Chapter 32
Health—Preventing Diabetes-Related Health Complications

1.0 Main Points

Preventative measures and better disease management can reduce the prevalence of diabetes-related complications, the impact of the disease on quality of life and lead to lower health costs.

Statistics on the prevalence of diabetes show Saskatchewan's overall diabetes prevalence rate is slightly higher than the national rate of 7.3%. Provincial statistics show the overall diabetes prevalence rate varies significantly in different parts of the province. It ranges from a high of 11% for one health network in the North East area to a low of 5.6% for one health network in Saskatoon (see **Figure 1**).

Since our 2017 follow-up, the Ministry of Health has made some progress on implementing outstanding recommendations from our 2012 audit, but more work is needed to help prevent diabetes-related health complications in people living with diabetes.

The Ministry continues to use its IT system, the Chronic Disease Management—Quality Improvement Program (CDM-QIP). However, it has made limited progress in increasing physicians' use of CDM-QIP to track patient care. We found only 37% of diabetics have their patient care tracked in CDM-QIP. The CDM-QIP enables the use of best practices when providing care to patients living with chronic diseases. The CDM-QIP collects data from participating physicians about key healthcare services provided to people living with diabetes.

Overall, the Ministry still needs to:

- Take steps to obtain complete data from physicians about healthcare services provided to patients with chronic diseases like diabetes—it needs complete data to do meaningfully analysis about the effectiveness of those healthcare services.
- Analyze the data on the effectiveness of programs and services delivered by the Saskatchewan Health Authority to people living with diabetes (e.g., extent of key diabetes-related complications such as amputations).

Meaningful analysis of health services provided to patients living with diabetes would help the Ministry determine if such patients receive appropriate health care services to help prevent complications, and have appropriate access to those services.

2.0 Introduction

The Ministry of Health is responsible for ensuring people with chronic diseases, such as diabetes, receive appropriate care. It directly compensates the majority of physicians for health care services (e.g., annual physical exams) provided to Saskatchewan residents, including those with diabetes.

This chapter describes the results of our third follow-up audit. Our *2012 Report – Volume 2*, Chapter 32, concluded that the Ministry did not have effective strategies for preventing diabetes-related health complications. We made 12 recommendations. Our 2017 follow-up audit showed the Ministry implemented seven recommendations.[1]

To conduct this audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Ministry's progress toward meeting our recommendations, we used the relevant criteria from the original audit. The Ministry's management agreed with the criteria in the original audit.

We interviewed Ministry staff, reviewed quality improvement plans, and examined information the Ministry used to analyze and report on diabetes program performance.

3.0 STATUS OF RECOMMENDATIONS

This section sets out each recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at August 31, 2020, and the Ministry's actions up to that date.

3.1 Some Services Tracked but Analysis Not Done

We recommended the Ministry of Health collect and analyze information to assess whether services delivered by physicians and care providers are effective and if they provide needed services to people with diabetes to prevent diabetes-related health complications. (*2012 Report – Volume 2*; p. 269, Recommendation 10; Public Accounts Committee agreement September 9, 2014)

Status—Partially Implemented

We recommended the Ministry of Health establish processes to monitor that people with diabetes receive appropriate services to reduce their risk of developing diabetes-related health complications. (*2012 Report – Volume 2*; p. 265, Recommendation 3; Public Accounts Committee agreement September 9, 2014)

Status—No longer relevant in that this recommendation is a subset of Recommendations 10 (above) and 11 (see **Section 3.2**), and implementation of Recommendations 10 and 11 would encompass establishing processes set out in this recommendation

We recommended the Ministry of Health establish processes to monitor that people with diabetes have access to appropriate services in the province. (*2012 Report – Volume 2*; p. 265, Recommendation 4; Public Accounts Committee agreement September 9, 2014)

Status—No longer relevant in that this recommendation is a subset of the Recommendations 10 (above) and 11 (see **Section 3.2**), and implementation of the Recommendations 10 and 11 would encompass establishing processes set out in this recommendation

[1] auditor.sk.ca/pub/publications/public_reports/2017/Volume_2/CH%2033_Health_Diabetes.pdf

Since our 2017 follow-up, the Ministry of Health continues to collect key healthcare services data for certain patients living with chronic health conditions, like diabetes from physicians using Chronic Disease Management—Quality Improvement Program (CDM-QIP). It has not been successful in collecting data from physicians on a greater percentage of diabetic patients than in our 2017 follow-up audit.[2] The Ministry established a working group intended to support CDM-QIP data analysis and increase physician uptake of CDM-QIP in the future.

