

# Examining the Incidence of Type 2 Diabetes in the Canadian Newcomer Population

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## ABSTRACT

Newcomers from certain ethnic backgrounds are underdiagnosed with type 2 diabetes mellitus (T2DM) by Canadian primary care providers. Newcomers to Canada also tend to have poorer health outcomes when compared to Canadian-born individuals, and account for a disproportionate percentage of the T2DM population in Canada. Newcomers' health is affected by acculturation to the Western diet/lifestyle and genetic predispositions. Several barriers to care, including poor English, lack of social supports, lower income, and lack of culturally sensitive care, contribute to lower healthcare utilization rates in this population. As the Canadian newcomer population continues to grow, healthcare providers must take an increasingly proactive, collaborative, and culturally sensitive approach to reduce the incidence of diabetes in this population. Since certain high-risk ethnic groups are more likely to progress from prediabetes to T2DM when compared to non-migrant Canadians, early screening and intervention among newcomers is critical. The purpose of this article is to identify the unique challenges and risk factors affecting Canadian newcomers, and prompt healthcare providers to provide early screening and culturally relevant information for this growing population.

**Keywords:** Prediabetes, diabetes mellitus, Canadian, newcomer, refugee, immigrant

## Introduction

Type 2 diabetes mellitus (T2DM) is a growing concern in Canada, and has been classified as a public health priority.<sup>1</sup> As of 2019, there were 2.5 million Canadian residents living with T2DM.<sup>1</sup> The immigrant and refugee populations account for a disproportionate percentage of people living with this chronic illness.<sup>2</sup> It is important to examine the effects of developed nations' increasingly sedentary lifestyles on the incidence of T2DM in immigrant and refugee populations. Canadian immigrants and refugees who have been diagnosed with prediabetes are at an increased risk of converting to T2DM when compared to their non-migrant counterparts.<sup>3</sup> This article examines the risk factors (both genetic and lifestyle) and barriers to treatment for immigrant and refugee patients with prediabetes, and outlines recommendations for healthcare providers working with this population.

## Background

The terms "refugee" and "immigrant" are distinct; the former involves involuntary displacement from a home country with poor living conditions, while the latter involves voluntary migration to a new country. For the purposes of this paper, these two distinct populations have been amalgamated under the umbrella term

"newcomer." This term is also used by the Government of Canada, which only distinguishes the two groups when significant differences are present.

Canadian newcomer rates reached an all-time high in 2022. The high influx of newcomers to Canada has underscored the importance of tailoring T2DM prevention, screening, and treatment to meet the unique needs of this population.<sup>7</sup> In 2022, Canada welcomed 431,645 immigrants and refugees, who accounted for 75% of Canada's population growth that year.<sup>7</sup>

Type 2 diabetes mellitus is a chronic illness that affects a large proportion of the Canadian population. Initially, Canadian immigrants tend to be healthier than non-immigrants due to immigration policies that favour healthier candidates.<sup>4</sup> In addition, immigrants tend to have healthier diets and lifestyles in their countries of origin.<sup>4</sup> This is known as the "healthy immigrant effect," which persists for approximately five years before it begins to decline.<sup>4</sup> According to the *2022 Health Inequalities Data Tool* developed by the Government of Canada, the diabetes prevalence rates among newcomers aged 18 to 79 years were as follows: 4.4% for those who have lived in Canada for less than or equal to 10 years and 13.19% for those living in Canada for more than 10 years.<sup>5</sup> In contrast, the prevalence of diabetes among non-immigrant Canadians was 7.13% during the same time period.<sup>5</sup> The prevalence of T2DM is particularly high (12-15%)

among certain ethnic groups, such as South Asians and Arabs, in the western world.<sup>6</sup> In some high-risk regions, including the Western Pacific, Middle East, North Africa, and Central America, the prevalence of T2DM is higher than 20%.<sup>3</sup>

Newcomers from certain ethnic backgrounds, such as those from South Asia, Southeast Asia, West Asia, Arab countries, Sub-Saharan Africa, and Caribbean nations, are up to 60% more likely to convert to T2DM when compared to their non-migrant Canadian counterparts, aged 35 years or older.<sup>3</sup> On average, 5 to 15% of those living with prediabetes will convert to T2DM each year, with newcomers constituting the higher end of this range.<sup>3,6</sup> Limiting the conversion of prediabetes to T2DM can effectively reduce the proportion of Canadians at risk of T2DM-related adverse health effects and other chronic illnesses, including cardiovascular disease.<sup>8</sup> Therefore, delaying or preventing the onset of diabetes could allow many Canadians to enjoy a higher quality of life for a greater proportion of their lives.

