which helps determine the required level of patient care and urgency of transfer, and deploy it by October 2011. However, as of May 2011, it had not yet begun these modifications and had no estimates about their cost. Ornge noted that, like Optimas, its new air dispatch system will not be electronically integrated with the dispatch systems for municipal land ambulances.

RECOMMENDATION 3

To help ensure that air ambulance and related services meets patients' needs cost-effectively, Ornge should:

- ensure that its new dispatch system reliably tracks flight distances and cost data so that the most appropriate aircraft can be efficiently routed to pick up and deliver patients requiring transport;
- work with the Ministry of Health and Long-Term Care (Ministry) to electronically link its dispatch system to the land ambulance dispatch systems run by the Ministry and municipalities;
- track and analyze how often hospital staff must accompany a patient because appropriately trained Ornge paramedics are not available, and determine if there are any systemic issues, such as not enough paramedics being available at a particular base, that need to be addressed; and
- review the reasons why a significant number of flights are cancelled after takeoff and take action to reduce such occurrences.

To assist it in adequately overseeing Ornge's ambulance operations, the Ministry should require that Ornge periodically report the number of cancelled and declined calls, categorized by the main reasons.

ORNGE RESPONSE

Ornge agrees with this recommendation and will work collaboratively with the Ministry to implement it, with the overall goal of improving access and patient care.

MINISTRY RESPONSE

The Ministry will work with Ornge to assess the cost/benefit analysis of an electronic link to the land ambulance dispatch centres.

With respect to tracking the availability of paramedics, the amended performance agreement will include the reporting of hospital medical escorts who are required to accompany patients being transferred. The amended performance agreement will also include increased reporting of dispatch information that includes cancelled and declined calls.

RESPONSE TIMES

In our *2005 Annual Report*, we raised several issues regarding response times, including a lack of monitoring of how long it took to dispatch air ambulances and service providers failing to meet contracted response-time standards. In 2006, the Standing Committee on Public Accounts held a hearing on the audit and tabled a report in the Legislature that recommended the Ministry provide a written response by June 2008 regarding its monitoring of Ornge's overall performance level, including information on response times and cancelled calls. At the time of our current audit, the Ministry had not yet responded to the Committee's request.

The performance agreement states that for on-scene accident-type calls, "the Caller will be advised within 10 minutes of receipt of each Call on the status of (Ornge's) ability to dispatch an aircraft." For emergency or urgent inter-facility air transfers, callers are required to be advised within 20 minutes. Although the agreement contains no other specific air or land response-time requirements—for example, the time from when a call is received to when an aircraft takes off—we noted that Ornge's contracts with its standing agreement operators require them to request air-traffic-control clearance within 60 minutes of the time a pilot accepts a call.

Call-receipt Process

When it receives a request for an ambulance, the Ornge Communications Centre (Centre) obtains details, such as the condition of the patient and his or her location. Staff then determine if the request meets Ornge's transport criteria. If it does, staff members discuss details with the requester, review the availability of ambulances, paramedics and pilots, and then determine whether Ornge will accept the transport request or decline it.

Ornge's dispatch system, unlike the Ministry's old one, does not automatically create a date-and-time record of a call as soon as it comes in. Rather, staff must open a record in the Optimas system after the call comes in, and when they do so the call is considered to have been received. Calls to the Centre are recorded for quality assurance purposes, but this information is not linked to Optimas. As well, the new system, like the old one, does not automatically record the times of actions further on in the process, such as when the Centre officially accepts or declines a transport, when an aircraft takes off or when a patient is picked up.

Without this information, it is difficult to determine how quickly Ornge responds to emergency calls or whether scheduled patient transfers are completed on time. Ornge policy states that the Centre should complete the call record by documenting the date and time these events took place in the correct Optimas data fields. We noted many instances where this was not done or where this information was recorded in text fields, making it difficult to track actual response times.

At the time of our audit, Ornge indicated that it expected its new dispatch system to track the key times necessary for monitoring and reporting response times.

In some cases, a health-care facility requests an air ambulance at the same time it applies for a number from the Provincial Transfer Authorization Centre (PTAC) (as explained earlier, PTAC collects important hospital-patient information that helps reduce the risk of infectious disease transmission, and a patient needs a PTAC number for transfer to be authorized). If it does, PTAC records the request, and then Centre staff enter the call in Optimas. Our review of Ornge call data in the 2009/10 fiscal year found that it often took more than 15 minutes—and sometimes considerably longer—for staff to enter the call in Optimas from the time when PTAC recorded the request.