The Ministry primarily collects data about individuals with chronic health conditions from physicians through an IT system—CDM-QIP.[3] The CDM-QIP was developed as a quality improvement incentive program for physicians to use when caring for patients living with chronic illnesses.[4] CDM-QIP tracks key healthcare services (e.g., whether A1C blood levels are tested twice a year) provided to people who are living with chronic conditions such as diabetes. While the use of CDM-QIP is voluntary, having physicians use CDM-QIP shows they are following best practice guidelines. The CDM-QIP covers best practices in diabetes care.[5] The majority of physicians expected to use CDM-QIP are family physicians who operate their own independent clinics.

CDM-QIP enables physicians who actively use it to monitor the services they provide and identify improvements in patient outcomes. Physicians can also use this information to help ensure they deliver consistent service across their practice. Early detection and appropriate management of potential issues reduces the risk of developing serious health complications from a chronic disease.

The Ministry has not been successful in obtaining more information about all individuals living with chronic health conditions because the use of CDM-QIP has not increased. We found:

- About 37% of people living with diabetes (35,153 out of 96,000 patients living with diabetes) were included in CDM-QIP at March 31, 2020.[6] The Ministry did not achieve its goal—by 2020, 50% of patients receive care according to best practice guidelines for managing diabetes.

- Ministry records show 791 physicians and nurse practitioners were using CDM-QIP flow sheets at July 31, 2020 as compared to 799 physicians and nurse practitioners at March 2017.

Not having sufficient information on the condition and care received decreases the Ministry's ability to carry out meaningful analysis of services people with diabetes receive.

As of August 2020, the Ministry did not yet analyze whether patients living with diabetes were sufficiently monitored by their physicians or if they received best practice interventions to reduce their risk of developing diabetes-related health complications. The Ministry also

[2] auditor.sk.ca/pub/publications/public_reports/2017/Volume_2/CH%2033_Health_Diabetes.pdf
[3] eHealth Saskatchewan maintains CDM-QIP.
[4] The program was negotiated with the Saskatchewan Medical Association (SMA) and the Ministry, with joint leadership by the two organizations in 2013.
[5] auditor.sk.ca/pub/publications/public_reports/2015/Volume_1/23_Health-Diabetes.pdf
[6] The 2017-18 statistics (the latest available from the Ministry of Health) indicate approximately 96,000 people live with diabetes in Saskatchewan.

had not analyzed whether people with diabetes received a similar level of service from physicians across the province.

Since our 2017 follow-up, the Ministry established a working group for CDM-QIP. Its role is to support CDM-QIP data analysis, assist in increasing uptake (i.e., the number of physicians using the program and the number of patients for whom best practice flow sheets are being used) and improve program evaluation. The Ministry indicated that the working group has met only sporadically and has deferred this work due to other pressures. The Ministry is re-engaging the working group in fall 2020 to review the healthcare service data submitted to CDM-QIP for appropriateness of care to patients and discuss means of improving uptake. The Ministry needs to find collaborative ways to work with the Saskatchewan Medical Association, the Saskatchewan Health Authority, and physicians to increase the use of CDM-QIP.

In addition, at August 2020, the Ministry had not yet developed key diabetes-related metrics to assess whether services delivered prevented diabetes-related complications (e.g., number of amputations). We also found the Ministry had not analyzed whether patients with avoidable hospital admissions are in CDM-QIP. The Ministry reported 1,046 avoidable hospital admissions for diabetic-related complications in 2019-20.

Enhanced information collection and analysis would potentially enable a better quality of life for people with diabetes and long-term cost avoidance through effective diabetes management.

