# Key Findings

**DIABETES PREVALENCE** among adults living in Ontario in March 2011 was highest in the Greater Toronto Area (up to 13% in some centres) and in northern and rural First Nations communities (as high as 32%). The provincial average was 9.6%. The pattern of diabetes incidence largely mirrored that of prevalence. Over two-thirds of all Ontarians with diabetes lived in major urban centres, with approximately one-half of all cases in the Greater Toronto Area alone.

ACUTE COMPLICATION RATES varied four-fold across the province. Rates were highest in smaller, predominantly rural communities in both northern and southern Ontario (particularly in the southwestern and eastern regions); rates were lowest in urban centres. In some communities, as many as three out of every 10 adults with diabetes had a potentially preventable diabetes-related hospitalization or emergency department visit between 2006/07 and 2010/11.

**CHRONIC COMPLICATION RATES** were highest in northern Ontario, particularly among First Nations communities, and in predominantly rural areas in southern Ontario, particularly in the southwestern and eastern parts of the province. In some of these communities, as many as two of every 10 adults with diabetes had one or more chronic complications (e.g., cardiovascular hospitalization, amputation or end-stage kidney disease) between 2006/07 and 2010/11. These rates were approximately three times higher than for urban centres. However, the majority (over two-thirds) of persons with diabetes who experienced one of these complications lived in an urban area.

#### CONCOMITANT MEDICAL AND MENTAL HEALTH PROBLEMS

were common among people living with diabetes in Ontario, with more than half having an additional chronic medical condition and one-third having one or more visits to a physician for a mental health problem between 2006/07 and 2008/09. There was relatively little variation across the province with respect to the prevalence of medical comorbidities, but mental health visits were significantly more common in Toronto and surrounding areas.

#### ACCESS TO DIABETES PROGRAMS AND SERVICES was

greatest in Ontario's urban areas. Diabetes education programs, including those at satellite and outreach locations, were fairly extensively distributed throughout the province. Numbers of endocrinologists and ophthalmologists were fairly sparse outside of major centres. Optometrists were more equitably distributed throughout the province than other specialists.

# Introduction

### **SCOPE OF THE PROBLEM**

Currently, more than one million Ontarians are living with diabetes, and this number is expected to climb significantly in the coming decade.<sup>1,2</sup> Previous reports indicate that the prevalence of diabetes in Ontario has doubled in just 12 years.<sup>2,3</sup> The aging of the population and increases in obesity caused by sedentary lifestyles and unhealthy eating habits have contributed to this rise.<sup>4</sup>

This dramatic increase in people with diabetes creates a significant challenge for those who plan and fund health care. Previous ICES reports found that more than one-third of all people admitted to hospital for a heart attack or stroke in Ontario have diabetes.<sup>5</sup> As well, diabetes is a leading cause of blindness, end-stage kidney disease and non-traumatic amputation. These conditions contribute to the large economic cost of diabetes, both to health systems and to individuals who suffer from this disease.<sup>6</sup>

There is compelling evidence that the longterm complications of diabetes can be reduced or prevented through strategies aimed at controlling glucose, blood pressure and cholesterol levels.<sup>7-12</sup> In fact, targeting each of these simultaneously in combination with lifestyle measures, such as a healthy diet, increased physical activity and smoking cessation, may reduce the incidence of cardiovascular disease by as much as 50%.<sup>13</sup> In Ontario, diabetes complication rates have fallen considerably in the past two decades suggesting that health care providers have been successful in adopting new evidence into practice.<sup>14,15</sup> Despite this positive message, gaps in clinical care and outcomes continue to persist, particularly for special population groups such as those living with low income or in remote areas of the province.<sup>3,15</sup>

Diabetes is an extremely complex and costly condition to manage. Individuals with diabetes often have multiple chronic conditions that pose additional challenges. The Canadian Diabetes Association's 2008 Clinical Practice Guidelines recommend that individuals with diabetes have close follow-up with an interdisciplinary diabetes health care team for optimal management.<sup>16</sup> The diabetes health care team includes the individual with diabetes, his or her primary care physician and a range of other health care providers, including nurses, dieticians, eye care specialists, and other medical specialists (e.g., endocrinologists, nephrologists, cardiologists, psychiatrists) and other health professionals (e.g., podiatrists, chiropodists, pharmacists, social workers), as needed.

The majority of diabetes care in Ontario is delivered by primary care physicians.<sup>17</sup> Over the past decade the primary care system in Ontario has undergone tremendous reforms in how services are delivered and reimbursed.<sup>18,19</sup> One of the goals of such changes is to transition from an 'acute care' service model in which practitioners respond to adverse outcomes as they occur to a 'chronic care' model which aims to prevent adverse outcomes from chronic illness using a proactive, structured approach to care. Numerous studies suggest that the latter approach when combined with specific organizational strategies leads to improved quality of care for many chronic conditions, including diabetes.<sup>20,21</sup> However, a recent study suggests that a significant percentage of Ontarians with diabetes are not receiving recommended monitoring tests and that financial incentives have led to minimal improvement in this area.<sup>19</sup>

### THE ONTARIO DIABETES STRATEGY

In 2008 the Ontario Ministry of Health and Long-Term Care launched the Ontario Diabetes Strategy (ODS), a comprehensive initiative that builds on internationally accepted best practices and the growing body of evidence supporting the organization of health care around chronic disease management.<sup>22</sup> The ODS includes:

- targeting public education and initiatives to prevent diabetes and build awareness of healthy diabetes management;
- improving the management of diabetes across the spectrum of care by providing new tools and resources, access to selfmanagement workshops and training to individuals and health care providers across the province, and by establishing Centres for Complex Diabetes Care;
- expanding access to comprehensive, teambased care (Diabetes Education Teams), and to related medical interventions, including insulin pumps and supplies, bariatric services and dialysis;
- improving the coordination of care through the establishment of 14 Diabetes Regional Coordination Centres (RCCs); and

• enhancing providers' access to patient health information to support better diabetes care for Ontarians through the development of the Baseline Diabetes Dataset Initiative and a province-wide Diabetes Registry.

As part of its mission, the ODS has funded 101 additional diabetes education teams, usually consisting of a registered nurse and registered dietician, throughout the province. Decisions on where to locate the new teams were made by local policy makers and planners in consultation with diabetes care providers. In addition, Diabetes RCCs were created in each of the 14 Local Health Integration Networks (LHINs) to help integrate and coordinate diabetes service delivery and improve the quality of diabetes care in each region of the province.

### **PURPOSE OF THIS REPORT**

This report provides valuable information on the underlying characteristics of the diabetes population in a given region or community in Ontario. A key goal of our research is to support local policy and health planning decisions aimed at enhancing the equity, efficiency, effectiveness and integration of diabetes care delivery in Ontario. The primary audience for this report includes policy makers, health planners and analysts working at various levels of government (federal, provincial, regional and municipal) and the Diabetes RCCs themselves. However, our findings may also be of interest to a broader audience of researchers, employees of public health and health promotion departments, health care providers and a variety of other stakeholders, including people with diabetes.