Reporting Response Times

From the patient's perspective, what is most relevant for emergency and urgent calls is the time that elapses from when the call is received by Ornge to the time the ambulance arrives. There are many factors to consider and decisions to make between these two times, not all of which are controlled by Ornge.

Call Receipt to Acceptance

The performance agreement requires certain response times to be measured from the time a call is received to the time that Ornge's "ability to dispatch" an aircraft is determined. Ornge indicated that these response times were further defined in consultation with the Ministry. The Ministry and Ornge agreed to two different starting points for response-time measurement: on-scene calls were to be measured from the time the call was received, while inter-facility calls were to be measured from

the later starting point of when Ornge had received all relevant patient details. However, Ornge actually uses the later starting point to measure response time for all calls. The end-time was defined as the time Ornge discusses with the caller when the call could be completed (which occurs prior to the decision on whether to accept or decline the request). Figure 7 illustrates the response time Ornge measures.

Ornge reported having data available to measure 89% of the inter-facility and 94% of the on-scene calls for the 2009/10 fiscal year. Measuring the time from when all patient details were obtained to when Ornge discussed when the call could be completed, Ornge found it met the performance-agreement response times of 10 minutes and 20 minutes 97% and 99% of the time, respectively.

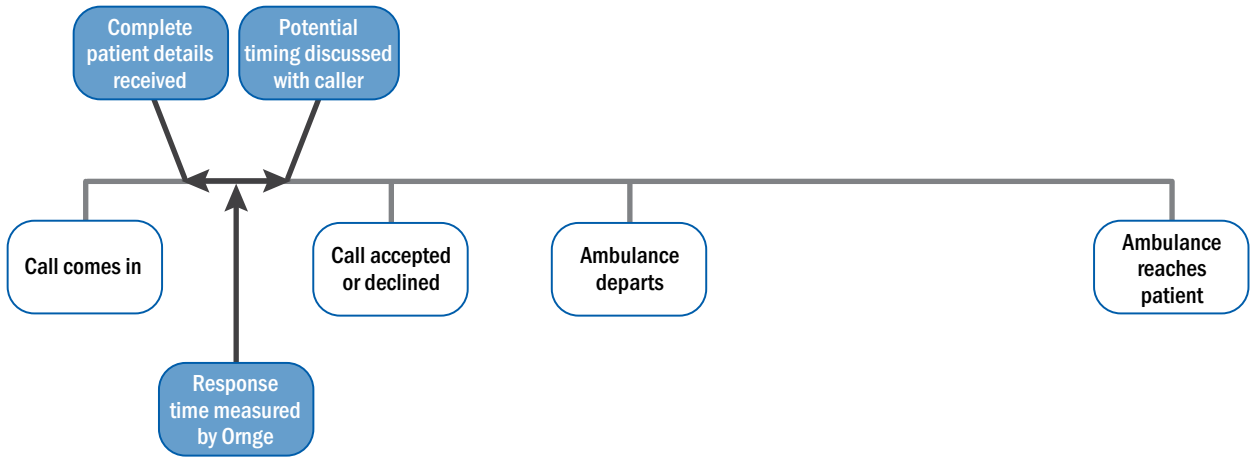
Given that more than 60% of the on-scene and inter-facility calls that Ornge receives are emergencies or otherwise urgent, we believe that Ornge should also track the time from when these calls are initially received or the PTAC authorization time, if applicable, so that it can monitor the time from initial call receipt to input of all patient details. Furthermore, we believe that the length of time from when a call is initially received to when the decision is made to accept or decline the request is very important to a patient who is waiting for an air ambulance to be sent. Using this time interval and available Ornge data for emergency and urgent air ambulance calls for the 2009/10 fiscal year, we found that only about 40% of the emergency and urgent inter-facility calls were accepted or declined within the 20-minute standard set out in the performance agreement, and 50% took longer than 30 minutes. Ninety percent of calls were accepted or declined within four hours of receipt. Our analysis indicated that Ornge was successful in responding more rapidly to on-scene calls, with 84% of the calls accepted or declined within the 10-minute target, and about 50% accepted within five minutes.

Acceptance to Departure

Ornge policy states that, as long as pilots and paramedics are available at the base, air ambulances must depart within 10 minutes (20 minutes, if fueling is required) of the pilot accepting a call. The policy stipulates that the time from acceptance to departure is measured "from the time the pilot in command accepts the call until the flight crew requests clearance from air traffic control." Despite Ornge's policy, neither the time of pilot acceptance (usually just prior to when Ornge formally accepts the call) nor the crew's request for clearance (usually after the paramedics are onboard the aircraft) were tracked in Optimas. Consequently, Ornge cannot determine if it is complying with this policy.

