

Diabetes Management Strategy

Background

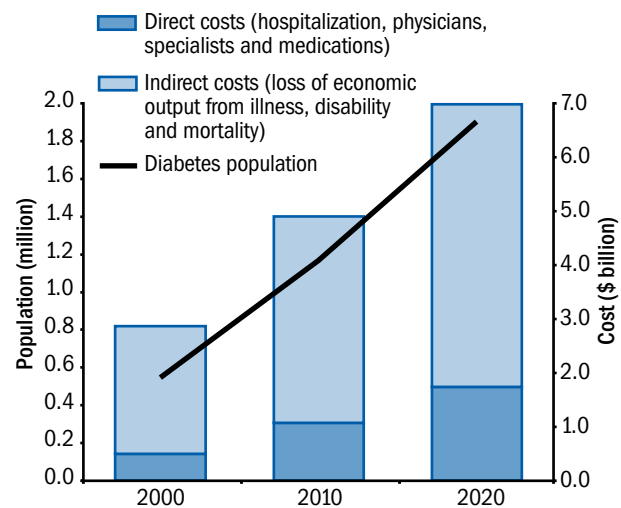
Chronic diseases are the leading cause of death and disability in Ontario. One of the most common chronic diseases is diabetes, which results from the body's partial or complete inability to produce and/or properly use insulin, a hormone that regulates blood sugar. Diabetes can lead to kidney failure, heart attack, stroke, amputation and blindness if poorly managed or left untreated. In Type 1 diabetes, which accounts for 10% of cases, the pancreas produces no insulin. Type 1 is not preventable and its cause remains unknown. The remaining 90% of people with the disease have Type 2 diabetes, in which the pancreas does not produce enough insulin, or the body cannot properly use the insulin it does produce. Type 2 is most often preventable with lifestyle changes that include healthier eating and exercise.

In recent years, diabetes, especially Type 2, has grown significantly as a health problem in Ontario, affecting the quality of life of people who have it and straining the health-care system. Factors driving this growth include high obesity rates, sedentary lifestyles, unhealthy diets and an aging population. Statistics from the Ministry of Health and Long-Term Care (Ministry) and the Canadian Diabetes Association suggest some alarming trends:

- The number of people with diabetes in Ontario is expected to almost quadruple, from 546,000 in 2000 to 1.9 million by 2020, as illustrated in Figure 1. Ontario's diabetes growth rate is among the highest of all provinces, as illustrated in Figure 2.
- People with diabetes incur medical costs that are roughly twice as high as those without the disease. A diabetes patient costs Ontario's

Figure 1: Diabetes Prevalence and Costs in Ontario, 2000–2020*

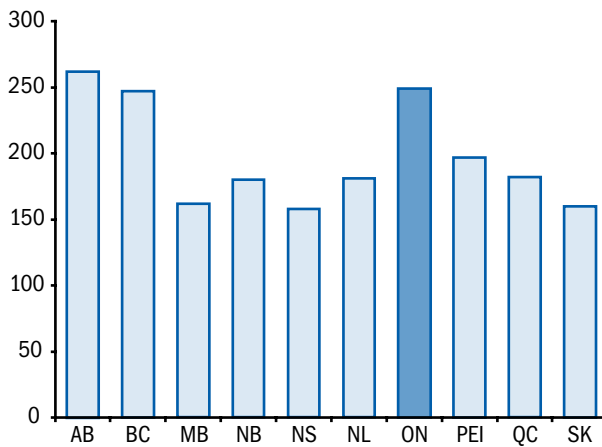
Source of data: Canadian Diabetes Association



* Based on estimates by the Canadian Diabetes Association using the Canadian Diabetes Cost Model. The two main sources of data used for the estimates and forecasts came from the National Diabetes Surveillance System and Health Canada's study "The Economic Burden of Illness in Canada."

Figure 2: Percentage Growth in Diabetes Prevalence, 2000–2020* (%)

Source of data: Canadian Diabetes Association



* Based on estimates by the Canadian Diabetes Association using the Canadian Diabetes Cost Model. The two main sources of data used for the estimates and forecasts came from the National Diabetes Surveillance System and Health Canada’s study “The Economic Burden of Illness in Canada.”

health-care system more than \$3,000 a year, but this can rise to more than \$5,000 if the patient experiences complications. Diabetes complications account for 69% of limb amputations, 53% of kidney dialysis and transplants, 39% of heart attacks and 35% of strokes.

In 2008, the Ministry announced a new four-year, \$741-million plan, called the Ontario Diabetes Strategy (Strategy), to expand services and improve the health of Ontarians with diabetes. The Ministry said that the Strategy’s goals included raising awareness of diabetes risk factors through prevention programs, creating more Diabetes Education Teams to help patients better manage the disease, and developing an online Diabetes Registry to track individual patients and the overall prevalence of the disease across Ontario. The Ministry has identified the Diabetes Registry as a “top clinical priority for eHealth Ontario,” which has been working in partnership with a private-sector vendor to develop and implement it.

According to the Canadian Diabetes Association, Ontario is one of five provinces with a formal diabetes strategy (the others are Alberta, Saskatch-

ewan, Manitoba and Nova Scotia). In the four years up to the 2011/12 fiscal year, the Ministry allocated about \$648 million of the Strategy’s original funding announcement of \$741 million to various initiatives, as illustrated in Figure 3. The Strategy was subsequently extended for another four years with a new funding approval of \$152 million, which is in addition to funding for diabetes services delivered through other program areas of the Ministry.

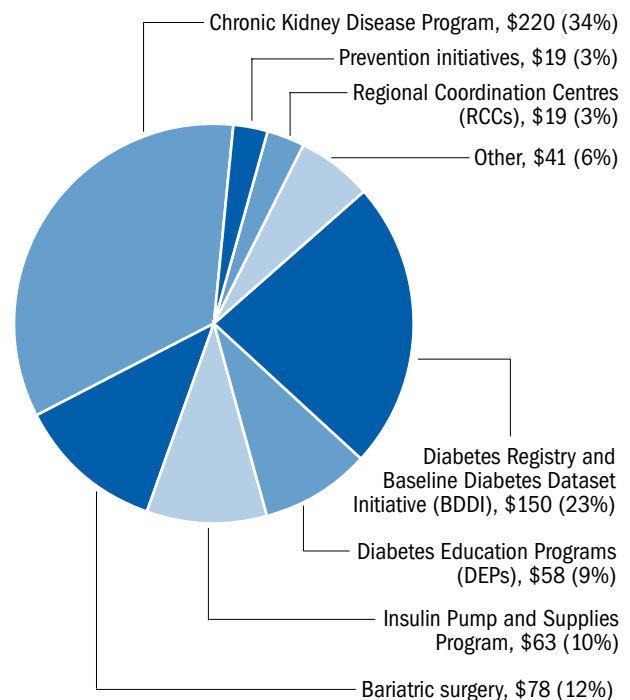
Audit Objective and Scope

Our audit objective was to assess whether the Ministry of Health and Long-Term Care (Ministry) had adequate systems, policies and procedures in place to:

- monitor and assess whether service providers are meeting the needs of people with diabetes

Figure 3: Allocation of Ontario Diabetes Strategy Funding by Key Initiatives, 2008/09–2011/12 (\$ million)

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



by providing them with timely access to appropriate and quality care;

- ensure funding and resources provided for the Ontario Diabetes Strategy (Strategy) are used cost-effectively; and
- measure and report periodically on the results and the effectiveness of the Strategy.

In conducting our audit, we reviewed relevant policies and files, analyzed data, interviewed appropriate ministry staff and reviewed relevant studies from Ontario and other jurisdictions. We also interviewed staff and reviewed documents related to the Diabetes Registry at eHealth Ontario and Infrastructure Ontario. As well, we conducted surveys of about 10,500 physicians with assistance from the Ontario College of Family Physicians (580 responded) and of all 152 Diabetes Education Programs (DEPs), with the assistance of an external survey company (103 DEPs responded). In addition, we contacted and visited stakeholders and diabetes-care providers across the province, including six DEPs, five bariatric surgical sites, four Regional Coordination Centres, and the Canadian Diabetes Association. We also engaged an independent consultant with expert knowledge in the study of diabetes on an advisory basis.

Our audit did not cover any initiatives under the Strategy that had just started, had recently changed, and/or had been audited by our Office in recent years. These include the Centres for Complex Diabetes Care (providing people with complex diabetes a single point of access to specialized care), the Chronic Kidney Disease Program (providing dialysis services to diabetes patients who have kidney failure, a common diabetes complication), and the Insulin Pumps and Supplies Program (providing funding assistance to people with Type 1 diabetes). As well, we did not rely on the Ministry's internal audit service to reduce the extent of our audit work because it had not recently conducted any audit work on diabetes initiatives in Ontario.

Summary

The number of people with diabetes in Ontario has more than doubled from 546,000 in 2000 to 1.2 million in 2010, and that number is projected to grow to 1.9 million by 2020—about one in every eight Ontarians. People with diabetes use the health-care system at about twice the rate of the general population, and the cost of diabetes to Ontario's health-care system is estimated to grow from \$4.9 billion in 2010 to \$7 billion by 2020. The Ministry recognized the long-term implications of this and in 2008 established a four-year \$741 million Ontario Diabetes Strategy (Strategy). Although it is still too early to gauge the Strategy's mid- and long-term impact, in the short term the results have been mixed.