This report was developed with input from staff of the newly established Diabetes RCCs who identified what information would be most valuable to support the planning and provision of services in each region. Maps and other analyses were created specifically to address the unmet needs identified by staff at each RCC.

The prevalence of diabetes and its complications and the needs of individual patient groups may vary across regions. The Diabetes RCCs are seeking to link patients and providers to local diabetes education programs and related health services, and to identify strategies to augment the use of these services and the quality of care provided. A better understanding of population needs and the supply of services at a local level will enable the Diabetes RCCs. to identify and implement strategies to address these needs and diminish gaps in access to services. The regional 'catchment area' for each Diabetes RCC is drawn from Ontario's 14 LHINs. We chose to compare measures of diabetes burden and access to diabetes services at a variety of levels: across regions (LHINs), subregions (subLHINs) and *communities* (census subdivisions).

#### POPULATION-LEVEL MEASURES INCLUDED IN THIS REPORT

To get a better sense of the needs of the population from the perspective of health service delivery, this report focuses on measures that reflect the burden of diabetes in the population and on population characteristics that make diabetes more challenging to manage. Administrative health claims and census data were used to derive each set of measures.

#### **Diabetes burden**

Diabetes prevalence. The prevalence of diabetes in a given region or community is a common measure of disease burden. The prevalence is based, quite simply, on the number and proportion of the population that has been diagnosed with diabetes at a given point or period in time, and is dependent not only on the number of existing and new (incident) cases diagnosed but on the death rate of the population with diabetes over the same time period. Increased incidence and improved survival will both result in a greater prevalence of disease. The number of prevalent cases provides an estimate of absolute health burden and needs for that region, whereas the prevalence reflects the relative proportion of all population members who require diabetes health services.

**Diabetes incidence.** This measure reflects the number of new cases being diagnosed with diabetes over time and therefore the prevalence of risk factors for diabetes within the population. Changes in population demographics, such as the average age of the population or the rate of migration of highrisk ethnic groups into or out of the area, and changes in levels of obesity and physical activity over time all contribute to observed changes in diabetes incidence. This measure also directly reflects the need for diabetes prevention strategies within a region.

#### Acute complications of diabetes

Diabetes can lead to both acute (short-term) and chronic (long-term) complications, which add to the cost and burden associated with this disease. Acute complications are considered to be potentially avoidable with optimal outpatient care. Together, this class of outcomes are considered to be ambulatory-care sensitive and reflect both access to and quality of care.

Hospitalizations or emergency department visits for hyper- or hypoglycemia. Severe hyper- (very high) or hypoglycemia (very low blood sugar levels) can be life-threatening. These episodes can be prevented by educating people with diabetes to recognize problems in their blood sugar levels earlier, to better self-monitor blood glucose levels, to avoid errors in management and to seek care from their diabetes health team before an emergency develops. Access to outpatient care (family physicians, specialists and diabetes education programs) appears to be a key factor influencing rates of admission for hyper- and hypoglycemia.<sup>5,23</sup> Therefore, this measure is considered to be a good marker of access to services and the quality of care provided.

## Hospitalizations or emergency department visits for skin and soft tissue infections or

foot ulcers. People with diabetes are more susceptible to common infections, including those of the skin and soft tissue, for a variety of reasons. Foot infections are one of the most common subtypes of skin and soft tissue infection in the setting of diabetes and are often precipitated by the development of a foot ulcer. Underlying damage to nerves (diabetic neuropathy) together with a reduced blood supply caused by peripheral vascular disease make individuals with diabetes more prone to skin ulceration and infection, which may lead to gangrene and the need for amputation. Early and aggressive treatment of foot ulcers and infections may prevent major adverse events.<sup>24,25</sup>

#### **Chronic complications of diabetes**

Diabetes is associated with a number of serious chronic (long-term) complications including cardiovascular disease, amputation, end-stage kidney disease and blindness. These complications are associated with increased morbidity and disability, reduced quality of life and premature mortality. Therefore, these outcomes reflect the burden and severity of diabetes within a given population. Fortunately, these complications can be potentially prevented through a combination of therapeutic strategies and health behaviour changes; however, doing so requires regular use of health services, high quality care that includes self-management support, and access to preventative therapies.

#### Hospitalizations for cardiovascular

*conditions.* Cardiovascular disease (CVD) is the leading cause of death among people with diabetes.<sup>26</sup> Aggressive treatment of CVD risk factors (e.g., high blood pressure, high cholesterol, smoking) and the use of specific cardioprotective therapies have been shown to reduce the risk of heart attack, stroke and other cardiovascular complications among people with diabetes.<sup>7-13</sup> For this report, we aggregated cardiovascular outcomes to include heart attack (acute myocardial infarction), stroke and congestive heart failure into a single measure. Each of these outcomes alone is associated with a high degree of morbidity and mortality, and together they provide an overall measure of cardiovascular burden within the population.

#### Chronic dialysis or kidney transplantation.

Diabetes is the leading cause of kidney failure in Canada and is responsible for one-half of all new cases starting dialysis.<sup>5</sup> Routine screening tests can detect chronic kidney disease at an early stage, allowing the initiation of treatments that can prevent its progression to end-stage renal disease, thereby precluding the need for dialysis or kidney transplantation. The deterioration in kidney function that leads to kidney failure can be prevented or delayed through optimal glucose and blood pressure control, as well as the use of specific therapies in individuals who have early signs of kidney disease based on the presence of microalbuminuria (elevated levels of protein in the urine).<sup>27,28</sup>

#### Lower extremity amputation. Foot

complications are a major cause of morbidity and mortality in people with diabetes.<sup>5</sup> Amputation is potentially preventable through a combination of measures, including regular foot examinations, foot care education, use of proper footwear, good glucose control, smoking cessation, and early detection and treatment of diabetic foot ulcers.<sup>24,25</sup>

## Measures of complexity of the diabetic population

#### Additional chronic medical conditions.

People with diabetes appear to be at increased risk for other health conditions, including cancer, arthritis, liver disease and depression.<sup>3</sup> The presence of other nondiabetes-related medical conditions makes it even more challenging to achieve optimal outcomes in those with diabetes.

**Mental health visits.** People with diabetes have higher rates of depression and anxiety disorders, and may have had an underlying mental health condition prior to developing diabetes.<sup>3</sup> Individuals who have schizophrenia have a heightened risk of developing diabetes because of higher rates of obesity and the use of antipsychotic medications that antagonize the effects of insulin.<sup>29</sup> Mental health issues make diabetes more challenging to manage and impede the ability of individuals with diabetes to self-manage their disease.<sup>30</sup>

#### Unique populations with diabetes

*Low-income families.* Diabetes differentially affects certain populations in its incidence and complications.<sup>3</sup> Low-income populations have a higher risk of developing diabetes and worse outcomes once they develop it. Socially disadvantaged groups have more difficulty affording their medications and therefore may be less likely to adhere to therapeutic

recommendations made by members of their health care team.<sup>31,32</sup>

**Ethnicity.** The risk of diabetes is higher in recent immigrants and certain ethnic groups, such as those of South Asian, African, Hispanic and First Nations descent.<sup>33,34</sup> Recent immigrants may experience problems in accessing care because of language barriers and inexperience in navigating the health care system.