3.2 Analysis to Assess Resource Allocations and Programs Needed

We recommended the Ministry of Health work with regional health authorities to ensure resources on a regional basis are effectively deployed to manage diabetes and diabetes-related health complications. (*2012 Report – Volume 2*; p. 267, Recommendation 7; Public Accounts Committee agreement September 9, 2014)

Status—Partially Implemented

We recommended the Ministry of Health collect and analyze information to assess the effectiveness of regional health authorities' programs to manage diabetes and the prevention of diabetes-related health complications. (*2012 Report – Volume 2*; p. 270, Recommendation 11; Public Accounts Committee agreement September 9, 2014)

Status—Partially Implemented

By August 31, 2020, the Ministry of Health and the Saskatchewan Health Authority have collected the prevalence rate of diabetes by health network. The Ministry had not determined whether the Authority delivered programs effectively to manage diabetes and diabetes-related health complications.[7]

[7] Since our 2017 follow-up, the former regional health authorities were combined into a single organization, the Saskatchewan Health Authority.

The Ministry has given the Authority the ability to decide how much resources to allocate to the services it provides, including primary healthcare and chronic disease management services. The allocation of resources is guided by the Ministry's annual accountability document with the Authority, which outlines the goals for the health system and the Authority specific targets and key actions.

The Authority approved the geographies of its 38 health networks in July 2019. The Authority plans to use its health networks to help it: enhance identification of local health needs and coordinate necessary, fully integrated services; and align both its financial and human resources to areas of greatest need including where citizens with diabetes live and work, and where their on-going care can be supported and monitored. A map of the health networks is provided in **Section 4.0**. The Ministry is developing and plans to provide the Authority relevant data, regarding variation in health needs and services among health networks, to inform priorities for service improvement.

We found by August 2020, the Authority has already made program changes to redeploy resources. For example, the Authority reviewed its Metabolic, Endocrinology and Diabetes Education Centre (MEDEC) program at the Regina General Hospital. The MEDEC program provides good diabetes education to patients. The Authority has redeployed MEDEC staff among the four Regina health networks to improve citizen access to diabetes education in the community.

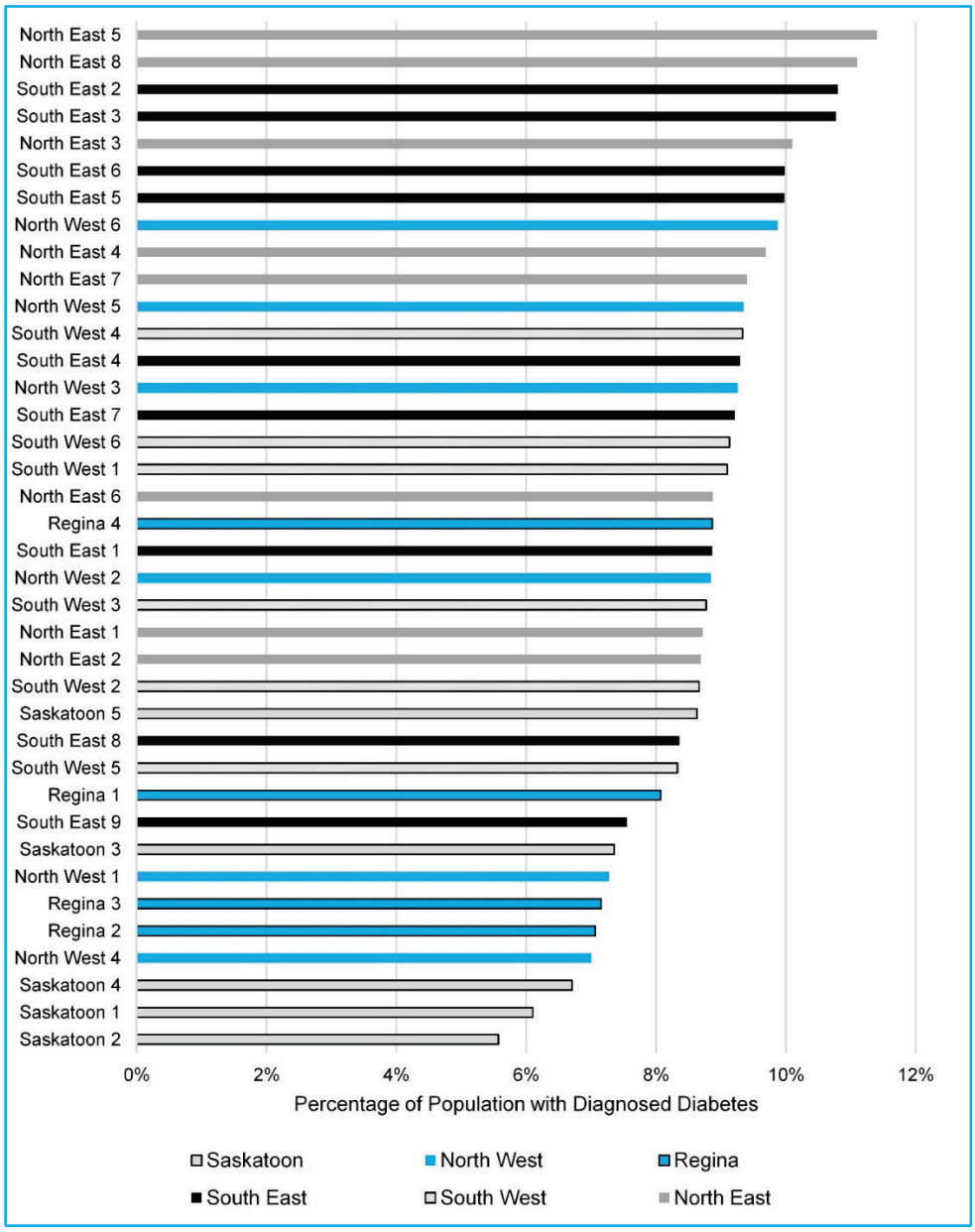
At August 2020, the Ministry had not developed key diabetes-related metrics to assess whether services delivered prevented diabetes-related complications. Analysis of information, such as key evidence-based metrics associated with diabetes-related complications (e.g., amputations, screening and services for retinopathy and nephropathy), would aid in improving services.[8,9] Such metrics would also allow the Ministry to assess if the Authority is effectively managing its diabetes programs.