On the one hand, there undoubtedly has been an improvement in the availability of diabetes care, giving people more options and knowledge to enable them to manage the impact of diabetes. On the other hand, most of the diabetes service providers that were set up with Strategy funding are under-utilized, and many of those who responded to our surveys felt that more of their funding should be directed toward preventive services.

According to the Diabetes Expert Panel established by the Ministry in 2006, “keeping people well and preventing disease is the most cost-effective, affordable and sustainable strategy for coping with chronic disease.” We noted, however, that 97% of the \$741 million funding was earmarked to treat people who already had diabetes, with only 3% for preventive initiatives. Given that 90% of people with diabetes have Type 2, which can often be prevented or postponed with good nutrition and exercise to limit weight gain along with other preventive measures, we believe an increased focus on prevention warrants consideration by the Ministry.

Some of our other observations were as follows:

- eHealth Ontario (eHealth) has been working in partnership with a private-sector vendor to

develop and implement a new electronic Diabetes Registry, a key initiative of the Strategy, to give physicians and the Ministry real-time patient data and comprehensive online monitoring of the disease. The Registry's original delivery date was April 2009, but this deadline was not met and the proposed release date has been extended a number of times. Subsequent to our audit fieldwork, we were advised that the contract with the vendor was terminated in September 2012.

- In August 2010, eHealth and the vendor, through a request-for-proposal process, signed a six-year, \$46-million contract that stipulated that the vendor would be paid only after successful completion of the Diabetes Registry. This was designed to help protect the public's interest and to motivate the vendor to deliver a system that meets performance requirements and timelines. Although no payments had been made to the vendor as of mid-2012, the Ministry and eHealth had already incurred about \$24.4 million in internal costs directly related to the Diabetes Registry since 2008/09. They also spent another \$50 million on other supporting electronic health records initiatives, such as electronic portals to other systems and the Ontario Laboratory Information System, which have already been deployed. eHealth acknowledged that the arrangement to pay the vendor only after successful completion of the contract has traded away much of the province's control over the project's design, progress and delivery time in exchange for price certainty.
- The province's 152 Diabetes Education Programs (DEPs) help teach people with diabetes about the disease and how to manage it. Every DEP runs one or more Diabetes Education Teams (DETs), each consisting of a registered nurse, a registered dietician and other professionals. DETs operate in hospitals, in community health centres and within Family Health Teams (FHTs) to educate diabetes patients. The Ministry funded 101 new DETs under the Strategy, increasing the total number of DETs in Ontario to 322. However, many hospitals and FHTs have also set up education programs of their own with funding from other sources, including another branch of the Ministry, and this has led to service overlaps and under-utilization of about 90% of DEPs.
- The DEPs are required to conduct audits regularly on the quality of care provided by their staff. However, the Ministry has never verified whether they actually do so. Our survey of DEPs found that about 25% said they "have not done" any audits or "do not know" they are required.
- The Ministry provides an organization with \$20 million annually to manage and fund diabetes service providers, including 47 DEPs in Northern Ontario, on its behalf. While the Ministry has an accountability agreement with the organization and a reporting process in place, it needs to significantly enhance its oversight of this organization to ensure that the organization and the service providers funded by it have used the Ministry's funding appropriately and in compliance with applicable policies. For instance, the organization has paid a consulting firm \$105,000 since the 2009/10 fiscal year for "advice on election strategizing" and "developing relationships with relevant political decision-makers." We also noted that the organization could produce no original itemized receipts to support its staff meal expenses, contrary to its own policies and to policies set out by the government for provincially funded public-sector organizations. We found instances of staff claiming unreasonable amounts for meals and claiming alcohol, neither of which is in line with the rules of the Ontario Public Service.
- The Ministry has significantly expanded Ontario's capacity for performing bariatric

surgery, a procedure that combats Type 2 diabetes in obese people by removing part of the stomach and/or the small intestine. This has led to savings because far fewer out-of-country surgeries are being done. The number of in-province surgeries has risen significantly, from 245 in the 2007/08 fiscal year to 2,500 in 2011/12. However, this still does not meet the current demand and is actually lower than the 2009/10 total of 2,900, when more out-of-country surgeries were performed.

OVERALL MINISTRY RESPONSE

The Ministry acknowledges the recommendations made by the Auditor General of Ontario and thanks him for conducting this timely audit. The Ministry and this government are committed to the development and implementation of innovative initiatives and solutions that address the impact of diabetes and other chronic diseases on Ontarians.

The Ministry welcomes the insights and recommendations provided by the Auditor General. The audit identifies areas of consideration that the Ministry is already taking measures to address and reinforces the Ministry's commitment to addressing the complex challenge of diabetes.

In June 2008, Cabinet approved \$741 million in funding for the first four-year phase (2008–12) of the Ontario Diabetes Strategy, a comprehensive strategy to enhance prevention and management of diabetes and improve health outcomes for Ontarians impacted by diabetes. In April 2012, the Ministry confirmed continued funding for the Strategy of \$152 million from 2012 to 2016.

Through the Strategy, the government has built on existing investments in prevention and care across the health system to build capacity, make it easier for people to get services they need, and improve the overall quality of diabetes service and care in Ontario. The result

will be more opportunities to prevent diabetes for those at risk and, for people with diabetes, a more positive experience with the health system and a better quality of life.

Investments in the Strategy will help build system capacity and an infrastructure for a comprehensive chronic disease prevention and management system that may be readily expanded to address other chronic conditions.

Detailed Audit Observations

KEY INITIATIVES AND PROGRESS OF ONTARIO DIABETES STRATEGY

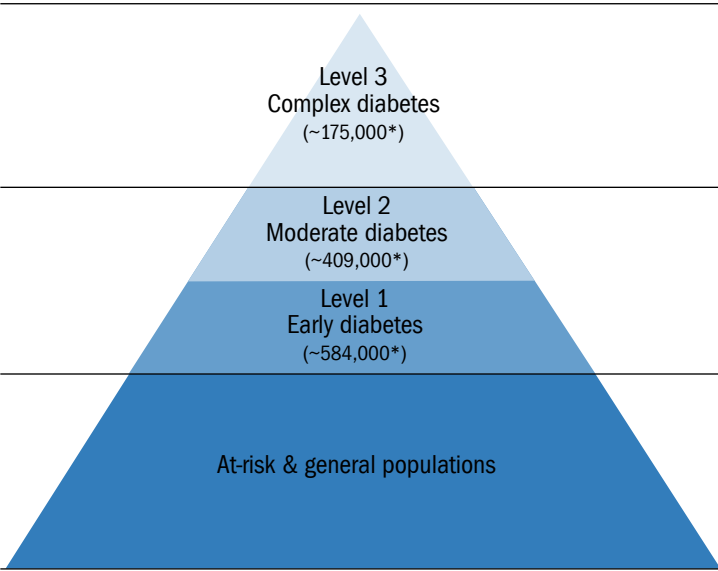
In response to Ontario's growing diabetic population and the costs associated with it, the government launched the Ontario Diabetes Strategy (Strategy) in the 2008/09 fiscal year with funding of \$741 million over four years. The Ministry said at the time that the Strategy aimed to "prevent, manage and treat diabetes across the province."

The Ministry has used the modified Kaiser Chronic Disease Management model to graphically illustrate diabetes services along the continuum of care, as illustrated in Figure 4. The model divides Ontarians into three levels, depending on the severity of their diabetes, and a fourth for people who do not have the disease but are at risk of contracting it. The Ministry defined specific initiatives for dealing with each level, as well as "system enablers" to assist in executing the overall Strategy. Since the Strategy's introduction, the Ministry has improved the availability of diabetes services by funding 101 new Diabetes Education Programs (DEPs) and establishing 14 Regional Coordination Centres (RCCs) across the province.

The Ministry also developed performance measures to assess the Strategy's progress at various stages. As Figure 5 illustrates, the short-term

Figure 4: The Modified Kaiser Chronic Disease Management Model

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

	Key Initiatives or Investments under Strategy
 <p>Level 3 Complex diabetes (~175,000*)</p>	<ul style="list-style-type: none"> • Bariatric surgery • Centres for Complex Diabetes Care (CCDCs) • Chronic Kidney Disease Program • Insulin Pump and Supplies Program
<p>Level 2 Moderate diabetes (~409,000*)</p>	<ul style="list-style-type: none"> • Diabetes Education Programs (DEPs) • Self-management Initiative • Tools for individuals and health-care providers
<p>Level 1 Early diabetes (~584,000*)</p>	
<p>At-risk & general populations</p>	<ul style="list-style-type: none"> • Prevention programs for high-risk groups (e.g., Aboriginal people, Asians) • EatRight Ontario • Improved access to primary care for prevention and early identification
<p>System enablers</p>	<ul style="list-style-type: none"> • Diabetes Registry and Baseline Diabetes Dataset Initiative (BDDI) • Regional Coordination Centres (RCCs)

* Based on estimates of diabetes prevalence by the Canadian Diabetes Association.

performance measures have shown mixed results and the intermediate or long-term measures have not yet shown improvement. In particular, hospitalization rates for heart attacks, infections, ulcers or amputations among people with diabetes have increased and did not meet targets, but the Ministry indicated that it has not established specific timelines for achieving these targets. Overall, rates have stabilized or decreased for some diabetes-related complications, hospitalizations and deaths, but the actual numbers remain high and can be expected to continue to rise significantly due to the growth of the diabetic population.

Based on the data available to date, we noted that it is still too early to gauge the Strategy's impact over the medium and long term. Clearly, however, much remains to be done to reduce the growing burden of diabetes in Ontario.