#### **Related diabetes services**

We also examine the locations of diabetes programs and diabetes specialists to gain a better understanding of existing gaps in access to these services.

Diabetes education programs. Diabetes self-management is one of the cornerstones of diabetes management. Diabetes education programs deliver a variety of services designed to support diabetes selfmanagement, ranging from basic diabetes education to more advanced programs offering skills training, coping strategies, problem-solving and case management. As part of a comprehensive diabetes care program, self-management education contributes to better quality of life and health outcomes for individuals with diabetes.<sup>35,36</sup>

**Endocrinologists.** Most endocrinologists provide specialized care for diabetes. Although the majority of people with diabetes are managed by primary care providers,

referral to an endocrinologist may be necessary for more complex diabetes problems and complicated regimens. A large proportion of individuals with type 1 diabetes are cared for by these diabetes specialists.

Although primary care practitioners provide the greatest share of diabetes care, we chose not to map individual or group primary care practices or metrics related to the provision of primary care services. More detailed information on primary care delivery in Ontario can be found in the ICES reports *Primary Care in Ontario; Geographic Access to Primary Care and Hospital Services for Rural and Northern Communities; and Comparison of Primary Care Models in Ontario by Demographics, Case Mix and Emergency Department Use, 2008/09 to 2009/10.*<sup>37-39</sup>

*Eye care specialists (ophthalmologists/ optometrists).* Diabetic retinopathy is the leading cause of new cases of blindness in adults aged 20 to 74.<sup>40</sup> Routine screening, referral and treatment for diabetic retinopathy can significantly reduce the onset of blindness and is a cost-effective way to prevent or delay vision loss.<sup>41,42</sup> The 2008 Canadian Diabetes Association Clinical Practice Guidelines recommend that adults with diabetes receive a dilated eye examination every one to two years.<sup>15</sup> However, despite its proven benefits, many Ontarians do not receive regular screening for this preventable complication.<sup>3</sup>

# STRUCTURE OF THIS REPORT

This report's findings are presented in two parts. Part A compares each measure described above across the entire province by Local Health Integration Network (LHIN), and Part B presents key findings for each of the regions covered by the Diabetes Regional Coordination Centres (RCCs). Findings for the Northeast and Northwest LHINs have been combined since the Diabetes RCCs in these regions share administrative oversight by the Northern Diabetes Health Network. In Part B. we provide population characteristics, measures of diabetes burden and access to diabetes-related health services by subLHIN and, for a subset of variables, by census subdivision (CSD) or community. A brief overview of the methods used to derive each measure is provided in the Overview of Data Sources and Methods below. A more complete description of the methods used in this study is provided in Appendix A. Maps depicting the locations of individual CSDs are provided in Appendix B as an additional reference.

# Overview of Data Sources and Methods

This report is based on data from linked administrative databases housed at the Institute for Clinical Evaluative Sciences (ICES). These data allow health professionals and researchers to follow the continuum of care as patients move through various sectors of the health care system. This is possible because the linked databases provide the unique ability to generate provincial, population-based health information at the patient level in a way that ensures privacy and confidentiality of personal health information.

### **DATA SOURCES**

A number of data sources were used in this report. A complete list of indicators and their data sources and definitions can be found in Appendix A. Here, we provide a brief overview of the main sources of data.

#### The Ontario Diabetes Database (ODD) was

used to identify individuals with prevalent and incident diabetes. The ODD employs a validated algorithm to identify people with diabetes using data on hospitalizations and physician visits. Briefly, individuals having one or more hospitalization records or two or more physician services claims bearing a diagnosis of diabetes within a two-year period are included in the database. This algorithm was found to be highly sensitive (86%) and specific (97%) for identifying patients in whom diabetes was recorded in primary care charts.<sup>43</sup> Once a person is included, he or she remains in the ODD until death or relocation outside of Ontario.

For this report, diabetes prevalence was based on the number of adults aged 20 and older living in Ontario who were diagnosed with diabetes on or before March 31, 2011. The ODD was also used to identify adults with newly diagnosed diabetes (incident cases) within a one- or five-year period, depending on the level of geographic area being evaluated: Local Health Integration Network (LHIN) or subLHIN versus census subdivision (CSD). ODD records were linked to the various databases listed below to determine the number of adults with diabetes who had various diabetes-related health outcomes or health care visits during a particular time period.

#### The Registered Persons Database (RPDB)

contains demographic and residential information on anyone who has ever received an Ontario health card number. When new RPDB data arrive at ICES, personal information such as names and street addresses are removed, and each unique health number is converted into an anonymous identifier, ensuring the protection of each individual's privacy. For this report, data from the RPDB were used to derive population denominators for calculating diabetes prevalence and incidence rates, while numerators were determined using data from the ODD. Postal codes from the RPDB were used to link individuals to a given region or community.

#### The Canadian Institute for Health Information Discharge Abstract Database

**(CIHI-DAD)** contains patient-level information on all admissions to acute and chronic care hospitals, rehabilitation hospitals and day surgery clinics in Ontario. In this report, we used CIHI-DAD data to generate rates of hospitalizations for acute complications of diabetes (hyper- or hypoglycemia, skin and soft tissue infections, and foot ulcers), as well as chronic complications (amputation, endstage renal disease, and cardiovascular conditions including heart attack, stroke and congestive heart failure). We also used procedure codes from hospitalizations to examine rates of lower extremity amputation.

#### The National Ambulatory Care Reporting

*System (NACRS)* contains information on outpatient visits to hospital- and communitybased ambulatory care, such as emergency departments. In this report, all information on emergency department visits (for hyper- or hypoglycemia, skin and soft tissue infections, and foot ulcers) came from NACRS.

# The Ontario Health Insurance Plan (OHIP) physician claims database contains

information on reimbursement claims to the Ontario Ministry of Health and Long-Term Care made by fee-for-service physicians, community-based laboratories and radiology facilities. In this report, we used the OHIP database to derive information about visits to physicians for various health conditions (e.g., chronic medical conditions and mental health problems) and procedures (including kidney dialysis and transplantation).

#### The *Canadian Organ Replacement Register (CORR) Database* contains information on vital organ transplantation and kidney dialysis activities in Canada. For this report, the CORR, along with the OHIP database, provided information on chronic kidney dialysis procedures.

#### The Trillium Gift of Life Network (TGLN)

**Database** includes centralized information on organ and tissue donations from across Ontario. Along with the OHIP database, the TGLN database provided information on kidney transplantations performed on Ontarians with diabetes.

#### The ICES Physician Database (IPDB)

comprises information from the Ontario Health Insurance Plan (OHIP) Corporate Provider Database, the Ontario Physician Human Resource Data Centre (OPHRDC) database and the OHIP physician claims database. This combined dataset contains information about physician demographics, specialty training and certification and practice location. This information is validated against the OPHRDC database, which verifies this information through periodic telephone interviews with all physicians practicing in Ontario. The **Corporate Provider Database** was also used to identify practice locations for Ontario optometrists.

