

Diabetes Prevalence and Care in the Métis Population of Ontario, Canada

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OBJECTIVE—The Métis are a distinct Aboriginal people in Canada with a unique history, culture, and language. This study examined diabetes prevalence and care in the Métis of Ontario.

RESEARCH DESIGN AND METHODS—The 14,480 people in the citizenship registry of the Métis Nation of Ontario were linked with provincial health care databases to determine diabetes prevalence and processes of care. Rates were compared between the Métis and the general Ontario population.

RESULTS—The age/sex standardized prevalence of diabetes for the Métis was 11.2%, nearly 25% higher than that of the general Ontario population. Métis were more likely to be hospitalized (12.7 vs. 10.7%) or require emergency room visits (36.1 vs. 27.7%).

CONCLUSIONS—Métis people have an increased burden of diabetes that puts them at risk for complications and morbidity. Ensuring adequate access to and quality of care for diabetes is essential to maintain the health of the Métis people.

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There has been relatively little previous research on diabetes among the Métis people, an Aboriginal group in Canada who are descendants of relationships forged between European men and First Nations women. The initial offspring of these unions were of mixed ancestry, and their subsequent intermarriages gave rise to a new Aboriginal people called the Métis with a unique history, culture, and language. The objective of this study was to examine diabetes prevalence and care for the Métis compared with the rest of the population of the province of Ontario.

RESEARCH DESIGN AND METHODS

The study was conducted using secondary health care data sources from the Ontario Ministry of Health and Long-Term Care. There are no identifiers in these data for any Aboriginal Peoples. Instead, we used the citizenship registry of the Métis Nation of Ontario, which was established in 1994, to identify Métis

citizens who are eligible rights holders in Ontario. Individual Métis citizens were linked probabilistically with the Registered Persons Database (RPDB), a registry of all people eligible for health care in Ontario, using first and last names, sex, dates of birth, and postal codes. All other Ontario residents in the RPDB were considered part of the general Ontario population. Each person could then be linked with other health care data, including physician service claims, hospitalization and emergency department abstracts, and the Ontario Diabetes Database (ODD), a validated cumulative registry of all people with diabetes in Ontario (1). Because the Métis citizenship registry includes few children, both cohorts were restricted to adults aged ≥ 18 years. Baseline characteristics included age, sex, residence in northern Ontario (because availability of health services is markedly different in the largely rural and remote northern parts of the province), and income.

Prevalence of diabetes as of 1 January 2009 was calculated by linking with the ODD. Prevalence was indirectly standardized on age and sex, using the general Ontario population as the reference.

Individuals with prevalent diabetes as of 1 January 2009 were selected. Those who died before 31 December 2009 were excluded to ensure complete follow-up. The number of office visits with a primary care physician during 2009 was determined by linkage with physician service claims, dichotomized at ≤ 3 versus ≥ 4 visits in the year. Ambulatory visits with a diabetes specialist, retinopathy screening evaluations with an ophthalmologist or optometrist, and all-cause hospitalizations and emergency department visits during the year were also captured.

Crude frequencies of each measure were calculated. The frequencies in the Métis were indirectly standardized on age, sex, northern residence, and income to the general Ontario population. Frequencies were compared using χ^2 testing.

RESULTS—Of the 14,480 individuals in the Métis citizenship registry, 14,021 were successfully linked (96.8%). Of them, 12,820 were alive, adult, and residents of Ontario on 1 January 2009. Métis citizens were slightly younger than the general Ontario population (45.2 vs. 46.5 years) and were poorer. They were far more likely to reside in northern Ontario (46% vs. 6%). The crude prevalence of diabetes was 9.0% in the general Ontario population, versus 10.4% in the Métis. After age and sex standardization, this prevalence rose to 11.2%.

Table 1 shows the frequencies of each process of care. Visits to both primary care physicians and specialists were less frequent for the Métis than the general Ontario population. However, when standardized, these differences were attenuated. Métis people had very similar rates of retinopathy screening as the general Ontario population. However, Métis people were much more likely to be hospitalized or have an emergency department visit, even after standardization.

CONCLUSIONS—Adult Métis citizens in Ontario had an age/sex standardized diabetes prevalence of 11.2%, nearly

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Table 1—Prevalence of diabetes, and crude and standardized frequencies for processes of diabetes care in 2009

	General Ontario population	Métis (crude)	P	Métis (standardized)	P
Prevalence					
Number of people with diabetes	1,008,999	1,295			
Diabetes prevalence (%)	9.0	10.4	<0.0001	11.2 (10.6–11.8)*	<0.0001
Processes of care					
≥4 primary care visits	63.5	59.7	0.005	64.8 (60.3–69.5)†	0.6
≥1 specialist care visit	18.9	15.2	0.0007	18.1 (15.7–20.9)†	0.6
Retinopathy screening	50.1	51.9	0.2	51.8 (47.9–55.9)†	0.4
Hospitalization	10.7	14.3	<0.0001	12.7 (10.9–14.7)†	0.035
Emergency department visit	27.7	43.0	<0.0001	36.1 (33.1–39.2)†	<0.0001

Data are 95% CIs unless otherwise indicated. *Standardized to the general Ontario population on age and sex. †Standardized to the general Ontario population on age, sex, northern residence, and income.

25% higher than that of the general Ontario population. Furthermore, Métis people with diabetes were more likely to be hospitalized or require an emergency department visit, which suggests either greater medical comorbidity or poorer quality of or access to ambulatory primary and preventative care compared with the general Ontario population. Physician service utilization did not differ from the general Ontario population after accounting for baseline differences between populations. In particular, northern Ontario residence, where availability of physicians is limited, likely accounted for much of the apparent disparity.

There have been few previous studies of diabetes in the Métis. The Aboriginal Peoples Survey from Statistics Canada found a self-reported prevalence of 7% in 2006 (2). A study similar to ours, linking the Manitoba Métis Federation citizenship registry with administrative data sources, found a crude diabetes prevalence of ~10% in people aged ≥25 years (3). There have been no previous studies of health care utilization for diabetes in the Métis.

This study includes by far the largest reported sample of Métis people to have been used in a study of diabetes prevalence.

However, there are some limitations to note. Although the ODD that was used for diabetes case ascertainment has been validated and shown to be highly sensitive and specific (1), this validation was not carried out specifically in a Métis population. In addition, the citizenship registry of the Métis Nation of Ontario may not be representative of the entire Métis population in Ontario. Individuals who have not registered may be different (in demographic, behavioral, or clinical terms) from registered citizens, so generalizing these results to all Métis people in Ontario may not be appropriate.

Although Métis people in Canada have a shorter life expectancy than the non-Aboriginal population (4), there is a virtual absence of data in either the peer-reviewed or gray literature on Métis health risks (5). This study showed an increased burden of diabetes among Métis people, which may contribute to the excess mortality. Greater community awareness of the risks of diabetes and the behavioral and pharmacological interventions that can be used to reduce these risks are needed. Quality medical care needs to be accessible to reduce the burden of diabetes and its complications, particularly for Métis people living in rural or remote

areas. Finally, representative organizations like the Métis Nation of Ontario should take a leadership role in promoting the health of their constituency.

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