DIABETES REGISTRY AND BASELINE DIABETES DATASET INITIATIVE

A key initiative of the Strategy was to have been the electronic Diabetes Registry, a database containing information about every Ontarian with diabetes intended to facilitate the delivery of care by clinicians. The Registry, in conjunction with other foundational systems developed by eHealth Ontario (eHealth), an agency of the Ministry, would also be a first step toward an eventual province-wide Electronic Health Record for every Ontarian by 2015. Pending delivery of the Registry, the Ministry implemented the Baseline Diabetes Dataset Initiative (BDDI) as an interim measure to provide physicians with paper reports containing their patients' most recent dates for the three key diabetes tests. The Ministry has continued to use the BDDI in the absence of a complete Diabetes Registry.

Figure 5: Summary of Key Performance Measures for the Ontario Diabetes Strategy

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

Key Performance Measures for the Strategy	Target	Baseline*	Oct 2010	Oct 2011
Short-term Measures				
% of Ontarians who are physically inactive	45 ^a	52.6	51.2	51.0
% of Ontarians who are overweight or obese	— ^b	51.8	51.7	53.0
% of Ontarians with diabetes who have a regular family doctor	— ^b	97.6	96.4	96.9
Number of Ontarians with diabetes registered with Health Care Connect	— ^b	3,744	4,768	10,335
% of Ontarians with diabetes referred to family health-care provider by Health Care Connect	— ^b	60.5	59.8	63.0
% of Ontarians with diabetes for whom a Diabetes Management Incentive (Q040) was billed	— ^b	25.5	26.3	29.2
% of Ontarians with diabetes for whom a Diabetes Management Assessment (K030) was billed	— ^b	27.5	28.5	32.0
% of Ontarians with diabetes who received all three key tests within the guideline periods	80	37.6	37.8	39.6
Intermediate or Long-term Measures				
% of diabetes prevalence in Ontario population	— ^b	8.7	9.3	9.4
Rate of emergency visits for hyperglycemia or hypoglycemia (abnormal blood-sugar levels) per 100,000 people with diabetes	— ^b	1,185	1,115	1,063
Rate of kidney dialysis and transplant per 100,000 people with diabetes	Maintain original rate	712	842	845
Rate of hospitalization for infections, ulcers or amputations per 100,000 people with diabetes	Reduce last reported rate by 10%	2,294	2,932	3,347
Rate of hospitalization for heart attacks per 100,000 people with diabetes	Reduce last reported rate by 10%	877	1,022	1,082
Rate of eye surgeries per 100,000 people with diabetes	— ^b	3,500	3,612	3,365

* Baseline data were derived between April 1, 2008, and March 31, 2010, depending on the performance measure.

a. Although the Strategy did not set a target for this measure, the ACTIVE2010 Strategy, launched in 2004, set a target of increasing Ontario's physically active population to 55% by 2010 (or reducing its physically inactive population to 45% by 2010).

b. The Strategy did not set a target for this measure.

Diabetes Registry

The Diabetes Registry is an interactive, real-time information system that health-care providers can use to quickly identify and manage Ontarians with diabetes, check patient records, access diagnostic information, send patient alerts and track the care provided to patients against evidence-based guidelines. The Registry is intended to be used to perform continuous and comprehensive province-wide surveillance of diabetes to support planning and monitoring of care. eHealth has been working in

partnership with a private-sector vendor to develop and implement the Registry, which the Ministry identified as “a top clinical priority for eHealth.”

Timeline of Diabetes Registry Development

The original target date for a first release of the Diabetes Registry was April 2009, but this deadline was not met. According to our review of documentation—which included reports to the Management Board of Cabinet and the Treasury Board, the project charter and plan, original and amended

agreements, and meeting minutes between eHealth and the vendor—the proposed release date was moved forward a number of times. The Registry still had not been delivered at the end of our fieldwork in June 2012.

Management at eHealth told us it could comment only on the timing changes that had taken place after April 2010, which was when the new management took office (eHealth changed its management after our 2009 audit of Ontario's Electronic Health Records Initiative). eHealth also informed us that the official and contractual targeted release date under its current management was June 2011.

On completion, the Diabetes Registry initially was to have been phased in at several pilot sites within two of the province's 14 Local Health Integration Networks (LHINs), the not-for-profit corporations that plan, integrate and fund local health services. However, the two pilot LHINs expressed concerns about the repeated delays and about the fact that eHealth no longer meets with them weekly to discuss the status of the Registry project. For its part, eHealth advised us that it and the LHINs decided in fall 2011 to suspend the meetings because of the lack of a reliable schedule for delivery of the Registry. Given that the first release of the Registry at the pilot sites will have only limited functionality, one of the two LHINs told us that it did not see a clear road map for future enhancements; the other questioned the value of the Registry altogether.

eHealth cited the following reasons for the repeated delays:

- The Treasury Board approved the Diabetes Registry budget in August 2008, but procurement was put on hold until May 2009 because of the creation of eHealth and a government decision to involve Infrastructure Ontario in selecting a vendor to develop and implement the Registry. Through a request-for-proposal process, eHealth signed the contract with the vendor in August 2010.

- When bidding for the Diabetes Registry contract, the vendor who won the contract may have underestimated both the time required for the project and the project's complexity.
- The vendor's project-management team may have failed to identify the project's critical path timelines and effectively manage completion of the project components and deliverables.
- The project-design blueprint developed by the vendor appeared to contain many errors and omissions, which led to rejections and reworking of the design.
- The vendor spent a great deal of time fixing numerous quality issues in the Diabetes Registry since the first test in September 2011. There were still hundreds of defects remaining in March 2012.

Development Costs of Diabetes Registry

In August 2010, eHealth signed a six-year, \$46-million contract with a vendor to design, build, implement and manage the Diabetes Registry. The contract included a lump-sum payment of about \$12 million when the Registry is ready for use and a monthly payment of \$575,000 for 60 months during a period of operation and maintenance. Payments to the vendor would not begin until after the Registry was successfully completed and deployed.

Since no payments had been made to the vendor of the Registry as of June 2012, eHealth has not spent all of the \$150 million funding approved under the Strategy for the Registry and other related eHealth projects. Since the 2008/09 fiscal year, the Ministry and eHealth have incurred significant internal costs to develop the Registry and other related projects. Specifically:

- Since the 2009/10 fiscal year, eHealth has incurred about \$20 million in costs for projects directly related to the Diabetes Registry and another \$50 million on other key electronic health records initiatives. These include the electronic portals to other systems, the

Ontario Laboratory Information System, the Patient Registry and the Provider Registry, which have been deployed and play a role in supporting improvements in diabetes care and management.

- In the 2008/09 fiscal year, the Ministry engaged consultants to carry out Diabetes Registry-related projects at a total cost of about \$4.4 million. The Ministry informed us that some of the projects were suspended due to the transition of the Registry from the Ministry to the newly formed eHealth, and to changes to eHealth's strategic direction following recommendations of our 2009 audit of Ontario's Electronic Health Records Initiative.

According to the contract with the vendor, it appeared that eHealth could terminate the contract without any obligation to make any payments if the vendor did not achieve the project's independently certified completion by a specified date. While the Diabetes Registry was regarded as a clinical priority for the implementation of certain key aspects of the Strategy, we were advised that with many more physicians migrating to Electronic Medical Records, the Registry is no longer seen as an essential component. Subsequent to completing our audit fieldwork, we were advised that the contract with the vendor had been terminated in September 2012.

Procurement Process and Contract Management

Our review of eHealth's procurement documents related to the Diabetes Registry in the 2009/10 fiscal year indicated that most procurements did not follow an open competitive process but, instead, were sole-sourced without the approvals necessary to bypass the competitive process. However, subsequent to our 2009 audit of Ontario's Electronic Health Records Initiative, we noted that eHealth improved its procurement processes: all procurements we examined in the 2010/11 and 2011/12 fiscal years followed an open competitive process.

eHealth also informed us that it instituted a project management methodology to track deliverables

and expenditures throughout the life cycle of a project to give management a snapshot perspective of a project's progress at any time. However, this methodology did not apply to the Registry, which was developed using the Alternative Financing and Procurement (AFP) model, the first time that the government used AFP for an information technology project. eHealth advised us that it applied an alternative project oversight methodology specific to an AFP technology-related project to the Diabetes Registry.

Under AFP, the government as client establishes the scope and purpose of the project, and the work is financed and carried out by a private-sector vendor. Only after a project is complete does the private-sector vendor get paid. According to Infrastructure Ontario, which provided eHealth with procurement-management services for the Registry project, AFP allows for projects to be delivered faster and more efficiently, on time and on budget. AFP also differs from traditional procurement processes in that it is designed to avoid cost overruns and to transfer risks from the government to the vendor, who has the expertise and experience to handle them.

eHealth acknowledged that there have been trade-offs in using AFP for the Registry; as the vendor gets paid only upon successful completion and delivery of the project, the province gets price certainty in exchange for only minimal influence on the design, progress and delivery time of the project. Thus, while the province does not have to pay the vendor for non-delivery of the Registry, it still ultimately bears other risks and costs associated with project delays.

Infrastructure Ontario engaged an external firm to perform a risk analysis before eHealth signed the contract with the vendor, and the analysis identified the risk of delays, which could increase costs and discourage user adoption. However, Infrastructure Ontario concluded that the stipulation that the vendor would not be paid until after the system was certified as complete would be a sufficient incentive to ensure that the vendor completed the project.