#### An Inventory of Diabetes Education

**Programs** in the LHINs came from their respective Diabetes Regional Coordination Centres. Each Diabetes RCC conducted its own inventory of diabetes education services and provided information on the locations of main diabetes education programs, as well as outreach and satellite programs within its Local Health Integration Network.

Statistics Canada's 2006 Census provided information about the prevalence of lowincome and self-identified visible minorities (individuals belonging to non-white, non-Aboriginal ethnic groups) in the general population.

## **METHODS**

All of the data presented in this report were analyzed and mapped at ICES. We created maps showing indicators of diabetes burden and access to diabetes services at three levels: across larger regions (Local Health Integration Networks or LHINs), smaller subregions (primary subLHINs), and communities (census subdivisions or CSDs).

For all indicators, we suppressed estimates in cases where the numerator equaled five or less in order to ensure privacy and confidentiality. However, estimates were reported in those cases where the numerator equaled zero.

Except for indicators using census data, all estimates were generated based on the adult population aged 20 years and older and age- and sex-standardized using the direct method. For diabetes prevalence and incidence, standardization was performed using the 2001 Ontario population aged 20 years and older as the standard population. For all other indicators, rates were age- and sex-standardized using the population aged 20 years and older in the Ontario Diabetes Database (ODD) on March 31, 2006 as the standard population.

For all measures based on visits to a hospital or health care provider, only the first visit was counted in each time period. This means that the actual number/rate of events is in fact higher because individuals may have multiple hospitalizations or physician visits during a given time period.

In these analyses, we have used a type of thematic map known as a choropleth or shaded map. On choropleth maps, the intensity of the colour corresponds to the range of values of the depicted variable—the darker the shade, the higher the value. The categories presented were created for each variable individually using a statistical method called 'natural breaks.'44 The values derived from these natural breaks were subsequently rounded for easier interpretation of legends, which is a typical cartographic procedure. Each LHIN-based map of a given variable uses the same categories so that maps from different LHINs can be compared. When rates were calculated by CSD, a different range of categories were generated that reflect the generally wider distribution of rates across communities. CSD-level maps provide small area-level data that are useful for health service planners. However, because the number of people and events contributing to the numerator is substantially smaller in CSD-level analyses than those observed in larger areas, these rates needed to be aggregated across several years to account for smaller numbers.

"All of the data presented in this report were analyzed and mapped at ICES."

# DATA LIMITATIONS AND CONSIDERATIONS

While administrative data offer the ability to examine health outcomes for entire populations, there are limitations associated with their use, and caveats that should be considered in interpreting our findings.

- The Ontario Diabetes Database (ODD) does not distinguish between type 1 and type 2 diabetes; however, this may not influence rates generated for the entire population with diabetes to a significant extent as the vast majority (90%–95%) have type 2 diabetes.
- The ODD is unable to capture individuals with diabetes who have not yet been diagnosed. However, a recent study found high rates of screening among Ontarians aged 40 years and older (approximately 90% over five years), suggesting that the percentage of all cases that remain unknown is likely to be small.<sup>45</sup> The ODD is also unable to capture those individuals who are not identifiable using the ODD's algorithm. For instance, visits to physicians who are paid through alternate funding programs and not through a fee-forservice mechanism will not generate an Ontario Health Insurance Plan claim unless the physician submits 'shadow' billing claims. Similarly, visits to a non-physician health provider (e.g., in a nurse-led clinic) or occurring out of province (as may be the case for individuals living in northwestern

Ontario who receive care in Manitoba) will not be captured. Thus, our estimates may underestimate the true burden of diabetes in the population or of rates of hospitalizations or emergency department visits for diabetes complications.

- Population denominators based on the Registered Persons Database (RPDB) will not capture individuals who have had a lapse in their health care coverage, which may lead to rates of diabetes being overestimated in some regions or communities. Conversely, the RPDB under-captures deaths by as much as 7%, which may have also affected the rates we generated.
- The RPDB does not have up-to-date postal codes for all individuals living in the province, and this may influence the rates generated in a given region or community.
- The National Ambulatory Care Reporting System does not capture episodes of severe hypoglycemia that are only treated by emergency medical services in the field (i.e., episodes that do not lead to an emergency department visit). Conversely, in some regions family practitioners may see patients in the emergency department for mild hyper- or hypoglycemia or for other aspects of diabetes management, thus inflating rates of acute complications in some areas of the province.

- We did not use formal statistical tests to evaluate whether rates generated for one region or community were higher or lower than the provincial average or from each other.
- We used a commonly applied measure to evaluate differences in poverty across regions: the percentage of economic families living below Statistics Canada's Low Income Cut-Off (LICO, after tax). This measure is a relative and not an absolute measure of poverty. It is based on comparing family income to that of other families in a similarsized community, and its performance varies between urban and rural areas. In particular, values in northern and remote communities may be inaccurate because of missing data from First Nations reserves. Also, similarsized communities in different regions may have very different cost structures for housing, food and other necessities of life.

### LIST OF EXHIBITS

**Exhibit A.1 /** Diabetes prevalence per 100 adults in Ontario, by Local Health Integration Network (LHIN), on March 31, 2011

**Exhibit A.2 /** Diabetes incidence per 100 adults in Ontario, by Local Health Integration Network (LHIN), 2009/10

**Exhibit A.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

Exhibit A.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for a skin and soft tissue infection or foot ulcer in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

**Exhibit A.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

**Exhibit A.6** / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

**Exhibit A.7** / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

**Exhibit A.8** / Number, per 100 adults with diabetes, who had an additional chronic medical condition in Ontario, by Local Health Integration Network (LHIN), 2006/07–2008/09

**Exhibit A.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in Ontario, by Local Health Integration Network (LHIN), 2006/07–2008/09

Exhibit A.10 / Number and percentage of adults with diabetes in Ontario, by Local Health Integration Network (LHIN), on March 31, 2011

**Exhibit A.11 /** Number and percentage of adults with diabetes in Ontario, by major urban centre, on March 31,2011

Exhibit A.12 / Number and percentage of adults with diabetes who had any chronic complication in Ontario, by Local Health Integration Network (LHIN), 2006/07–2010/11

**Exhibit A.13 /** Number and percentage of adults with diabetes who had any chronic complication in Ontario, by major urban centre, 2006/07–2010/11

**Exhibit 1.1 /** Diabetes prevalence per 100 adults in the Erie St. Clair LHIN (1), by subLHIN, on March 31, 2011

**Exhibit 1.2 /** Diabetes incidence per 100 adults in the Erie St. Clair LHIN (1), by subLHIN, 2009/10

**Exhibit 1.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2010/11

**Exhibit 1.4** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2010/11

Exhibit 1.5 / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Erie St. Clair (LHIN 1), by subLHIN, 2006/07–2010/11

Exhibit 1.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2010/11

**Exhibit 1.7 /** Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2010/11

**Exhibit 1.8** / Number, per 100 adults with diabetes, who had any chronic medical condition in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2008/09