Figure 7: Selected Key Steps in Response Process and Response Time Measured by Ornge

Prepared by the Office of the Auditor General of Ontario



We reviewed a sample of requests for Ornge air ambulances that were made when paramedics were at the base. We noted the times that calls were accepted by Ornge and when flights left the base, because these were the closest available times in Optimas. Where data was available, we found that flights did not depart within 10 minutes of call acceptance in 60% of the emergency and urgent cases sampled. We noted that Ornge staff could enter a number of reasons for a delay in Optimas, but Ornge had not analyzed this information.

For its own airplanes, Ornge produces an "efficiency report," which its policy states must include delays of more than 10 minutes. This report may include an estimate of the length of the delay and whether the delay was assessed as caused by factors under Ornge's control or not. These reports cannot readily be used to assess overall timeliness of airplanes in departing because the extent of the delay is not always clear and the data is not summarized either monthly or annually.

Ornge relies on its helicopter air ambulance service provider to monitor the percentage of time that helicopters are functional—that is, times they are not out of service owing to, for example, maintenance. The service provider reported that, for the period from February 2010 to January 2011, at least one helicopter per base was functional 99% of the time and therefore available for patient transports.

Departure to Arrival

We noted that the air ambulance program in another Canadian province used the estimated time required to travel between airports to evaluate whether its air transport times were reasonable. Although Ornge has some information on the actual travel time required to pick up and transport patients once aircraft have left the base, Ornge does not do any overall analysis of this information to determine whether expected transport times are being met most of the time. At the time of our audit, Ornge was implementing a system to automatically record data about when aircraft became airborne and when they landed to assist in tracking the time from the call-receipt starting point to when an aircraft is en route to pick up a patient, as well as how long it takes to actually reach the patient.

Almost half of the medical professionals participating in the previously noted survey said Ornge rarely or never provided ambulance service in a "reasonable time." We also noted in our 2010 audit on organ and tissue donation and transplantation that the Trillium Gift of Life Network observed many delays in shipment of organs, often because air transport was not available at the prearranged time.

RECOMMENDATION 4

To enable air ambulance response times to be assessed against performance standards and for reasonableness:

- Ornge should ensure that all key times in the call-handling process—such as the time the call request is received, the time the call was accepted or declined, and the time the ambulance was airborne—are recorded and that any trends and significant variances from expectations are investigated; and
- the Ministry of Health and Long-Term Care, in conjunction with Ornge, should expand the service agreement's performance requirements to include indicators on response times for the key stages of a patient transport (that is, from the time a call is initially received, to when Ornge is on site, and to when the patient reaches his or her destination).

ORNGE RESPONSE

Ornge agrees with this recommendation and will work with the Ministry to implement it.

MINISTRY RESPONSE

The amended performance agreement will include greater emphasis on performance standards and reporting obligations and will stipulate performance indicators related to significant points in the processing of and response to a request for air ambulance services.

OVERSIGHT OF OPERATIONAL ACTIVITIES

We reviewed a number of the processes in place to monitor air ambulance service delivery.

Ministry Service Reviews

The *Ambulance Act* (Act) requires that ambulance operators be certified by the Ministry. To become certified, service providers must meet ministry requirements, including having aircraft equipped with certain patient-care equipment in good working order and in sanitary condition and having qualified paramedics competent in the use of such equipment. Providers must be at least 90% compliant to pass a service review. The Ministry generally conducts service reviews of certified providers every three years, with new carriers reviewed within six months of when they start to provide services.

In our 2005 audit of land ambulance services, we recommended that the Ministry conduct a reasonable number of unannounced reviews to ensure consistent quality of service. However, although the Act allows the Ministry to conduct unannounced reviews, the Ministry's current policy is to provide advance notice of at least 90 days.

We examined a sample of reviews of air ambulance operators and found that, despite the advance notice, about one-third, including Ornge, did not pass their scheduled review the first time. The reviews cited issues such as aircraft that were not properly stocked with medical supplies and equipment, medical oxygen equipment that was improperly maintained or calibrated, and paramedic call reports that lacked required patient information. However, all of the air operators that initially received scores below 90%, including Ornge, were found on subsequent inspection to have improved enough to pass the review.