Infrastructure Ontario engaged an Independent Certifier on behalf of eHealth and the vendor to monitor the Registry's progress and to issue a final acceptance. In its monthly reports, the Certifier repeatedly raised concerns about impediments to its ability to assess, measure or control the project's progress. However, while eHealth had similar concerns, it informed us that under AFP, it had less leverage to require the vendor to address the deficiencies identified by the Certifier, including:

- serious delays with the overall project;
- no visibility into the project's schedule, scope and progress, and none into the causes for the delays;
- absence of an approved project plan and no targets for milestones;
- tight timeline with minimum buffer;
- quality concerns, as evidenced by the large number of defects identified; and
- fragmented testing approach, with multiple plans and ambiguous criteria.

In April 2011, in an attempt to improve the timeliness and certainty of delivery of the Diabetes Registry, the project was split into two releases: one to be delivered in September 2011 and the other in May 2012. The vendor was to be paid 75% of the acceptance payment after the first release and the remaining 25% after the second, as opposed to 100% on successful completion of the entire Registry as per the original contract.

eHealth informed us that the purpose of amending the contract was to ensure that the first release, a core clinical module, was delivered as early as possible. However, at the end of our audit fieldwork in June 2012, neither release was ready and the delivery date remained uncertain. Infrastructure Ontario advised us that, in its opinion, making first payment to the vendor only after project completion constitutes an incentive for the vendor to complete and deliver the project as soon as possible. As well, the Ministry and eHealth informed us that they have taken steps to mitigate risks associated with delays by continuing to develop other complementary initiatives that support diabetes care and management.

Baseline Diabetes Dataset Initiative

The Ministry launched the Baseline Diabetes Dataset Initiative (BDDI) in spring 2009 as an interim measure pending delivery of the Registry. The BDDI provides physicians with paper reports containing information on their diabetes patients' most recent dates for three key tests. This information helps physicians to better manage their diabetes patients by determining the dates on which patients should receive their next tests. The recommended time frame for each test is as follows:

- blood-sugar test at least once every six months;
- cholesterol test at least once a year; and
- retinal eye exam at least once every two years.

The Ministry and eHealth spent \$5.6 million between 2009 and 2012 to implement three waves of the BDDI and another \$2.6 million in incentive payments to physicians to encourage them to participate in it. Although the Canadian Diabetes Association has cited the BDDI as a best practice that "facilitates identification of patients for testing on the three tests," we noted the following:

- The Ministry set a long-term goal that 80% of adult Ontarians with diabetes should receive all three key tests within the recommended times. According to BDDI results as of December 31, 2011, 45.6% of adult Ontarians with diabetes had all three tests within the recommended periods—still well below the long-term target of 80% and only slightly higher than on December 31, 2009 (43.1%). The Ministry informed us there is no pre-determined timeline for achieving this target.
- The BDDI does not include test results from hospital labs, even though hospitals accounted for about one-third of all labs in Ontario and performed 9% of blood-sugar tests and 10% of cholesterol tests. According to our physician survey and our review of correspondence between the physicians and the Ministry, many physicians indicated that hospital labs are the only major lab services in some rural and northern regions. The Ministry acknowledged

this limitation but noted that the BDDI is an interim measure pending delivery of the Registry.

- Many of the physicians who responded to our survey and the four Regional Coordination Centres we visited expressed other concerns about the BDDI, and a number questioned its usefulness. They noted that the information provided by the BDDI was not timely and was already accessible through currently available Electronic Medical Records now being used by 43% of Ontario physicians. They also noted that the BDDI was a time-consuming manual process of sharing and reviewing patient information.
- Participation in the BDDI is voluntary. As of April 2012, only about half of Ontario physicians were taking part in it.

significant advances in meeting its obligations to develop, integrate and deliver the complementary foundational systems that serve as the backbone of Electronic Health Records.

In applying lessons learned from the Diabetes Registry procurement model, eHealth has already taken steps to improve the procurement process for future projects. In particular, eHealth has applied the AFP model's milestone-based payment structure to procurement of the Drug Information System and has combined this with a rigorous procurement process with contractual provisions allowing eHealth to closely monitor progress, approve the vendor's delivery strategy and hold the vendor more accountable for delays.

RECOMMENDATION 1

To allow for efficient and effective diabetes surveillance at the provincial level and to gauge the progress of the Ontario Diabetes Strategy, the Ministry of Health and Long-Term Care (Ministry) should work closely with eHealth Ontario (eHealth) and Infrastructure Ontario to:

- ensure that eHealth's initiatives for chronic-disease prevention and management are implemented with an appropriate quality assurance process so that they meet the needs of physicians and other users; and
- implement measures based on lessons learned from using the total outsourcing system development model for the Diabetes Registry if this procurement process is used for future information technology projects.

MINISTRY RESPONSE

Quality assurance with respect to electronic health tools has been, and will continue to be, a priority of both the Ministry and eHealth. Despite the challenges the vendor has faced with the Diabetes Registry, eHealth has made

DIABETES PREVENTION AND HEALTH PROMOTION

Type 1 diabetes is not preventable. But the opposite is true for Type 2, which accounts for 90% of the diabetic population. The World Health Organization (WHO) says a healthy high-fibre and low-fat diet, along with at least 30 minutes a day of physical activity, can reduce the risk of Type 2 diabetes by 50%. The WHO also notes that more than 90% of Type 2 cases can be prevented or postponed with good nutrition, regular physical activity, smoking cessation and effective stress management.

According to the Diabetes Expert Panel established by the Ministry in 2006, "keeping people well and preventing disease is the most cost-effective, affordable, and sustainable strategy for coping with chronic disease." The Canadian Diabetes Association 2008 Clinical Practice Guidelines also noted that "preventing Type 2 diabetes would result in significant public health benefits, including lower rates of cardiovascular disease, renal failure, blindness, and premature mortality."

Coverage of Diabetes Prevention Initiatives

The Ministry has earmarked only 3% of the \$648 million funding allocation of the Ontario Diabetes Strategy (Strategy)—about \$19 million—for prevention (see Figure 3). The Ministry informed us that this funding for diabetes prevention initiatives under the Strategy focused on reducing the risks of new diabetes cases. The funding targeted prevention initiatives at 24 local agencies in selected communities with high prevalence of diabetes and large concentrations of ethnic groups at high risk of developing diabetes (for example, Asians and Aboriginal people). We noted that:

- Prevention initiatives in the Strategy targeted the regions of Toronto, Peel, North East and North West, even though statistics from the Institute for Clinical Evaluation Sciences, a leading independent research organization in Canada, noted that other Local Health Integration Network (LHIN) regions, such as Central East and Erie St. Clair, also have an equally high prevalence of diabetes.
- The Ministry achieved its target of reaching 40,000 at-risk people in communities with a high prevalence of diabetes through community-based primary prevention initiatives but acknowledged that it has little reliable information about the size and distribution of the entire at-risk population in Ontario.
- Almost two-thirds of Diabetes Education Programs that responded to our survey said they thought more of their resources should go to educating people at high risk of developing diabetes. However, they have been unable to do this because their funding from the Ministry is intended to assist people already diagnosed with diabetes.

Effectiveness of Diabetes Prevention Initiatives

Policy makers need reliable evaluations of the effectiveness of prevention initiatives to help them

set priorities. Such evaluations involve ongoing quantitative analysis of the impact of prevention initiatives on mitigating the risk factors for diabetes, which include unhealthy diet, physical inactivity, and being overweight or obese.

The Ministry informed us that it developed no performance measure under the Strategy to monitor the extent of unhealthy eating among Ontarians because scientific literature has not established unhealthy diet as an independent causal risk factor for diabetes. It has monitored two other risk factors, body weight and physical inactivity. Although the Ministry has not developed targets for these two measures as part of the Strategy, it said that its ACTIVE2010 Strategy in 2004 set a target of reducing the proportion of the population that is physically inactive to 45% from 52% by 2010.

However, as shown in Figure 5, these two measures have remained relatively constant in recent years. More specifically, the October 2011 Report of the Strategy Key Performance Measures said that “the proportion of adults who are overweight or obese has increased significantly since 2003/04 (from 49.6% to 53.0%)” and “the proportion of physically inactive adults has not improved since 2003/04, fluctuating from 50% to 53%.”

In May 2011, the Ministry commissioned an external evaluation of its diabetes prevention initiatives. The evaluation concluded that the initiatives had limited impact on increasing public awareness of diabetes and on changing behaviours. In response, the Ministry conducted a diabetes forum in January 2012 with the local agencies that it funds to do diabetes prevention. The agencies had two major suggestions, which they say are needed to promote the long-term success of the prevention initiatives:

- The Ministry needs to provide agencies with sustained multi-year funding commitments and avoid delays in transfer of time-limited funds to minimize implementation delays and difficulties in hiring and retaining staff.
- The Ministry needs to improve its co-ordination and communication with the agencies.

The agencies indicated that they have been “working in silos.” In order to avoid duplicate efforts, the agencies suggested that the Ministry needs to take a more proactive role in developing “a centralized understanding of who’s doing what, who needs additional help and support” and facilitating knowledge exchange on best practices.

The Ministry informed us that it planned to conduct a further evaluation of its diabetes prevention initiatives during the 2012/13 fiscal year, and planned to use the results of this evaluation together with information from the diabetes forum to make changes to the prevention initiatives.

Screening for Undiagnosed Diabetes

People with undiagnosed diabetes are those who have developed the disease but have not yet been identified as such by health-care providers. According to the Canadian Diabetes Association (Association) 2008 Clinical Practice Guidelines (Guidelines), undiagnosed Type 2 diabetes may occur in nearly 3% of the adult population. So at least 284,000 Ontarians may not know that they have diabetes. Studies indicate that Type 2 diabetes can remain without symptoms for up to 10 years, and that at the time of diagnosis, 20% to 30% of patients will have already developed complications. Undiagnosed diabetes, therefore, will place more costly burdens on the health-care system in the long run.