**Exhibit 1.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Erie St. Clair LHIN (1), by subLHIN, 2006/07–2008/09

**Exhibit 1.10 /** Percentage of economic families with low income in the Erie St. Clair LHIN (1), by subLHIN, 2005

**Exhibit 1.11 /** Percentage of visible minorities in the Erie St. Clair LHIN (1), by subLHIN, 2006

**Exhibit 1.12** / Diabetes prevalence per 100 adults in the Erie St. Clair LHIN (1), by census subdivision, on March 31, 2011

**Exhibit 1.13 /** Diabetes incidence per 100 adults in the Erie St. Clair LHIN (1), by census subdivision, 2005/06–2009/10

Exhibit 1.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Erie St. Clair LHIN (1), by census subdivision, 2006/07–2010/11

Exhibit 1.15 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Erie St. Clair LHIN (1), by census subdivision, 2006/07–2010/11

Exhibit 1.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Erie St. Clair LHIN (1), by census subdivision (CSD), 2006/07–2010/11

**Exhibit 1.17 /** Locations of diabetes education programs in the Erie St. Clair LHIN (1), 2011

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**Exhibit 2.1 /** Diabetes prevalence per 100 adults in the South West LHIN (2), by subLHIN, on March 31, 2011

**Exhibit 2.2 /** Diabetes incidence per 100 adults in the South West LHIN (2), by subLHIN, 2009/10

**Exhibit 2.3 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the South West LHIN (2), by subLHIN, 2006/07–2010/11

**Exhibit 2.4** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the South West LHIN (2), by subLHIN, 2006/07–2010/11

**Exhibit 2.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the South West LHIN (2), by subLHIN, 2006/07–2010/11

Exhibit 2.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the South West LHIN (2), by subLHIN, 2006/07–2010/11

**Exhibit 2.7** / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the South West LHIN (2), by subLHIN, 2006/07–2010/11

Exhibit 2.8 / Number, per 100 adults with diabetes, who had any chronic medical condition in the South West LHIN (2), by subLHIN, 2006/07–2008/09

**Exhibit 2.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the South West LHIN (2), by subLHIN, 2006/07–2008/09

**Exhibit 2.10 /** Percentage of economic families with low income in the South West LHIN (2), by subLHIN, 2005

**Exhibit 2.11 /** Percentage of visible minorities in the South West LHIN (2), by subLHIN, 2006

**Exhibit 2.12 /** Diabetes prevalence per 100 adults in the South West LHIN (2), by census subdivision, on March 31, 2011

Exhibit 2.13 / Diabetes incidence per 100 adults in the South West LHIN (2), by census subdivision, 2005/06–2009/10

Exhibit 2.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the South West LHIN (2), by census subdivision, 2006/07–2010/11

**Exhibit 2.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the South West LHIN (2), by census subdivision, 2006/07–2010/11

Exhibit 2.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the South West LHIN (2), by census subdivision, 2006/07–2010/11

**Exhibit 2.17 /** Locations of diabetes education programs in the South West LHIN (2), 2011

**Exhibit 2.18 /** Locations of endocrinologists and eye specialists in the South West LHIN (2), 2010/11

**Exhibit 3.1 /** Diabetes prevalence per 100 adults in the Waterloo Wellington LHIN (3), by subLHIN, on March 31, 2011

**Exhibit 3.2 /** Diabetes incidence per 100 adults in the Waterloo Wellington LHIN (3), by subLHIN, 2009/10

**Exhibit 3.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2010/11

Exhibit 3.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2010/11

**Exhibit 3.5 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2010/11

Exhibit 3.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2010/11

Exhibit 3.7 / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2010/11

**Exhibit 3.8** / Number, per 100 adults with diabetes, who had any chronic medical condition in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2008/09

Exhibit 3.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Waterloo Wellington LHIN (3), by subLHIN, 2006/07–2008/09

**Exhibit 3.10 /** Percentage of economic families with low income in the Waterloo Wellington LHIN (3), by subLHIN, 2005

**Exhibit 3.11 /** Percentage of visible minorities in the Waterloo Wellington LHIN (3), by subLHIN, 2006

**Exhibit 3.12 /** Diabetes prevalence per 100 adults in the Waterloo Wellington LHIN (3), by census subdivision, on March 31, 2011

**Exhibit 3.13 /** Diabetes incidence per 100 adults in the Waterloo Wellington LHIN (3), by census subdivision, 2005/06–2009/10

Exhibit 3.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Waterloo Wellington LHIN (3), by census subdivision, 2006/07–2010/11

Exhibit 3.15 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Waterloo Wellington LHIN (3), by census subdivision, 2006/07–2010/11

Exhibit 3.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Waterloo Wellington LHIN (3), by census subdivision, 2006/07–2010/11

**Exhibit 3.17 /** Locations of diabetes education programs in the Waterloo Wellington LHIN (3), 2011

**Exhibit 3.18 /** Locations of endocrinologists and eye specialists in the Waterloo Wellington LHIN (3), 2010/2011

**Exhibit 4.1 /** Diabetes prevalence per 100 adults in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, on March 31, 2011

**Exhibit 4.2 /** Diabetes incidence per 100 adults in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2009/10

**Exhibit 4.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2010/11

**Exhibit 4.4** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2010/11

**Exhibit 4.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2010/11

**Exhibit 4.6** / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2010/11

**Exhibit 4.7 /** Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2010/11

**Exhibit 4.8** / Number, per 100 adults with diabetes, who had any chronic medical condition in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07–2008/09

Exhibit 4.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006/07– 2008/09 **Exhibit 4.10 /** Percentage of economic families with low income in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2005

**Exhibit 4.11 /** Percentage of visible minorities in the Hamilton Niagara Haldimand Brant LHIN (4), by subLHIN, 2006

**Exhibit 4.12 /** Diabetes prevalence per 100 adults in the Hamilton Niagara Haldimand Brant LHIN (4), by census subdivision, on March 31, 2011

**Exhibit 4.13 /** Diabetes incidence per 100 adults in the Hamilton Niagara Haldimand Brant LHIN (4), by census subdivision, 2005/06–2009/10

Exhibit 4.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Hamilton Niagara Haldimand Brant LHIN (4), by census subdivision, 2006/07– 2010/11

Exhibit 4.15 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Hamilton Niagara Haldimand Brant LHIN (4), by census subdivision, 2006/07– 2010/11

**Exhibit 4.16 /** Number, per 10,000 adults with diabetes, who had any chronic complication in the Hamilton Niagara Haldimand Brant LHIN (4), by census subdivision, 2006/07–2010/11

**Exhibit 4.17 /** Locations of diabetes education programs in the Hamilton Niagara Haldimand Brant LHIN (4), 2011

**Exhibit 4.18 /** Locations of endocrinologists and eye specialists in the Hamilton Niagara Haldimand Brant LHIN (4), 2010/2011

**Exhibit 5.1 /** Diabetes prevalence per 100 adults in the Central West LHIN (5), by subLHIN, on March 31, 2011

**Exhibit 5.2 /** Diabetes incidence per 100 adults in the Central West LHIN (5), by subLHIN, 2009/10

**Exhibit 5.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central West LHIN (5), by subLHIN, 2006/07–2010/11

Exhibit 5.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Central West LHIN (5), by subLHIN, 2006/07–2010/11