In 2019, the Ministry, the Authority, and the Health Quality Council collected data through various means, and used this information to generate area health networks profile reports. We found the area health network profile reports include demographics, social determinants of health, and chronic disease statistics (e.g., prevalence of diabetes).

As shown in **Figure 1**, we note the profile reports by health network show 2017-18 overall diabetes prevalence rate ranges from a high of 11% for one health network in the North East area to a low of 5.6% for one health network in Saskatoon. In general, health networks in the larger urban areas of Regina and Saskatoon had lower rates than the rest of the province in 2017-18. Saskatchewan's 2017-18 overall diabetes prevalence rate was 8%. By comparison, Statistics Canada reports the rate across Canada as 7.3% in 2017.[10]

[8] Retinopathy often refers to retinal vascular disease, or damage to the retina caused by abnormal blood flow. Best practice for Type 1 diabetes: screen five years after diagnosis, then rescreen annually. For Type 2 diabetes: screen at diagnosis, then every 1–2 years if no retinopathy present.
[9] Nephropathy means kidney disease or damage. Best practice for Type 1 diabetes: screen five years after diagnosis, then rescreen annually. For Type 2 diabetes: screen at diagnosis, then annually.
[10] www150.statcan.gc.ca/n1/pub/82-625-x/2018001/article/54982-eng.htm (23 September 2020).