Since 2008, the Association has recommended screening individuals as early as age 40 because this has proved useful in detecting undiagnosed diabetes. As yet, there has been no specific strategy for identifying undiagnosed cases across Ontario through targeted screening for Type 2 diabetes and pre-diabetes (a blood-sugar level that is higher than normal, but not yet high enough to be diagnosed as Type 2 diabetes).

The Ministry indicated that, to date, its focus has been on screening for people with risk factors for developing diabetes rather than identifying undiagnosed diabetes. In that regard, the Ministry advised

us that it has screened about 4,600 people for diabetic risk factors through its community-based prevention initiatives. It has also implemented a project called the Ottawa Model for Undiagnosed Diabetes aimed at identifying undiagnosed diabetes in patients hospitalized for other reasons and connecting them to diabetes care in their community. The Ministry informed us that because this project covered only about 500 patients at four hospital sites, it would be expanded to other hospital sites in the 2012/13 fiscal year.

Development of a Comprehensive Health-promotion Strategy

The World Health Organization says a healthy lifestyle that includes healthy eating and physical activity is a first line of defence in the prevention of Type 2 diabetes. In 2005, the government established the Ministry of Health Promotion and Sport (which was merged into the Ministry of Health and Long-Term Care in October 2011). In 2006, the Ministry introduced Ontario’s Action Plan for Healthy Eating and Active Living (HEAL). However, as noted previously, there has been no recent improvement in the percentages of Ontarians who are overweight, obese or physically inactive.

In March 2011, the government established the Commission on the Reform of Ontario’s Public Services to provide advice on the way government delivers services. In February 2012, the Commission released a report suggesting the government should:

- do more to promote healthy lifestyles;
- establish a province-wide chronic-disease prevention strategy;
- take a more comprehensive approach to population health;
- explore regulatory options for the food industry;
- work with the federal government on nutrition regulation; and
- replicate British Columbia’s ActNow initiative.

We noted that several well-respected organizations, including the WHO, the Conference Board of

Canada, and the Health Council of Canada, have also credited British Columbia's ActNow initiative, with its cross-government and multi-sectoral approach, as a best practice in health promotion and prevention of chronic disease.

We also noted that in April 2012, Cancer Care Ontario and Public Health Ontario published a report indicating that Ontario's health-care spending focused on treating people after they became ill rather than on keeping them healthy in the first place. The report noted that there are four key risk factors—unhealthy eating, physical inactivity, tobacco use and alcohol consumption—that are strongly related to people developing a chronic disease such as diabetes and that Ontario has developed a comprehensive strategy only to reduce tobacco use. The report recommended a comprehensive chronic-disease-prevention strategy targeting the entire Ontario population using a whole-of-government approach that engages all sectors and levels of government, community groups, businesses, educational institutions and media. The Diabetes Education Programs and many of the physicians who responded to our surveys, as well as the diabetes experts we interviewed, also mentioned that Ontario lacks a multi-faceted strategy to prevent chronic disease and obesity.

The Ministry informed us that the government has introduced initiatives to support healthy eating, including the Healthy Communities Fund Grant Program for the delivery of health-promotion initiatives; the Student Nutrition Program, funded by the Ministry of Children and Youth Services; and the Northern Fruit and Vegetable Program, targeting elementary-school children in selected areas in Northern Ontario. Also, in May 2012, the government assembled a Healthy Kids Panel to advise it on the development of a childhood obesity strategy. We noted, however, that the adult population could be helped by similar health-promotion initiatives and a specific obesity strategy.

RECOMMENDATION 2

To enhance the focus on prevention and early detection of diabetes as long-term, cost-effective strategies, the Ministry of Health and Long-Term Care should:

- re-assess whether allocating only 3% of total dedicated diabetes funding to prevention initiatives is the most cost-effective long-term strategy;
- devise ways to identify, on a more timely basis, people with undiagnosed diabetes; and
- develop comprehensive health-promotion strategies that focus on all Ontarians and consider similar strategies used in other jurisdictions.

MINISTRY RESPONSE

In addition to the allocation under the Ontario Diabetes Strategy, the Ministry has invested more than \$335 million annually in health-promotion programs to promote healthy eating, prevent chronic diseases like diabetes, and reduce injury and addiction. However, the Ministry will undertake a review of the funding allocation for diabetes prevention initiatives under the Strategy.

The Ministry is also currently developing a provincial framework that will inform a coordinated approach to diabetes screening in community-based primary health care organizations across Ontario.

The Ministry will continue to assess the comprehensive health-promotion and prevention strategies used in other jurisdictions. The Ministry currently participates in several federal/provincial/territorial committees dealing with issues such as healthy weights, sodium reduction and tobacco control, to share information on best practices. The integration of health promotion within the Ministry will allow a renewed focus on broader health-promotion and diabetes prevention strategies.

DIABETES EDUCATION PROGRAMS

In recognition of the fact that providing appropriate information to people with diabetes is essential to the management of the disease, the government initiated the Diabetes Education Programs (DEPs) in 1992 and placed them in three settings: hospitals, community health centres and Family Health Teams. Each DEP consists of one or more Diabetes Education Teams (Teams), and each Team consists of a registered nurse and a registered dietician. Teams may also have other health-care professionals, such as social workers, psychologists, foot-care specialists, pharmacists and physiotherapists. DEPs use counselling in groups and one-on-one to promote self-care and help patients improve their quality of life, minimize their symptoms, and prevent complications.

Given the extra funding available with the Strategy, the Ministry has expanded the DEPs by adding 101 new Teams since the 2009/10 fiscal year. Currently, the Ministry funds 322 Teams in 152 DEPs across the province. Of the 152 DEPs, 47 in Northern Ontario were funded and managed on behalf of the Ministry by a not-for-profit organization that has signed an accountability agreement with and received funding from the Ministry.

Monitoring of Diabetes Education Programs

Performance Evaluation of DEPs: Caseload Benchmark

The Ministry has monitored the DEPs using a caseload benchmark: each Team (one full-time registered nurse and one full-time registered dietician) in a DEP should have an active caseload of 1,000 patients or more per fiscal year. We noted, however, that this benchmark may no longer be representative because it was developed in 2001, when there were only 71 DEPs, compared to the current total of 152. The program's scope has also grown and evolved since 2001.

As well, the benchmark was developed on the assumptions that each patient would get five hours of services a year, and that 60% of services would be delivered through individual counselling and 40% in group sessions. However, the majority of the DEPs that responded to our survey indicated that these assumptions did not reflect their actual activities and needed to be reviewed. The Ministry informed us that it has initiated a benchmark review during our audit and was in the process of finalizing an analysis report in August 2012.

We noted that about 90% of DEPs did not meet the 1,000-patient caseload benchmark in each fiscal year since 2008/09, and more than one-third of them failed to achieve even 50% of the benchmark in 2010/11. The Ministry informed us that in June 2011 it required any DEP that failed to meet at least 50% of the benchmark to submit a Performance Improvement Plan. After our audit fieldwork, the Ministry indicated that it was in the process of reviewing the results of those DEPs implementing the plans as part of its ongoing monitoring of the DEPs.

Consistency and Quality of DEPs

We noted that the Ministry has not adequately monitored the consistency and the quality of service provided by the DEPs across the province, other than to evaluate them against the 1,000-patient caseload benchmark. For example:

- According to the Policies and Procedures Manual for DEPs issued by the Ministry, DEPs are required to conduct routine audits of the quality of care they provide on a regular basis and hand over all information about such audits to the Ministry on request. The Ministry has given the DEPs no guidance on what the audits should cover or how often they should be conducted; nor has the Ministry requested any audit results from DEPs to determine if they were in compliance with the requirement. According to our survey of DEPs, the frequency of such audits varied, with about

one-quarter of the DEPs saying they “have not done” any audits or “do not know” they are required to conduct such audits.

- Physicians who responded to our survey indicated that high staff turnover and inadequate training for new staff at DEPs has affected quality of care. In addition, they were uncertain about the DEPs’ ability to give patients appropriate advice. They also noted that DEPs often promoted new drugs that had no proven track record, and provided education of varying quality to patients.
- There is a certification program for the designation of Certified Diabetes Educator (CDE). However, since this program is voluntary, not every DEP has staff with the CDE designation. The Ministry informed us that it has encouraged the DEPs to recruit staff with this certification and/or help staff obtain this certification. However, it has not tracked or monitored the competence, skill levels and qualifications of DEP staff.

Oversight of Northern Diabetes Education Programs

The Ministry has an accountability agreement with and provides transfer payments to a not-for-profit corporation to fund and manage 47 adult DEPs in Northern Ontario, 35 pediatric diabetes programs, Northern Ontario aboriginal diabetes services, and Regional Coordination Centres in the northeast and northwest regions. The Ministry informed us that the organization is responsible for selecting diabetes service providers to meet its funded objectives as outlined in its accountability agreement with the Ministry.

The organization is small, with about 10 staff located in three offices. The same senior management has been in place since its creation in 1992. Over the past decade, annual ministry funding to the organization has increased from \$7 million to \$20 million for expanding services across Northern Ontario. According to its accountability agreement

with the Ministry, the organization is responsible for administering the funds in a prudent and effective way.