The Ministry has never conducted a review of Ornge's dispatch function, although it indicated that one is tentatively scheduled for 2012.

Compliance with Aviation Requirements

The performance agreement requires that Ornge ensure that its air ambulance service providers meet the aviation standards established by the Ministry of Natural Resources (MNR) and Transport Canada. MNR may also conduct, at any time and without warning, safety audits of air carriers that provide service to the province.

In November 2006, MNR informed the Ministry that an aviation safety audit should be conducted on Ornge to follow up on incidents involving its service providers, including smoke in an aircraft cabin and landing-gear problems. At the time, MNR was concerned that Ornge was not working with the service providers to adequately address the issues. In December 2006, the Ministry asked Ornge to agree to MNR conducting such an audit. Ministry documents from 2007 note that MNR could not gain access to Ornge records for audit purposes. No audit was conducted. Ornge advised us that it complies with MNR standards and stipulated this in its annual report to the Ministry.

With Ornge preparing to start its own airline to deliver air ambulance services in 2008, MNR conducted a short informal field visit to an Ornge base. However, MNR told us it was too soon at that time to conduct an audit because Ornge had not fully set up airline operations.

MNR informed us that, subsequent to our fieldwork, it conducted an audit of Ornge in 2011 that noted only what it described as "minor" findings. MNR further indicated that the certification process was changed in 2011 to include an MNR audit of service providers in addition to the Ministry's service reviews.

Ornge Reviews of Service Providers

Ornge contracted with an independent aviation-services consulting company to conduct operational reviews of its air ambulance service providers. The consultants review, among other things, the service providers' manuals, staff training and

quality-assurance processes, and aircraft inspections. Between May 2008 and January 2010, the consultants conducted reviews of six service providers. No significant issues were identified. Subsequent to our fieldwork, Ornge indicated that it contracted with another aviation-services consulting company that had completed six more reviews (four in June 2011 and two in September 2011) and had scheduled an additional four.

Ornge's contracts with its service providers allow it to personally inspect them twice a year to ensure compliance with its policies and standards. The inspections cover such things as equipment, supplies, cleanliness and pilot training. The two service providers that Ornge inspected in 2009 and 2010 provided about 70% of airplane transports.

Using a standard checklist, Ornge generally concluded that both of the airplane service providers it inspected were meeting its standards. Ornge used the same checklist to conduct similar inspections of its own fleet in 2009 and 2010, with similar results.

Complaint Investigations

Both Ornge and the Ministry may conduct investigations based on complaints or concerns forwarded to them by the public or staff.

In 2010, Ornge logged about 60 public complaints and 500 staff concerns, which included operational issues of varying degrees of importance. Ornge assesses each issue and decides which complaints to formally investigate. In 2010, about half the issues were formally investigated. Ornge indicated that the others were followed up at its bases. Although it had not tracked the nature of the complaints and concerns, Ornge informed us that most related to patient care, delays in responding to requests for ambulances, and communications problems between, for example, staff at the Ornge Communications Centre and paramedics. Ornge also indicated that, in March 2011, it introduced a new system to record public complaints and staff concerns that would enable it to better analyze the issues and the results of investigations to identify any systemic matters requiring further action.

In some cases, individuals complain directly to the Ministry. The Ministry usually suggests that the complainant first try to resolve the issue directly with Ornge or the service provider. If that proves unsatisfactory or the complaint involves a significant issue, the Ministry will investigate.

The Ministry has investigated about 15 complaints a year since Ornge became responsible for providing air ambulance services to Ontarians in 2006. We reviewed a sample of Ministry investigations from 2008 to 2010 and noted that half dealt with delays in responding to calls. The Ministry shares the results of its investigations with Ornge. However, in October 2010, it stopped recommending ways for Ornge to address issues, stating that such decisions were Ornge's responsibility. The Ministry indicated that Ornge generally provides it with information on actions it takes to address issues raised in Ministry-conducted investigations.

In our 2005 land ambulance audit, we recommended that the Ministry implement a process to ensure it consistently receives information on the nature and resolution of more serious complaints that it does not directly investigate to help it identify as soon as possible any systemic issues or potential problems that could recur. However, we noted at the time of our current audit that when Ornge investigates a serious complaint, it does not share the results with the Ministry, unless the Ministry is investigating the same complaint.