**Exhibit 5.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Central West LHIN (5), by subLHIN, 2006/07–2010/11

Exhibit 5.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Central West LHIN (5), by subLHIN, 2006/07–2010/11

**Exhibit 5.7** / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Central West LHIN (5), by subLHIN, 2006/07–2010/11

Exhibit 5.8 / Number, per 100 adults with diabetes, who had any additional chronic medical condition in the Central West LHIN (5), by subLHIN, 2006/07–2008/09

**Exhibit 5.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Central West LHIN (5), by subLHIN, 2006/07–2008/09

**Exhibit 5.10 /** Percentage of economic families with low income in the Central West LHIN (5), by subLHIN, 2005

**Exhibit 5.11 /** Percentage of visible minorities in the Central West LHIN (5), by subLHIN, 2006

**Exhibit 5.12 /** Diabetes prevalence per 100 adults in the Central West LHIN (5), by census subdivision, on March 31, 2011

Exhibit 5.13 / Diabetes incidence per 100 adults in the Central West LHIN (5), by census subdivision, 2005/06–2009/10

Exhibit 5.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central West LHIN (5), by census subdivision, 2006/07–2010/11

**Exhibit 5.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Central West LHIN (5), by census subdivision, 2006/07–2010/11

Exhibit 5.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Central West LHIN (5), by census subdivision, 2006/07–2010/11

**Exhibit 5.17 /** Locations of diabetes education programs in the Central West LHIN (5), 2011

**Exhibit 5.18 /** Locations of endocrinologists and eye specialists in the Central West LHIN (5), 2010/2011

**Exhibit 6.1 /** Diabetes prevalence per 100 adults in the Mississauga Halton LHIN (6), by subLHIN, on March 31, 2011

**Exhibit 6.2 /** Diabetes incidence per 100 adults in the Mississauga Halton LHIN (6), by subLHIN, 2009/10

**Exhibit 6.3** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2010/11

Exhibit 6.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2010/11

**Exhibit 6.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2010/11

**Exhibit 6.6** / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2010/11

**Exhibit 6.7 /** Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2010/11

**Exhibit 6.8** / Number, per 100 adults with diabetes, who had any chronic medical condition in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2008/09

Exhibit 6.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Mississauga Halton LHIN (6), by subLHIN, 2006/07–2008/09

**Exhibit 6.10 /** Percentage of economic families with low income in the Mississauga Halton LHIN (6), by subLHIN, 2005

**Exhibit 6.11 /** Percentage of visible minorities in the Mississauga Halton LHIN (6), by subLHIN, 2006

**Exhibit 6.12 /** Diabetes prevalence per 100 adults in the Mississauga Halton LHIN (6), by census subdivision, on March 31, 2011

**Exhibit 6.13 /** Diabetes incidence per 100 adults in the Mississauga Halton LHIN (6), by census subdivision, 2005/06–2009/10

**Exhibit 6.14 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Mississauga Halton LHIN (6), by census subdivision, 2006/07–2010/11

**Exhibit 6.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Mississauga Halton LHIN (6), by census subdivision, 2006/07–2010/11

**Exhibit 6.16 /** Number, per 10,000 adults with diabetes, who had any chronic complication in the Mississauga Halton LHIN (6), by census subdivision, 2006/07–2010/11

**Exhibit 6.17 /** Locations of diabetes education programs in the Mississauga Halton LHIN (6), 2011

**Exhibit 6.18 /** Locations of endocrinologists and eye specialists in the Mississauga Halton LHIN (6), 2010/11

**Exhibit 7.1 /** Diabetes prevalence per 100 adults in the Toronto Central LHIN (7), by subLHIN, on March 31, 2011

**Exhibit 7.2 /** Diabetes incidence per 100 adults in the Toronto Central LHIN (7), by subLHIN, 2009/10

**Exhibit 7.3 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Toronto Central LHIN (7), by subLHIN, 2006/07–2010/11

Exhibit 7.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Toronto Central LHIN (7), by subLHIN, 2006/07–2010/11

**Exhibit 7.5** / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Toronto Central LHIN (7), by subLHIN, 2006/07–2010/11

Exhibit 7.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Toronto Central LHIN (7), by subLHIN, 2006/07–2010/11

**Exhibit 7.7** / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Toronto Central LHIN (7), by subLHIN, 2006/07–2010/11

**Exhibit 7.8 /** Number, per 100 adults with diabetes, who had any chronic medical condition in the Toronto Central LHIN (7), by subLHIN, 2006/07–2008/09

**Exhibit 7.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Toronto Central LHIN (7), by subLHIN, 2006/07–2008/09

**Exhibit 7.10 /** Percentage of economic families with low income in the Toronto Central LHIN (7), by subLHIN, 2005

**Exhibit 7.11 /** Percentage of visible minorities in the Toronto Central LHIN (7), by subLHIN, 2006

**Exhibit 7.12 /** Diabetes prevalence per 100 adults in the Toronto Central LHIN (7), by census subdivision, on March 31, 2011

**Exhibit 7.13 /** Diabetes incidence per 100 adults in the Toronto Central LHIN (7), by census subdivision, 2005/06–2009/10

**Exhibit 7.14 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Toronto Central LHIN (7), by census subdivision, 2006/07–2010/11

**Exhibit 7.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Toronto Central LHIN (7), by census subdivision, 2006/07–2010/11

Exhibit 7.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Toronto Central LHIN (7), by census subdivision, 2006/07–2010/11

Exhibit 7.17 / Locations of diabetes education programs in the Toronto Central LHIN (7), 2011

**Exhibit 7.18 /** Locations of endocrinologists and eye specialists in the Toronto Central LHIN (7), 2010/11

**Exhibit 8.1 /** Diabetes prevalence per 100 adults in the Central LHIN (8), by subLHIN, on March 31, 2011

**Exhibit 8.2 /** Diabetes incidence per 100 adults in the Central LHIN (8), by subLHIN, 2009/10

Exhibit 8.3 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central LHIN (8), by subLHIN, 2006/07–2010/11

Exhibit 8.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Central LHIN (8), by subLHIN, 2006/07–2010/11

**Exhibit 8.5 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Central LHIN (8), by subLHIN, 2006/07–2010/11

**Exhibit 8.6 /** Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Central LHIN (8), by subLHIN, 2006/07–2010/11

Exhibit 8.7 / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Central LHIN (8), by subLHIN, 2006/07–2010/11

**Exhibit 8.8 /** Number, per 100 adults with diabetes, who had an additional chronic medical condition in the Central LHIN (8), by subLHIN, 2006/07–2008/09

**Exhibit 8.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Central LHIN (8), by subLHIN, 2006/07–2008/09

Exhibit 8.10 / Percentage of economic families with low income in the Central LHIN (8), by subLHIN, 2005