The organization transfers most of its ministry funding to the community-based diabetes service providers, including the DEPs in the north, to deliver diabetes care. The organization has given about \$66 million to service providers between the 2006/07 and 2010/11 fiscal years, and transferred the majority of these funds, about \$44.5 million, to adult DEPs. The Ministry requires the organization to have an accountability agreement with each northern DEP, and to collect quarterly and annual reports summarizing caseloads, activities and financial information from each DEP. The Ministry informed us that the organization has accounted for funding granted to the DEPs through an annual settlement and reconciliation process. However, our review of the organization’s audited financial statements indicated that, since 2007, its auditors have been unable to provide a normal “clean” audit opinion of its financial statements because the auditors did not examine the records of the service providers funded by the organization. The organization informed us that it assumed the funds it gave the service providers went to providing diabetes care.

Based on our review of the organization’s expenditures, we also noted some questionable practices, some of which ran contrary to its own policies and/or to those in the Broader Public Sector (BPS) Expense Directive that became effective April 1, 2011. Examples included:

- Since the 2009/10 fiscal year, the organization has paid a consulting firm a total of \$105,000, including a \$5,000 monthly “retainer fee” and reimbursements for telephone, fax, meal and taxi expenses. In October 2010, it signed a formal agreement with the firm for such services as “providing strategic advice on election strategizing and membership mobilization,” and “developing relationships with relevant political and bureaucratic decision-makers.” The organization informed us that its board of directors

approved the engagement of the consulting firm for high-level strategic advice to ensure that the government was aware of the organization. However, the Ministry informed us that it never approved a budget for consulting services of this nature and that the organization never sought ministry approval to reallocate funding to these services.

- The organization had inadequate record-keeping practices relating to staff travel and meal expenses. Almost all of the meal expenses we reviewed were supported only by credit-card slips or handwritten notes rather than by the original itemized and detailed receipts, as required by the organization's own policies and the BPS Expense Directive. Often, these records did not specify the names of the people who attended or the purpose of the meals.
- The organization's policies did not align with the rules in the Ontario Public Service (OPS) regarding consumption of alcohol and reasonableness of meal expenses. Although the organization informed us that it did not encourage the claiming of alcohol on expense charges, we found instances where staff did so. As well, the organization's policies did not specify the maximum amounts per meal. We also noted instances where staff claimed meals costing up to \$80 per person.
- Travel expenses claimed by the organization's CEO amounted to about \$40,000 each year. When travelling to Toronto, the CEO received \$100 per day for accommodation in a private home. This was four times more than the per diem rate of \$25 specified in its policies. Although the BPS Expense Directive does not specifically address this per diem, it does say that "due to mandatory requirements, and the principles of transparency and accountability, it is clear that per diems would no longer be allowed" and "in the OPS, per diems are no longer used."
- The organization leased an office in Kenora in October 2010 but decided to close it in July

2011 due to difficulties in securing qualified staff. This resulted in a lease termination charge of about \$12,000. The Ministry informed us that although the organization had discussed with it the consolidation of its offices in Kenora and Thunder Bay, the Ministry was unaware that the Kenora office had been closed and that the organization had incurred a relatively significant termination charge.

- The organization paid about \$2,000 to send an executive assistant to Las Vegas for a management course designed for managers, supervisors and others with management responsibilities.

While we suggested that an enhanced oversight of this organization was required, the Ministry indicated that, as with any broader-public-sector organization it funds, its oversight role does not include monitoring expenses incurred by the organization's staff. The Ministry said it expected organizations to have proper policies and procedures in place, but indicated that ensuring adherence to the applicable policies and directives is the responsibility of the organization's board of directors.

Subsequent to our audit, the Ministry informed us that it had taken some actions, including the recovery of about \$40,000 in unapproved expenditures from the organization in June 2012. The Ministry also followed up in areas of the organization's non-compliance with requirements of the Broader Public Sector Accountability Agreement in August 2012.

RECOMMENDATION 3

To ensure that Diabetes Education Programs (DEPs) provide diabetes patients with consistent and quality care, and in compliance with applicable policies, the Ministry of Health and Long-Term Care should strengthen its oversight of DEPs and other recipients of diabetes funding by:

- developing appropriate service-delivery and cost-effectiveness measures and requiring

DEPs to periodically report on these measures; and

- conducting periodic site visits to selected regional, community and broader-public-sector organizations that receive diabetes funding.

MINISTRY RESPONSE

The Ministry's current agreements with transfer-payment recipients require that local diabetes programs comply with and provide minimum service components. The Ministry, together with the LHINs, will conduct a follow-up review of the agreement framework to identify further opportunities to strengthen accountability.

Apart from the measurement framework developed by the Ministry in partnership with Health Quality Ontario and the Regional Coordination Centres in 2011/12, the Ministry will develop additional DEP performance measures and reporting requirements that are aligned with the attributes defined in the measurement framework.

The Ministry will review how it can apply greater oversight of broader public sector organizations receiving funding for diabetes services, and will continue to take timely, appropriate action when non-compliance with agreements is identified. The Ministry is developing further monitoring activities such as refinements to its annual reconciliation process, developing a protocol for periodic site visits, and examining the potential of obtaining attestations from the organizations' boards to ensure their compliance with the requirements of the Transfer Payment Accountability Agreements.

CO-ORDINATION OF AND ACCESS TO DIABETES-CARE PROVIDERS

Co-ordination among DEPs

As part of the Strategy, the Ministry's Provincial Program Branch (PPB) has funded 101 new DEP teams in hospitals, community health centres and Family Health Teams (FHTs) since the 2009/10 fiscal year. The Ministry informed us that the locations of the new teams were based on proposals from the LHINs. At the same time, we noted that the Ministry also funded other diabetes programs. For example, FHTs have received funding from the Ministry's Primary Care Branch to set up chronic-disease management programs, which include diabetes programs, and hospitals have allocated portions of their global funding to set up diabetes programs. However, the Ministry informed us that the PPB maintained records only for PPB-funded DEPs and was unable to confirm which other FHTs and hospitals have also funded diabetes services.

The DEPs we visited, and those that responded to our survey, indicated that they have been unable to meet the Ministry's 1,000-patient caseload benchmark because their catchment areas overlapped with those of other diabetes programs. This situation has led to under-utilization of many DEPs and even competition among DEPs for diabetes patients as they attempt to meet the benchmark. In fact, all of the DEPs we visited were located close to other diabetes programs. For example:

- One DEP was located within a five-minute walk of two FHTs with diabetes programs and within a 10-minute drive of another DEP.
- A DEP was located in the same hospital as a registered dietician who also delivered education about diabetes management in a hospital-based clinic.
- One significantly under-utilized DEP was located in a rural area that also had four other DEPs covering the same catchment area.

Co-ordination between DEPs and Physicians

The Canadian Diabetes Association 2008 Clinical Practice Guidelines recommended diabetes self-management education for all people with diabetes. In 2011, a team of researchers from two Ontario universities studied physicians' patterns of referring their patients to DEPs in a suburban region of southern Ontario. With the assistance of the Ontario College of Family Physicians, we extended this study by surveying all family physicians in the province. Both the 2011 study and our survey found that many physicians did not refer all of their diabetes patients to DEPs. The most common reasons given for not referring were "patients unwilling to go" and "physicians able to provide education in-house." The main reasons that patients were unwilling to go were "times unsuitable, with no evening or weekend services" and "language barriers." These reasons were in line with our survey of DEPs, which found that almost all of them were closed evenings and weekends, and about half did not offer language-specific services.

As well, our DEP and physician surveys suggested that lack of communication and co-ordination between the DEPs and physicians has been a barrier to provision of diabetes care. About 60% of the DEPs that responded to our survey noted that co-ordination and communication with other health-care providers, especially physicians, has been a major challenge. Even though lab test results on blood sugar and cholesterol could help the DEPs monitor their patients, 43% of the DEPs in our survey said they received lab test results only half the time or less from physicians and other health-care providers. Physicians, for their part, noted they often did not receive information from local DEPs regarding the progress of patients the DEPs were seeing.

Diabetes Management Incentive for Physicians

In April 2006, the Ministry introduced a Diabetes Management Incentive (DMI) to promote quality diabetes care. DMI is a \$75 annual payment to physicians for co-ordinating, providing and documenting all required elements of care for each diabetes patient consistent with the Canadian Diabetes Association 2008 Clinical Practice Guidelines. Ontario Health Insurance Plan (OHIP) data showed that the Ministry made about \$95 million in DMI payments to physicians since 2006. However, we noted that the impact of the DMI in encouraging physicians to provide continuous and co-ordinated diabetes management was unclear. Specifically:

- Forty-six per cent of physicians who responded to our survey indicated that the DMI had no impact on the way they managed their patients. Of these, about 14% did not even realize the DMI existed.
- The October 2011 report on the Ontario Diabetes Strategy Key Performance Measures showed that the DMI was claimed for less than 30% of diabetes patients in each fiscal year since 2008/09, with only a slight increase during the period, as illustrated in Figure 5. This suggested a lack of awareness or usage of the DMI.
- In April 2012, researchers from the University of Toronto released a study reporting little difference in overall performance before and after the introduction of the DMI. They found that those physicians already providing higher-quality care simply continued to do so while claiming the DMI, and they concluded that the DMI "led to minimal improvement in quality of diabetes care at the population and patient level."

Access to Specialized Diabetes-care Providers

A multidisciplinary team approach involving different health-care providers has been proven effective in delivering diabetes care. According to the Canadian Diabetes Association 2008 Clinical Practices Guidelines, “a team of health-care professionals—including physicians, nurses, diabetes educators, pharmacists and other health-care experts who work together with the individual living with diabetes—is the recommended approach to achieve optimal care.” The Diabetes Expert Panel appointed by the Ministry in 2006 also noted that the “interdisciplinary team is critical to the successful diabetes management.”