Figure 1—Diabetes Crude Prevalence Rate by Health Network 2017-18



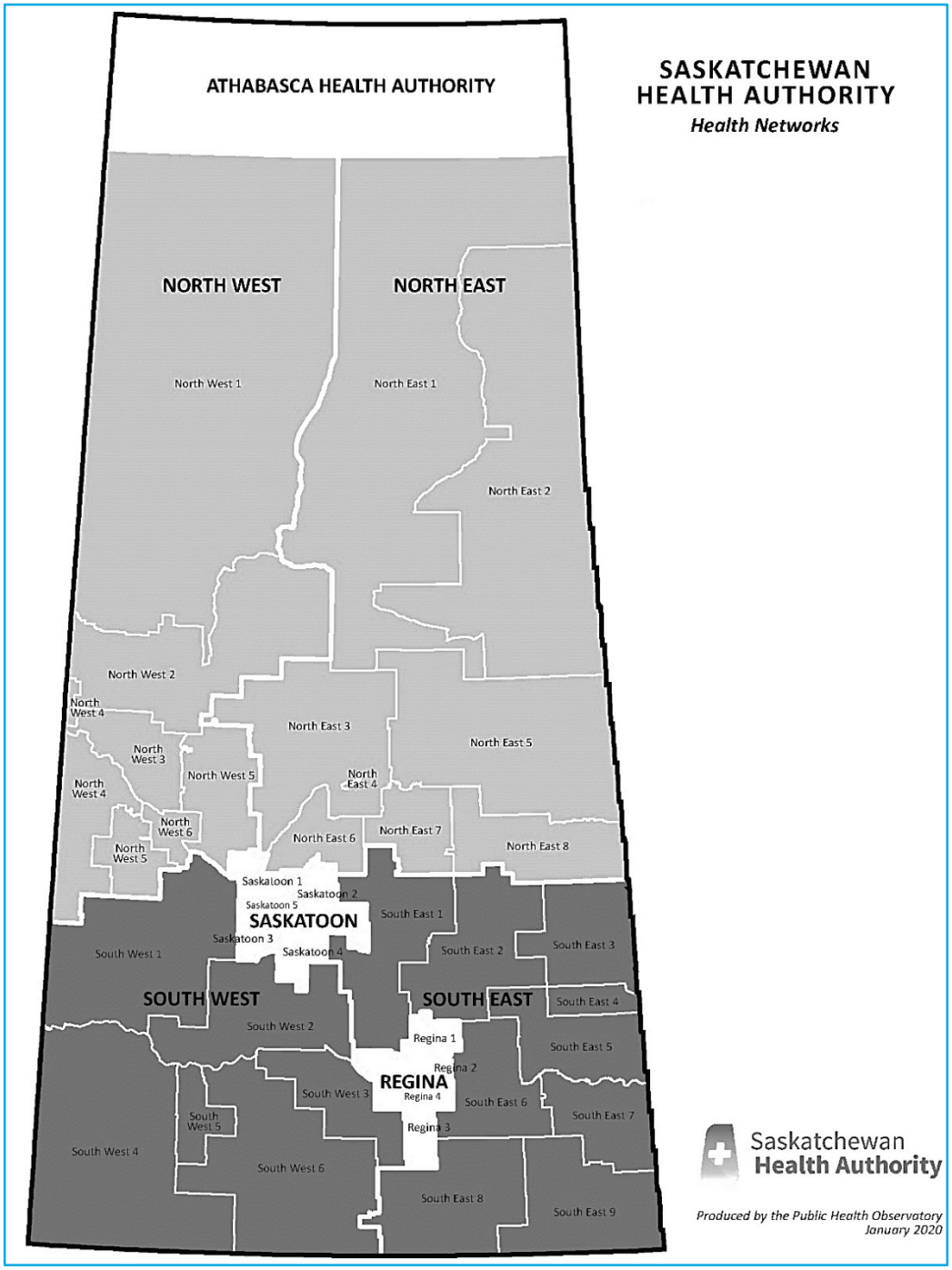
Source: Health Network profiles reports – Table 13.
Crude prevalence rate is the total number of people who have diabetes divided by the population at risk of having diabetes. It is commonly referred to at the diabetes prevalence rate.

We found, by August 2020, the Ministry had not used the information in the network profile reports to assess whether the Authority used resources in areas with greatest need and if programs successfully helped people living with diabetes.

In its 2020-21 accountability document with the Authority, the Ministry has set a strategic priority for the Authority to improve team-based care in the community by establishing a plan to adopt and implement a diabetes pathway across the province. A diabetes pathway is intended to provide more intensive diabetes care and support in a primary care setting.

Having complete program information from the Saskatchewan Health Authority would help the Ministry assess if programs to manage complications are effective and are suitably available across the province. Treating health complications from diabetes is a significant cost to the health system.

4.0 MAP OF HEALTH NETWORKS



Source: Ministry of Health Information. (www.saskhealthauthority.ca/Services-Locations/Health-Networks-Team-Based-Care/Documents/MapAreaswNetworkNumbers.pdf#search=Health%20networks%20map)