**Exhibit 8.11 /** Percentage of visible minorities in the Central LHIN (8), by subLHIN, 2006

**Exhibit 8.12 /** Diabetes prevalence per 100 adults in the Central LHIN (8), by census subdivision, on March 31, 2011

Exhibit 8.13 / Diabetes incidence per 100 adults in the Central LHIN (8), by census subdivision, 2005/06–2009/10

Exhibit 8.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central LHIN (8), by census subdivision, 2006/07–2010/11

**Exhibit 8.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Central LHIN (8), by census subdivision, 2006/07–2010/11

Exhibit 8.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Central LHIN (8), by census subdivision, 2006/07–2010/11

**Exhibit 8.17 /** Locations of diabetes education programs in the Central LHIN (8), 2011

**Exhibit 8.18 /** Locations of endocrinologists and eye specialists in the Central LHIN (8), 2010/11

**Exhibit 9.1 /** Diabetes prevalence per 100 adults in the Central East LHIN (9), by subLHIN, on March 31, 2011

**Exhibit 9.2 /** Diabetes incidence per 100 adults in the Central East LHIN (9), by subLHIN, 2009/10

**Exhibit 9.3 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central East LHIN (9), by subLHIN, 2006/07–2010/11

**Exhibit 9.4 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Central East LHIN (9), by subLHIN, 2006/07–2010/11

Exhibit 9.5 / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Central East LHIN (9), by subLHIN, 2006/07–2010/11

Exhibit 9.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Central East LHIN (9), by subLHIN, 2006/07–2010/11

Exhibit 9.7 / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Central East LHIN (9), by subLHIN, 2006/07–2010/11

Exhibit 9.8 / Number, per 100 adults with diabetes, who had an additional chronic medical condition in the Central East LHIN (9), by subLHIN, 2006/07–2008/09

**Exhibit 9.9** / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Central East LHIN (9), by subLHIN, 2006/07–2008/09

Exhibit 9.10 / Percentage of economic families with low income in the Central East LHIN (9), by subLHIN, 2005

**Exhibit 9.11 /** Percentage of visible minorities in the Central East LHIN (9), by subLHIN, 2006

**Exhibit 9.12 /** Diabetes prevalence per 100 adults in the Central East LHIN (9), by census subdivision, on March 31, 2011

**Exhibit 9.13 /** Diabetes incidence per 100 adults in the Central East LHIN (9), by census subdivision, 2005/06–2009/10

Exhibit 9.14 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Central East LHIN (9), by census subdivision, 2006/07–2010/11

**Exhibit 9.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Central East LHIN (9), by census subdivision, 2006/07–2010/1

Exhibit 9.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Central East LHIN (9), by census subdivision, 2006/07–2010/11

**Exhibit 9.17 /** Locations of diabetes education programs in the Central East LHIN (9), 2011

**Exhibit 9.18 /** Locations of endocrinologists and eye specialists in the Central East LHIN (9), 2010/11

**Exhibit 10.1 /** Diabetes prevalence per 100 adults in the South East LHIN (10), by subLHIN, on March 31, 2011

**Exhibit 10.2 /** Diabetes incidence per 100 adults in the South East LHIN (10), by subLHIN, 2009/10

Exhibit 10.3 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the South East LHIN (10), by subLHIN, 2006/07–2010/11

Exhibit 10.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the South East LHIN (10), by subLHIN, 2006/07–2010/11

**Exhibit 10.5 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the South East LHIN (10), by subLHIN, 2006/07–2010/11

Exhibit 10.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the South East LHIN (10), by subLHIN, 2006/07–2010/11

Exhibit 10.7 / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the South East LHIN (10), by subLHIN, 2006/07–2010/11

Exhibit 10.8 / Number, per 100 adults with diabetes, who had an additional chronic medical condition in the South East LHIN (10), by subLHIN, 2006/07–2008/09

Exhibit 10.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the South East LHIN (10), by subLHIN, 2006/07–2008/09

Exhibit 10.10 / Percentage of economic families with low income in the South East LHIN (10), by subLHIN, 2005

**Exhibit 10.11 /** Percentage of visible minorities in the South East LHIN (10), by subLHIN, 2006

**Exhibit 10.12 /** Diabetes prevalence per 100 adults in the South East LHIN (10), by census subdivision, on March 31, 2011

Exhibit 10.13 / Diabetes incidence per 100 adults in the South East LHIN (10), by census subdivision, 2005/06–2009/10

**Exhibit 10.14 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the South East LHIN (10), by census subdivision, 2006/07–2010/11

Exhibit 10.15 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the South East LHIN (10), by census subdivision, 2006/07–2010/11

Exhibit 10.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the South East LHIN (10), by census subdivision, 2006/07–2010/11

**Exhibit 10.17 /** Locations of diabetes education programs in the South East LHIN (10), 2011

**Exhibit 10.18 /** Locations of endocrinologists and eye specialists in the South East LHIN (10), 2010/11

**Exhibit 11.1 /** Diabetes prevalence per 100 adults in the Champlain LHIN (11), by subLHIN, on March 31, 2011

**Exhibit 11.2 /** Diabetes incidence per 100 adults in the Champlain LHIN (11), by subLHIN, 2009/10

Exhibit 11.3 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Champlain LHIN (11), by subLHIN, 2006/07–2010/11

**Exhibit 11.4 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the Champlain LHIN (11), by subLHIN, 2006/07–2010/11

**Exhibit 11.5 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the Champlain LHIN (11), by subLHIN, 2006/07–2010/11

Exhibit 11.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the Champlain LHIN (11), by subLHIN, 2006/07–2010/11

Exhibit 11.7 / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the Champlain LHIN (11), by subLHIN, 2006/07–2010/11

Exhibit 11.8 / Number, per 100 adults with diabetes, who had an additional chronic medical condition in the Champlain LHIN (11), by subLHIN, 2006/07–2008/09

Exhibit 11.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the Champlain LHIN (11), by subLHIN, 2006/07–2008/09

**Exhibit 11.10 /** Percentage of economic families with low income in the Champlain LHIN (11), by subLHIN, 2005

**Exhibit 11.11 /** Percentage of visible minorities in the Champlain LHIN (11), by subLHIN, 2006

**Exhibit 11.12 /** Diabetes prevalence per 100 adults in the Champlain LHIN (11), by census subdivision, on March 31, 2011

**Exhibit 11.13 /** Diabetes incidence 100 adults aged 20 and older in the Champlain LHIN (11), by census subdivision, 2005/06–2009/10

**Exhibit 11.14 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the Champlain LHIN (11), by census subdivision, 2006/07–2010/11

Exhibit 11.15 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the Champlain LHIN (11), by census subdivision, 2006/07–2010/11

Exhibit 11.16 / Number, per 10,000 adults with diabetes, who had any chronic complication in the Champlain LHIN (11), by census subdivision, 2006/07–2010/11

**Exhibit 11.17 /** Locations of diabetes education programs in the Champlain LHIN (11), 2011

**Exhibit 11.18 /** Locations of endocrinologists and eye specialists in the Champlain LHIN (11), 2010/11

**Exhibit 12.1 /** Diabetes prevalence per 100 adults in the North Simcoe Muskoka LHIN (12), by subLHIN, on March 31, 2011