Incident Reporting

The performance agreement requires that Ornge submit an incident report to the Ministry within five business days of each "significant adverse event." It defines a significant adverse event as a "critical or major occurrence that results in serious, undesirable, or unexpected Patient outcomes that have the potential to negatively impact a Patient's health and quality of life; significant interruption in

the delivery of the Services; significant deterioration in the quality or delivery of the Services; or an aviation accident involving an Air Carrier providing Air Ambulance Services." Ornge indicated that it reported five significant adverse events to the Ministry and its board between 2006 and 2010.

However, we found that Ornge internally reported 20 "significant *patient* adverse events" in 2009/10 to its board of directors, including some that involved patient deaths. (Ornge defines a "significant patient adverse event" as a critical or major occurrence that results in serious, undesirable, or unexpected patient outcomes with potential to negatively affect a patient's health and quality of life.)

Ornge reported significantly fewer of these significant patient adverse events to the Ministry. Ornge indicated that doing so was in accordance with the performance agreement and that many of the events reported to its board were not deemed significant enough to report to the Ministry, such as a patient going into cardiac arrest but subsequently being revived. However, because Ornge reports many more adverse events to its board than to the Ministry, we were concerned that the Ministry may not be receiving all the information it needs to enable it to monitor the services provided by Ornge.

Ornge Clinical Quality Assessment

Under its contract with the Ministry, Ornge provides medical oversight for air ambulance services. To help ensure that they are providing patients with good care, Ornge's transport-medicine physicians conduct reviews of the clinical care provided to patients. The reviews include, for example, whether paramedics performed a medical procedure correctly, whether patients received the right medication for their condition, and whether data on patient care was correctly recorded to give receiving hospitals complete information on a patient's treatment and condition.

The reviews focus on patients with heart-related issues, breathing issues, blood infections, trauma and brain injuries, as well as obstetrical and pediatric patients. Ornge generally reviews each of these focus areas twice a year. The reviews look at Ornge's call reports for a sample of 60 patients transported for each focus area during the previous six months and compare them to Ornge's evaluation measures for what constitutes good practice. In addition, every month, Ornge's transport-medicine physicians review call-report information on all patients who were intubated (a procedure in which a tube is inserted to help the patient breathe). Review results are published in the staff newsletter each month and reviewed by the Ministry during its service reviews, the most recent of which was in 2009.

Ornge indicated that most of its evaluation measures were developed in 2008 following a review of medical literature and studies, and that its transport-medicine physicians have selected the evaluation measures most important to patient care. We compared those evaluation measures to authoritative guidelines and sought expert advice. We identified various evaluation measures that would be important to patient care that were not being used by Ornge. For example, Ornge's review of on-scene cardiac-case calls did not examine whether electrocardiograms were done on patients with chest pains as soon as possible, as is recommended in the 2010 American Heart Association Guidelines. The results of our work were shared with Ornge for its consideration.

Ornge informed us that, aside from evaluating the clinical care provided to meet patients' medical needs, it also recently began evaluating patient safety during transport. The relevant measures include whether patients' ears are protected during noisy flights, whether restraints protecting patients from turbulence are correctly used and whether patients are satisfied with the air temperature (it can get cold in airborne helicopters).

RECOMMENDATION 5

To better ensure the safe provision of air ambulance services:

- the Ministry of Health and Long-Term Care (Ministry) should periodically conduct unannounced service reviews of air ambulance service providers, including Ornge and its dispatch communications centre;
- Ornge should use its recently improved complaint tracking system to determine whether there are any systemic issues that warrant follow-up; and
- Ornge should continue to review its quality assessment evaluation measures and update them as necessary to ensure they reflect key elements of good patient care.

To improve its monitoring of air ambulance services, the Ministry should clarify with Ornge which complaints, incidents and resulting investigations Ornge must forward to the Ministry.

ORNGE RESPONSE

Ornge agrees with this recommendation and will work with the Ministry to better utilize its complaint tracking system and to ensure updated quality assessment evaluation measures.

MINISTRY RESPONSE

In June 2011, the Ministry implemented unannounced inspections for the air ambulance program. In addition, the amended performance agreement will improve oversight and accountability, including increasing ministry audit and inspection powers.

The amended performance agreement will also require Ornge to report all complaints and aviation accidents/incidents to the Ministry, and a determination with respect to investigation requirements will be made. In addition, as an ambulance operator, Ornge is required to adhere to the legislated *Ambulance Service Documentation Standards*, which stipulate additional reporting requirements such as for collision and incident reporting. The Ministry supports and encourages continuous quality improvement, and the amended performance agreement will include quality-improvement and patient-relations provisions that are based on the *Excellent Care for All Act, 2010*.

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