## Literature Search

Three databases (Pubmed, CINAHL, and Embase) were utilized to search for the following keywords and MeSH headings: (“prediabetes OR impaired glucose tolerance OR impaired fasting glucose OR A1C OR fasting glucose OR plasma glucose”) OR ([MH “prediabetic state”] OR [MH “glucose intolerance”]) AND (“immigra\* OR newcomer\* OR migra\*”) OR ([MH “refugee”] OR [MH “Immigrant”] OR [MH “emigration and immigration”]) AND (“second-generation immigrants or children of immigrants” OR west\* OR Canad\*) OR (MH “Canad\*”) AND (“type 2 diabet\* OR hyperglyc\* OR NIDDM”) OR ([MH “diabetes mellitus”] OR [MH “hyperglyc\*”]). The search retrieved a total of 77 articles. Filters were applied to the final search results to show only those articles published in the previous 10 years, which were also available in English and as full text through the University of Manitoba libraries. Duplicate articles were removed. Saturation was believed to have occurred, as repetition of the same articles appeared in all three databases. The final search yielded eleven articles on CINAHL, four articles on Pubmed, and nine articles on Embase. Given the breadth of the search terms used and the limited number of articles retrieved, this literature review highlighted the paucity of relevant research on this topic.

## Risk Factors

Although there is a lack of research examining the higher prevalence rates of prediabetes and diabetes among newcomers in Canada, several risk factors have been identified in the literature. These risk factors include acculturation to the Canadian diet and lifestyle, which

increases newcomers' risk of developing diabetes.<sup>9</sup> In certain immigrant populations, such as South Asians, the hemoglobin A1C levels of young adults are roughly equivalent to those of non-immigrant Canadians who are 15 years older.<sup>10</sup> In Canada, the average age of conversion from prediabetes to T2DM is up to 4.6 years earlier for non-European newcomers than for Western European immigrants.<sup>3</sup> Early screening and treatment are critical for the newcomer population due to their higher hemoglobin A1C levels and tendency to convert to diabetes at a younger age. Furthermore, since newcomers tend to have lower income jobs and live in lower income neighbourhoods than their Canadian-born counterparts, they have limited resources for healthier, and more expensive, food choices.<sup>8,10</sup>

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### Genetic Factors

It is not well understood why certain ethnic groups tend to be more susceptible to T2DM when compared to Western Europeans. For instance, newcomers from sub-Saharan Africa, Latin America, and South Asia are two to four times more likely to develop diabetes than Western Europeans.<sup>4</sup> Newcomers from high-risk ethnic backgrounds tend to have a greater genetic predisposition for developing diabetes; for example, those from South Asia and China tend to have higher insulin resistance when compared to Western Europeans.<sup>10</sup> The TCF7L2 transcription factor is believed to contribute to this susceptibility by increasing insulin resistance and causing adipocyte hypertrophy.<sup>11</sup> These genetic predispositions are compounded by the increasingly sedentary lifestyles and processed diets that have become commonplace in developed nations, and serve to further increase newcomers' risk of developing T2DM.

### Lifestyle Factors

Somalian refugees have been the largest refugee population in the United States for the past two decades.<sup>12</sup> One study found higher rates of prediabetes among Somalian refugees when compared to non-foreign-born residents of the United States, even when controlling for rates of overweight and obesity.<sup>12</sup> This study on Somalian refugees highlighted the need for earlier screening and treatment for prediabetes regardless of BMI, which is normally a significant risk factor for diabetes.<sup>12</sup> Newcomers who resettle in Western nations were generally more physically active in their countries of origin.<sup>12</sup> After resettling, newcomers tend to spend a lower

proportion of time in physical activities due to a multitude of factors, including: sedentary workplaces, increased distance to exercise facilities, and insufficient expendable income to pay for exercise facilities.<sup>12</sup> Newcomers' risk of diabetes is further compounded by their acculturation to the Canadian lifestyle; as they become acculturated, they become less active, and more similar to their Canadian adult counterparts, who are sedentary for approximately ten waking hours each day.<sup>13</sup>

One qualitative study examined the perspectives of T2DM among sub-Saharan Africans who migrated to Australia. The migrants placed little value on T2DM prevention, as they did not know of many locals with the disease and thought this disease affected only wealthy individuals, who had an unhealthy diet/lifestyle.<sup>14</sup> These factors may play a role in Canadian newcomers' perceptions of T2DM, since many come from developing nations. Residents of developing nations tend to have active lifestyles and consume less processed foods.<sup>9,12</sup> It is well understood that diet and lifestyle are the cornerstones of diabetes management; therefore, a deterioration in these factors increases the incidence of T2DM among newcomers, as they acculturate to the Canadian lifestyle. As a result, NPs need to provide diabetes education to newcomers in order to limit the negative effects of acculturation on their overall health.