**Exhibit 12.2 /** Diabetes incidence per 100 adults in the North Simcoe Muskoka LHIN (12), by subLHIN, 2009/10

Exhibit 12.3 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2010/11

Exhibit 12.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2010/11

Exhibit 12.5 / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2010/11

Exhibit 12.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2010/11

**Exhibit 12.7** / Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2010/11

Exhibit 12.8 / Number, per 100 adults with diabetes, who had an additional chronic medical condition in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2008/09

Exhibit 12.9 / Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness i Number per 10,000 adults with diabetes n the North Simcoe Muskoka LHIN (12), by subLHIN, 2006/07–2008/09

**Exhibit 12.10 /** Percentage of economic families with low income in the North Simcoe Muskoka LHIN (12), by subLHIN, 2005

**Exhibit 12.11 /** Percentage of visible minorities in the North Simcoe Muskoka LHIN (12), by subLHIN, 2006

**Exhibit 12.12 /** Diabetes prevalence per 100 adults in the North Simcoe Muskoka LHIN (12), by census subdivision, on March 31, 2011

Exhibit 12.13 / Diabetes incidence 100 adults in the North Simcoe Muskoka LHIN (12), by census subdivision, 2005/06–2009/10

**Exhibit 12.14** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North Simcoe Muskoka LHIN (12), by census subdivision, 2006/07–2010/11

**Exhibit 12.15 /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North Simcoe Muskoka LHIN (12), by census subdivision, 2006/07–2010/11

**Exhibit 12.16 /** Number, per 10,000 adults with diabetes, who had any chronic complication in the North Simcoe Muskoka LHIN (12), by census subdivision, 2006/07–2010/11

Exhibit 12.17 / Locations of diabetes education programs in the North Simcoe Muskoka LHIN (12), 2011

Exhibit 12.18 / Locations of endocrinologists and eye specialists in the North Simcoe Muskoka LHIN (12), 2010/11

**Exhibit 13.1 /** Diabetes prevalence per 100 adults in the North East LHIN (13) and North West LHIN (14), by subLHIN, on March 31, 2011

**Exhibit 13.2 /** Diabetes incidence per 100 adults in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2009/10

Exhibit 13.3 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2010/11

Exhibit 13.4 / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for skin and soft tissue infection or foot ulcer in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2010/11

Exhibit 13.5 / Number, per 10,000 adults with diabetes, who had at least one hospitalization for a cardiovascular condition in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2010/11

Exhibit 13.6 / Number, per 10,000 adults with diabetes, who had a lower extremity amputation in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2010/11

**Exhibit 13.7 /** Number, per 10,000 adults with diabetes, who received chronic dialysis or kidney transplantation in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2010/11

Exhibit 13.8 / Number, per 100 adults with diabetes, who had an additional chronic medical condition in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2008/09

**Exhibit 13.9 /** Number, per 100 adults with diabetes, who made a mental health visit for a psychotic or nonpsychotic illness in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006/07–2008/09

Exhibit 13.10 / Percentage of economic families with low income in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2005

**Exhibit 13.11 /** Percentage of visible minorities in the North East LHIN (13) and North West LHIN (14), by subLHIN, 2006

**Exhibit 13.12a /** Diabetes prevalence per 100 adults in the North East LHIN (13, south view), by census subdivision, on March 31, 2011

**Exhibit 13.12b /** Diabetes prevalence per 100 adults in the North East LHIN (13, north view), by census subdivision, on March 31, 2011

**Exhibit 13.12c /** Diabetes prevalence per 100 adults in the North West LHIN (14, southwest view), by census subdivision, on March 31, 2011

**Exhibit 13.12d /** Diabetes prevalence per 100 adults in the North West LHIN (14, north view), by census subdivision, March 31, 2011

**Exhibit 13.12e** / Diabetes prevalence per 100 adults in the North West LHIN (14, southeast view), by census subdivision, on March 31, 2011

Exhibit 13.13a / Diabetes incidence per 100 Ontario adults in the North East LHIN (13, south view), by census subdivision, 2005/06–2009/10

Exhibit 13.13b / Diabetes incidence per 100 Ontario adults in the North East LHIN (13, north view), by census subdivision, 2005/06–2009/10

**Exhibit 13.13c /** Diabetes incidence per 100 Ontario adults in the North West LHIN (14, southwest view), by census subdivision, 2005/06–2009/10

**Exhibit 13.13d /** Diabetes incidence per 100 Ontario adults in the North West LHIN (14, north view), by census subdivision, 2005/06–2009/10

**Exhibit 13.13e /** Diabetes incidence per 100 Ontario adults in the North West LHIN (14, southeast view), by census subdivision, 2005/06–2009/10

**Exhibit 13.14a /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North East LHIN (13, south view), by census subdivision, 2006/07–2010/11

**Exhibit 13.14b** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North East LHIN (13, north view), by census subdivision, 2006/07–2010/11

Exhibit 13.14c / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North West LHIN (14, southwest view), by census subdivision, 2006/07–2010/11

**Exhibit 13.14d /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North West LHIN (14, north view), by census subdivision, 2006/07–2010/11

**Exhibit 13.14e** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for hyper- or hypoglycemia in the North West LHIN (14, southeast view), by census subdivision, 2006/07–2010/11

Exhibit 13.15a / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North East LHIN (13, south view), by census subdivision, 2006/07–2010/11

**Exhibit 13.15b /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North East LHIN (13, north view), by census subdivision, 2006/07–2010/11

**Exhibit 13.15c /** Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North West LHIN (14, southwest view), by census subdivision, 2006/07–2010/11

Exhibit 13.15d / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North West LHIN (14, north view), by census subdivision, 2006/07–2010/11

**Exhibit 13.15e** / Number, per 10,000 adults with diabetes, who had at least one hospitalization or emergency department visit for any acute complication in the North West LHIN (14, southeast view), by census subdivision, 2006/07–2010/11

Exhibit 13.16a / Number, per 10,000 adults with diabetes, who had any chronic complication in the North East LHIN (13, south view), by census subdivision, 2006/07–2010/11

Exhibit 13.16b / Number, per 10,000 adults with diabetes, who had any chronic complication in the North East LHIN (13, north view), by census subdivision, 2006/07–2010/11

Exhibit 13.16c / Number, per 10,000 adults with diabetes, who had any chronic complication in the North West LHIN (14, southwest view), by census subdivision, 2006/07–2010/11

Exhibit 13.16d / Number, per 10,000 adults with diabetes, who had any chronic complication in the North West LHIN (14, north view), by census subdivision, 2006/07–2010/11

Exhibit 13.16e / Number, per 10,000 adults with diabetes, who had any chronic complication in the North West LHIN (14, southeast view), by census subdivision, 2006/07–2010/11

Exhibit 13.17 / Locations of diabetes education programs in the North East LHIN (13) and North West LHIN (14), 2011

**Exhibit 13.18 /** Locations of endocrinologists and eye specialists in the North East LHIN (13) and North West LHIN (14), 2010/11