Our survey of the DEPs indicated that the levels of care and access to specialists varied from one DEP to another. Only 25% of the DEPs that responded to our survey said they were funded for specialists other than registered nurses and registered dietitians. Although it is unlikely that there is sufficient funding to staff every DEP with an array of specialists, certain specialists are critical to diabetes patient care. For instance, 60% of DEPs in our survey identified foot-care specialists as the most-needed professionals, but 40% said their patients had no ready access to these specialists. About half of the physicians who responded to our survey also identified “lack of timely access to foot-care specialist” as one of the most common problems in caring for patients with diabetes, for whom foot infections are a major reason for hospitalization. According to a report published in April 2012 by the Institute for Clinical Evaluative Sciences, a leading independent Canadian research organization, about 74 per 10,000 Ontarians with diabetes have had lower extremity amputations that were mainly triggered by foot infections resulting from poor circulation and nerve damage caused by diabetes.

Diabetes Regional Co-ordination Centres

After Cabinet approved the Regional Coordination Centre (RCC) program in October 2009, the Ministry established a diabetes RCC in each of Ontario’s 14 Local Health Integrated Networks (LHINs) to promote access to co-ordinated diabetes services regardless of where in Ontario people live. The Ministry and each LHIN selected a host agency (a hospital, community health centre or Community Care Access Centre) to manage the RCC. The RCCs do not deliver diabetes services directly, but work with their respective LHINs and health-care providers to co-ordinate diabetes care in a region.

The RCCs have been in place only since the 2009/10 fiscal year, so it is not yet possible to assess their long-term impact. We did note that the RCCs have made some progress in improving regional co-ordination of diabetes services. However, the four RCCs we visited raised the following concerns, which they said must be addressed to enhance their effectiveness. Among them:

- There is a need for clarity and standardization across regions regarding the interpretation of RCC deliverables, such as depth of support to service providers. However, the Ministry informed us that variation across the RCCs is needed to reflect local and regional needs.
- Communication of RCC roles at the provincial level has been limited or ineffective. Although the RCCs have also made an effort to promote themselves, they acknowledged that many stakeholders, especially physicians, were still not aware of their role and mandate. The Ministry indicated that it provided formal communication about the RCCs in quarterly newsletters, at conferences and events, and through a refreshed diabetes website.
- The RCCs have been leading regional diabetes planning and co-ordination by working closely with the DEPs, but the RCCs and the DEPs report to different branches of the Ministry, hindering efforts to evaluate their relative effectiveness.

- Despite monthly teleconferences and quarterly face-to-face meetings, there has not been enough dialogue between the Ministry and the RCCs. For example, we noted cases where one branch of the Ministry did not consult and inform the RCCs when making changes at the DEPs. As well, although one branch of the Ministry asked the RCCs to do patient consultations, the RCCs found that another branch had also initiated a similar survey. The RCCs also informed us that there is a need to increase the Ministry's participation in RCC stakeholder meetings to address the issues and barriers faced by the DEPs.
- The RCCs have been developing their own tools and processes, such as patient surveys, performance indicators and guidelines for leading practices, concurrently, resulting in duplication of effort and inconsistencies in reporting and measurement of effectiveness. The Ministry informed us that since variations exist across the RCCs, there is a need for flexibility to address local and regional circumstances.

The Ministry acknowledged these issues and indicated that they are being addressed. In April 2012, for example, the Ministry in partnership with the RCCs and Health Quality Ontario finalized a Measurement Framework that included measures to track and monitor regional performance. The Ministry advised us that it is working with the RCCs to identify common indicators for these measures in the 2012/13 fiscal year, and it has formally clarified expectations and respective roles of the RCCs and their host agencies.

RECOMMENDATION 4

To improve co-ordination among diabetes-care providers and access to specialized diabetes care, the Ministry of Health and Long-Term Care should:

- take into account the demand for and availability of diabetes services offered in com-

munity health centres, hospitals and Family Health Teams when allocating diabetes funding and other resources to avoid duplication or under-utilization of services;

- evaluate the need for the Diabetes Management Incentive, given the evidence indicating its lack of impact on encouraging physicians to provide continuous and co-ordinated diabetes management; and
- monitor whether people have timely and equitable access to diabetes-care specialists in high demand, such as foot-care specialists, especially where there is evidence that a lack of timely treatment is likely to result in hospitalization.

MINISTRY RESPONSE

The Ministry will undertake a review of its current operating framework to identify opportunities to further reduce potential duplication and/or under-utilization. The current RCC program leverages information on the demand for, and availability of, diabetes services within local regions to drive effective and efficient co-ordination, integration and delivery of services.

The Ministry continues to benefit from expert panels in strengthening primary care, which will be extended to include advice from the expert group on all physician incentives and their effectiveness, including the Diabetes Management Incentive.

The Ministry will, as appropriate, include equitable access to diabetes care specialists as part of its regular review and refinement of the Ontario Diabetes Strategy.

BARIATRIC SURGERY

About 90% of people with Type 2 diabetes are overweight or obese, according to the World Health Organization and the Canadian Diabetes Association. The International Diabetes Federation also

noted that the risk of developing Type 2 diabetes is 93 times higher for obese women and 42 times higher for obese men than for those at a healthy weight.

Although bariatric surgery by itself does not “cure” obesity, it does result in substantial, sustained and long-term weight loss by removing part of the stomach and/or the small intestine. As one would expect, post-surgical follow-ups and ongoing diabetes management are critical to maintain weight loss. Studies have consistently demonstrated that bariatric surgery is cost-effective for severely obese diabetes patients and stabilizes Type 2 diabetes in 60% to 80% of patients within a year or less.

Access to and Cost of Bariatric Surgery

Prior to the Strategy, most Ontarians requiring bariatric surgery received it in the United States, with OHIP covering the costs. As part of the Strategy, the Ministry announced it would spend \$75 million to increase Ontario’s capacity to do bariatric surgeries. The Strategy called for the establishment of the Ontario Bariatric Network, consisting of six Regional Assessment and Treatment Centres and four Bariatric Centres of Excellence in hospitals across Ontario. Additional funding brought the total to about \$108 million by the 2011/12 fiscal year. The number of in-province bariatric surgeries has increased from 245 in the 2007/08 fiscal year to 2,500 in 2011/12.

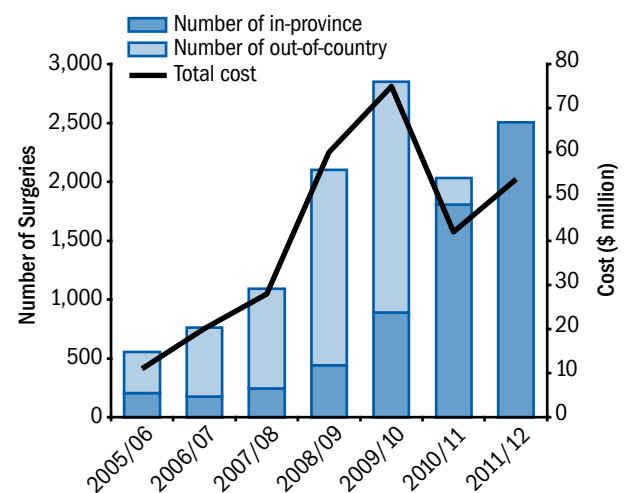
Since February 2010, the Ministry has required Ontarians seeking bariatric surgery to be assessed at a Regional Assessment and Treatment Centre. Patients would be approved for out-of-country bariatric surgery only if their referring physicians applied for them and they met the regulatory requirements for out-of-country health services. The Ministry’s goal was to have more bariatric surgeries performed in Ontario to save money and to ensure that adequate assessments and follow-ups are being done.

Since the expansion of the capacity to perform them in-province, about 5,200 bariatric surgeries were performed in Ontario between 2009/10 and 2011/12. Annually, the number of bariatric surgeries done in Ontario increased by 180%, from about 890 in the 2009/10 fiscal year to about 2,500 in 2011/12. However, the total number of people getting the surgery actually dropped 14%, from about 2,900 in the 2009/10 fiscal year to about 2,500 in 2011/12, as illustrated in Figure 6. This is because significantly fewer out-of-country bariatric surgeries are being approved.

In February 2011, the Ministry announced that the expansion of bariatric services in Ontario would save the province about \$45 million in out-of-country OHIP costs in the 2010/11 fiscal year. We noted that a more accurate estimate of savings would be about \$35 million after including the cost of additional bariatric surgeries performed in Ontario. However, this figure does not reflect any potential costs of patients who could develop other health complications as a result of waiting longer for bariatric surgeries in Ontario, as indicated in the following sections.

Figure 6: Number and Cost of Bariatric Surgeries, 2005/06–2011/12

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



Capacity and Demand for Bariatric Surgery

In May 2009, the Ministry estimated that 342,000 Ontarians would be eligible for bariatric surgery and assumed that 2% (about 6,800) of those would proceed to the surgery by 2013. The Ministry also projected about 3,000 new referrals per year, based on data from 2005, then the most recently available. Ministry data showed that in the 2011/12 fiscal year, about 2,500 bariatric surgeries were performed in Ontario, as illustrated in Figure 6. This exceeded the Ministry's current target of 2,400 but is not yet meeting the projected demand.