## Dietary Factors

As a result of lower income and the acculturation process, newcomers to Canada often consume a lower quality diet, which contributes to the development or worsening of prediabetes.<sup>9</sup> Newcomers must adapt to a new diet that is generally more processed and less nutritious when compared to their native diet.<sup>12</sup> Heavily processed foods from the grocery store or fast food restaurants are generally less expensive than healthier alternatives and, thus, may be more appealing to lower income newcomers.<sup>12</sup> Diet-related education provided by healthcare providers to newcomer patients must be tailored in a culturally competent manner so these patients can maintain a healthy, culturally appropriate diet.<sup>4</sup> Culturally competent dietary advice has been shown to have greater effects on glucose control when compared to non-culturally competent care.<sup>4</sup>

## Barriers to Healthcare Access and Utilization

Data obtained from various Canadian health databases, such as the *Canadian Community Health Survey*, *Longitudinal Immigrant Databases*; and *Immigration, Refugees, Citizenship, Canada*, have demonstrated that newcomers have lower incomes, lower rates of prescription drug coverage, and are less likely to seek specialist care when compared to non-migrants.<sup>16</sup>

Woodgate and colleagues<sup>15</sup> conducted a qualitative study that examined African newcomers' experiences of accessing primary care in Manitoba, Canada. The researchers identified the following main barriers to healthcare access in this population: poor communication due to language barriers, limited time to discuss health concerns with primary care providers (PCPs), lack of culturally sensitive care, inadequate referrals to specialists, insufficient social support, and differences in expectations.<sup>15</sup> This study also noted that newcomers were concerned about the high cost of non-essential treatment and medications.<sup>15</sup> These concerns were further compounded by the fact that newcomers could not afford private health insurance and had difficulty finding full-time work with group-funded health insurance.<sup>15</sup> Additionally, they discussed the challenges associated with taking time off work for appointments and arranging transportation to health clinics. The study participants and researchers posited that culturally appropriate support networks may be a viable solution for improving newcomers' social determinants of health. Woodgate and colleagues' analysis of newcomers' lived experiences provided valuable insight into the barriers to care for this population, and how to circumvent these barriers.<sup>15</sup>

A secondary analysis by Corcadden et al.<sup>17</sup> examined patients' engagement with PCPs in 11 different Western nations. In this study, on average 21% of a country's population reported multiple barriers even before seeking primary care, while 16% reported two or more barriers after they had already engaged with PCPs.<sup>17</sup> The most common barriers to healthcare included: the overall costs of care, limited office hours of PCPs, long wait times to see PCPs, poor affiliation with PCPs, and language or cultural differences.<sup>17</sup> The populations that experienced the most barriers to care were those with mental health conditions, migrants, and those with lower incomes<sup>17</sup>; therefore, it can be postulated that newcomers would experience a higher degree of barriers to healthcare as they generally fit into all three of these categories.

Organizational innovations and policy changes are required to facilitate diabetes screening and treatment for newcomers, and to provide the newcomer population with equitable access to healthcare. It is critical that newcomer populations have access to healthcare services that are culturally competent, trauma-informed, and tailored to meet the specific needs of the local population.<sup>18</sup> Healthcare policy changes need to be aimed at decreasing the level of discrimination, unconscious bias, and organizational barriers to care, thereby improving the confidence and involvement of vulnerable populations in the healthcare system. Such changes to the healthcare system must address structural and organizational barriers and biases, such as approachability, affordability, and culturally competent care, which collectively result in lower utilization rates and lower perceived effectiveness of interventions among vulnerable populations.<sup>19</sup>

# Role of the NP

Nurse practitioners play a vital role in improving glycemic control and preventing the progression of prediabetes to diabetes in the newcomer population. Nurse practitioners can reduce the risk of conversion among newcomers by addressing the common barriers to care, providing culturally competent care, and screening patients earlier than in standard practice. Since newcomers are known to have a higher degree of susceptibility and earlier onset of T2DM, NPs should screen for T2DM in newcomer patients approximately five to ten years sooner than they would in Western European patients.<sup>3</sup> In addition, due to the healthy immigrant effect, NPs should re-screen newcomer patients for T2DM every five years after their arrival to Canada.

It is imperative that NPs conduct a thorough meet and greet with each newcomer patient to become aware of their unique background, including their past medical history, social history, socioeconomic status, and reasons for leaving their country of origin. As part of this assessment, NPs need to become familiar with the patient's cultural diet, which includes learning about various ethnic grocery stores in the local neighbourhood. This knowledge will empower NPs to provide culturally competent dietary recommendations that can actually be implemented into their patient's normal diet.<sup>4</sup> In addition, when newcomers have access to ingredients from their country of origin, they are more likely to retain their cultural diet, thereby limiting their acculturation to the less healthy North American diet.<sup>2,3</sup> This level of cultural competence and awareness will support a greater proportion of patients to successfully implement the NPs' dietary advice.

Nurse practitioners are well-positioned to be leaders in their communities, and can improve patients' health outcomes by integrating evidence-based knowledge with their patients' own preferences for care. Effective communication is the key to building rapport and working collaboratively with patients to meet their unique needs. However, many newcomers experience some level of difficulty engaging in dialogue outside their native tongue.<sup>4</sup> The use of medical jargon, along with new and unfamiliar terminology, can result in lower levels of patient understanding and may become a barrier to seeking further care.<sup>15</sup> In addition, patients and PCPs have reported poor communication as a significant barrier to healthcare.<sup>15</sup> Communication barriers can make it very challenging for NPs to fully understand their patients' concerns and to obtain the information required for their care. Newcomer patients are less likely to form therapeutic relationships with their PCPs when they feel like their voice and concerns are not being heard or understood; therefore, it is critical that NPs utilize a translator, whenever possible, to improve the quantity and quality of information transferred.<sup>15</sup> Many healthcare facilities and health regions offer translation services

for this reason. In addition, NPs can improve patients' understanding of their illness, medications, and treatment plan by providing written handouts translated into the patients' native language. For example, documents approved by the Winnipeg Regional Health Authority can easily be translated into numerous languages to improve patient understanding.

Nurse practitioners can facilitate newcomers' access to healthcare by expanding their clinic hours to include evenings and weekends, and by involving social workers or other community resources to connect newcomers to financial and cultural support. The expansion of clinic hours beyond the typical "nine to five" workday allows newcomers, and Canadians in general, to visit their PCP without having to take time off work and suffering financial consequences. Since newcomers tend to be employed in low income jobs, they often delay seeking care because they view financial stability as a higher priority.<sup>15</sup> In addition, many female newcomers are stay-at-home mothers who care for young children and face several logistical barriers to seeking healthcare, including: finding a babysitter, navigating a new city, and utilizing public transport with their children if they cannot make alternative arrangements for child care.<sup>15</sup>

Lastly, NPs need to find opportunities to engage with their colleagues, such as through clinical practice, conferences, and professional associations, to increase awareness of the need for earlier T2DM screening in newcomer populations as well as to promote culturally competent care that will maintain or improve newcomers' baseline health. Engaging other providers in dialogue about newcomers' health can allow NPs to effect change in current policies and practices. Nurse practitioners are often well-trusted by the public and their patients, and are uniquely positioned to engage in knowledge translation activities. Given these facts, a well-informed NP can disseminate valuable, although infrequently discussed, information to newcomers who may not otherwise have access to knowledgeable or reliable sources.

## Limitations

Research related to the conversion of prediabetes to T2DM in the newcomer population is limited. The literature search conducted in this study produced only 26 relevant articles, and demonstrated a need for greater awareness on this topic. The available studies were mostly retrospective and did not account for various confounding factors, including body mass index, levels of activity, medication use, health beliefs, and family history.<sup>3</sup> More rigorous studies are needed in order to isolate the modifiable and non-modifiable risk factors affecting this group. Of note, most of the research articles that informed this paper were published within the previous five years, so there appears to be a growing interest in this topic.

# Conclusion

Canadian newcomers from certain ethnic backgrounds are at higher risk of converting from prediabetes to T2DM when compared to their Canadian-born counterparts. The reasons for these disproportionate rates of T2DM among newcomers are not well understood at this time. It is believed that a combination of genetic factors, acculturation to the Canadian lifestyle, lower socioeconomic status, sedentary jobs, organizational barriers and biases, and differing expectations of the delivery of healthcare services play a role in newcomers' higher susceptibility and earlier onset of T2DM. As a result, there is a need for earlier screening for T2DM among newcomers when compared to non-migrant Canadians to limit the adverse T2DM-related health effects, including cardiovascular disease. A search of the available literature on this topic produced limited results, suggesting that T2DM has not been thoroughly researched in the newcomer population. Newcomers may believe that T2DM is a disease of the rich and inactive. The Nurse Practitioner should be mindful of the healthy immigrant effect, which typically lasts ~5 years, as it is an ideal time to implement culturally competent diet and lifestyle interventions. Additionally, NPs should incorporate members of the interdisciplinary team, such as social workers, to connect newcomers to financial and cultural supports. Nurse Practitioners can improve knowledge translation in the topic of early T2DM screening and management in newcomer populations by utilizing translators and by providing patient handouts in the patient's native language. As NPs become more aware of newcomers' elevated risk of developing T2DM, they can more effectively engage in prevention, screening, and treatment interventions to limit the conversion of prediabetes to T2DM in the newcomer population.

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