Our research also indicated that the actual demand for bariatric surgery has significantly exceeded the forecasts. In the 2011/12 fiscal year alone, there were about 8,000 new referrals, or 2.6 times more than the ministry forecast. We also noted that wait lists for bariatric surgery in Ontario suggest demand has far outpaced capacity. According to hospital data for the fiscal years between 2009/10 and 2011/12, there were about 22,000 referrals. The Ministry informed us that about 70% of these referrals, or about 15,400 cases, would proceed to surgery, but we noted that only about 5,200 bariatric surgeries were actually performed. The remaining referrals were either awaiting or undergoing pre-surgical assessment and preparation procedures. This gap will likely widen if demand continues to grow more quickly than capacity. We noted that the average overall wait time was 12 months if the surgery was done in Ontario, compared to six months if the surgery was approved to be done outside Ontario, mainly in the United States.

The Ministry informed us that it has been difficult to make accurate demand forecasts due to the elective nature of bariatric surgery. To address this challenge, the Ministry informed us that it has created a clinical registry to monitor quality and wait times. It also said that it will continue to allocate more resources to bariatric surgery. In the 2012/13 fiscal year, for example, there will be a one-time funding allocation of about \$48 million, and Ontario hospitals will be expected to perform 2,580

bariatric surgeries and to treat 1,650 potential bariatric surgery patients in medical or behavioural programs as an alternative to surgery.

Referral Process and Wait Times of Bariatric Surgery

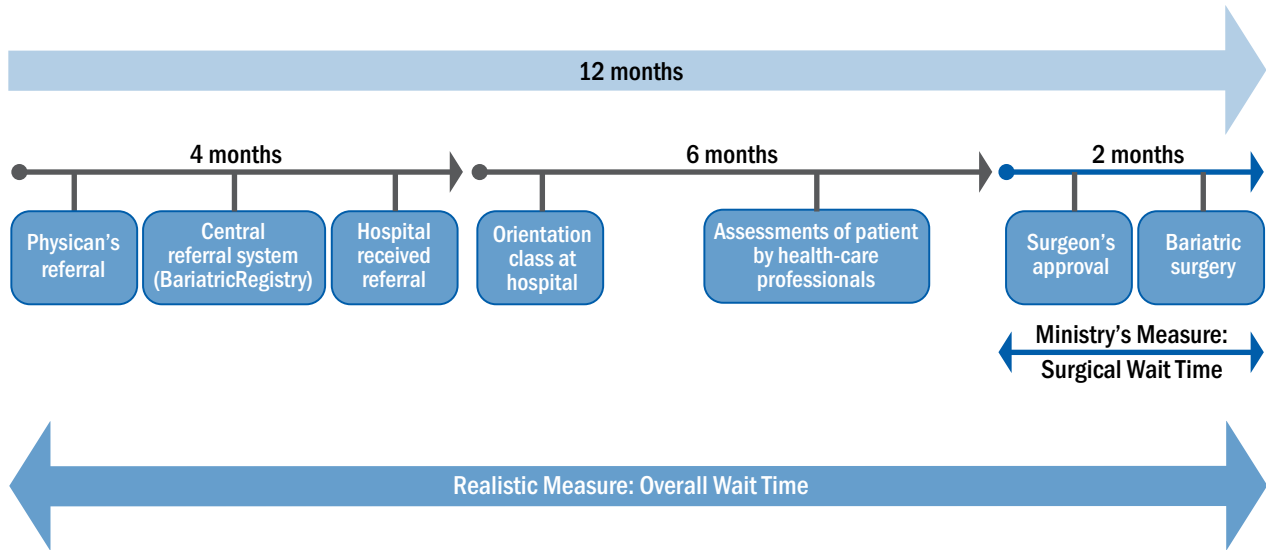
Alberta, British Columbia, Quebec and Saskatchewan also fund bariatric surgery in their provinces. Cross-jurisdictional comparison of the processes and wait times is not possible because policies and practices vary from one province to another. For instance, Ontarians seeking bariatric surgery follow a standard, centralized referral process to better ensure consistent assessment and prioritization of patients, as illustrated in Figure 7. The referral process in other provinces has not been centralized and each surgeon manages his or her own wait list.

The Ministry collected wait-time data for bariatric surgery from the hospitals. However, we noted that two hospitals each reported identical wait times for every month from December 2010 to November 2011, but neither was able to provide us with any documentation to support the wait times they reported to the Ministry. The Ministry indicated that it was likely due to the transition from a paper-based referral process to a centralized electronic system. Nevertheless, this made us question whether the wait-time data being collected by the Ministry was reliable, and accordingly, we measured wait time by reviewing patient files at the hospitals.

As illustrated in Figure 7, the Ministry measured only the wait time from surgeon's approval to actual surgery, and did not include the period prior to surgeon's approval. According to the Ministry, this is the standard for tracking wait times for surgeries in Ontario. Using the Ministry's wait-time measure, the average surgical wait time was only two months. However, our review found that patients waited an average of 12 months for surgery if the wait time was measured from the time of their physician's original referral to the actual surgery, as illustrated in Figure 7.

Figure 7: Referral Process for Bariatric Surgery in Ontario

Prepared by the Office of the Auditor General of Ontario



Our review of patient files and hospital data showed that the significant backlog for bariatric surgery was due not to a shortage of surgeons and/or operating rooms but rather to the long time that patients waited between the original physician's referral to when the surgeon approved the surgery. Specifically:

- Patients waited between two and seven months for a hospital orientation class, which bariatric surgery requires, possibly because classes were small and/or infrequent, or because of confusion among physicians about the referral process; physicians sometimes mistakenly sent referral forms to hospitals rather than to the central referral system. Hospital data showed that about 2,600 patients (representing about 12% of total referrals from the 2009/10 to 2011/12 fiscal years) were waiting for orientation classes as of March 31, 2012.
- Patients waited between five and eight months for specialist assessments. The waits depended on availability of hospital resources and level of patient needs, with some patients requiring more assessments before surgery. Hospital data showed that about 10,500 patients (representing about 48% of total

referrals from the 2009/10 to 2011/12 fiscal years) were waiting for or undergoing assessments as of March 31, 2012.

While the Ministry's approach to reporting wait times for bariatric surgery is the same as that used for all surgeries in Ontario, we believe additional information regarding times that patients have to wait for orientation and assessment would provide the public with a better understanding of the referral process and what to expect. However, we also noted a McGill University Health Centre study published by the Canadian Medical Association in June 2009 which said that although most health authorities defined wait time as the period between a surgeon's approval and either hospital admission or actual surgery, "this same definition is inappropriate for bariatric surgery because the enormous numbers of patients requesting this surgery would lead to a clinically unacceptable period from declaring a patient fit for surgery to the actual surgery. The realistic wait time for bariatric surgery must be defined as the overall wait time."

Quality of Bariatric Services

We found that the Ministry did not have adequate procedures in place to assess whether the referral

process for bariatric surgery operated as intended and whether patients received quality care. We noted, for example, that since the 2009/10 fiscal year, 29 bariatric surgeries were performed at hospitals not designated as a Bariatric Centre of Excellence. The Ontario Bariatric Network also informed us that it raised questions with the Ministry about the quality of services provided by non-designated hospitals.

Since bariatric surgery has become more common, there have been growing concerns about uneven quality across hospitals. In the United States, the American College of Surgeons Bariatric Surgery Center Network (College) and the American Society for Metabolic and Bariatric Surgery (Society) accredit hospitals that perform bariatric surgery. In contrast, no professional medical bodies in Canada offer similar accreditation for bariatric surgery. Bariatric surgical sites in Ontario could also obtain accreditation from the United States, but of this province's eight sites, only two have obtained such an accreditation, both from the College. However, the Ministry informed us that it does not support U.S.-based accreditation, as the U.S. accreditation bodies require mandatory data submission, which would impose costs and administrative burdens on Ontario's hospitals. The Ministry also indicated that in the absence of Canadian accreditation, the Ontario Bariatric Network has set provincial standards and protocols for continuous quality improvement and monitoring of bariatric services in Ontario.

RECOMMENDATION 5

To ensure that people receive adequate, timely and quality bariatric surgical services across the province, the Ministry of Health and Long-Term Care should:

- review trends of demand and capacity for bariatric surgery to identify gaps and needs, especially on a regional basis;
- consider providing the public with information on the average elapsed time between

a physician's referral and completion of the required pre-surgery assessments; and

- periodically monitor surgical outcomes to determine whether hospitals offering this surgery need to go through an accreditation process as hospitals in the United States do.

MINISTRY RESPONSE

The Ontario Bariatric Network (OBN) reviews the trends of demand and capacity on a regular basis and provides updates and recommendations to the Ministry. In 2009/10, the Ministry established the Bariatric Registry to provide reliable data and to track both care-path timelines and performance measures, and will continue to refine the use of this data. In partnership with hospitals and the OBN, adjustments are made on a continuous basis, such as transferring patients between centres to reduce wait times, modifying referral zones and allocating additional resources, where appropriate, in order to increase surgical volumes.

Patients are advised of the referral process (including full wait-time information) and what they can expect during the information sessions that all patients are required to attend. The Ministry will consider options for advising the public on full wait times from the original date of referral. The Ministry currently publishes wait times for bariatric surgery through the Ontario Wait Times Information System. Between April 2012 and June 2012, the wait time for bariatric surgery once a surgeon had approved it was 85 days, which is well within the general surgery target of 182 days.

The Ministry will continue to regularly monitor surgical outcomes of this program, including reviewing quality benchmarks and monitoring improvement plans as required for any bariatric centre.