ABSTRACT

Objectives. To examine providers’ perspectives of the barriers to providing diabetes care in remote First Nation communities in the Sioux Lookout Zone (SLZ) of Northwestern Ontario, Canada.

Study design. A qualitative study involving key informant interviews and focus groups was conducted with health care providers working in remote First Nation communities in SLZ.

Methods. Twenty-four nurses, doctors, diabetes educators and community health representatives (CHRs) participated in qualitative interviews and focus groups. Data collected from the interviews and focus groups was coded and thematically analysed using NVIVO software.

Results. Barriers to diabetes care were grouped into patient, clinic and system factors. Providers’ perceptions of patient factors were divided between those advocating for a patient–provider partnership and those advocating for greater patient responsibility. Clinic-related barriers such as short staffing, staff turnover and system fragmentation were discussed, but were often overshadowed by a focus on patient factors and a general sense of frustration among providers. Cultural awareness and issues with clinic management were not mentioned, though they are both within the providers’ control.

Conclusions. This study characterizes a range of barriers to diabetes care and shows that patient-related factors are of primary concern for many providers. We conclude that patient-focused interventions and cultural competence training may help improve patient–provider partnerships. Funding and supporting quality improvement initiatives and clinic reorganization may increase the providers’ knowledge of the potential for clinical strategies to improve patient outcomes and focus attention on those factors that providers can change. Future research into the factors driving quality of care and strategies that can improve care in Aboriginal communities should be a high priority in addressing the rising burden of diabetes and related complications.

Keywords: diabetes, Aboriginal health, barriers, quality of care, qualitative research
INTRODUCTION

Aboriginal people living in industrialized countries, such as Canada, the United States and Australia, have high rates of type 2 diabetes and related complications (1–6). The provision of high-quality diabetes care is necessary to stem the rise of diabetes complications in these communities now and in the future. The Ojib-Cree First Nations living in the Sioux Lookout Zone (SLZ) of Northwestern Ontario have an age-adjusted diabetes rate of 26% (7), among the highest in the world. Previous research has shown that the quality of care in communities in SLZ is suboptimal and the outcomes are worse than “southern” medical practices in Canada (2,8). The barriers that health providers working in Aboriginal communities face are important to understand, as they may be different than those experienced in non-Aboriginal contexts.

Providers’ perceptions of barriers to diabetes care have been studied in various settings (9,10). Two studies have investigated the barriers to providing care as perceived by health care providers in similar settings to this study (11,12). One study focused on the general experience of nurses working in northern settings (11), while the other examined issues related to continuity of care in Northwestern Ontario (12). This paper adds to this literature by presenting the specific barriers to providing diabetes care, as perceived by health care providers working in SLZ. This qualitative work is part of a broader program of research, which seeks to understand the clinical management of diabetes on Canadian First Nation reserves in order to inform quality improvement initiatives. This study informed the design of a recently published controlled trial of cholesterol management (8) and the Canadian First Nations Diabetes Clinical Management and Epidemiologic (CIRCLE) Study, which included a national chart audit and a health care provider survey (13–15).

MATERIAL AND METHODS

Research setting

The term “Sioux Lookout Zone” is used to denote an area of the Subarctic boreal forest in Northwestern Ontario that is roughly the size of Germany. Twenty-eight Cree and Ojibway reserves (generally only accessible by plane) are located within SLZ. At the time of this study, the First Nation communities in SLZ ranged in size from 50 to 2,000 people, making the total population of SLZ roughly 16,000 people. Health care is generally provided through government-funded nursing stations, though some communities have negotiated transfer agreements, which enable them to control their health services. Nurses are generally in the community on a rotating basis (though some live there full-time), with an average of 2–4 nurses present at any given time. Physicians visit (fly into) the communities between 3 and

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1 Type 2 diabetes, also known as diabetes mellitus or non-insulin dependent diabetes mellitus, will be referred to as simply “diabetes” throughout this paper. Type 1 diabetes is not discussed.

2 The Sioux Lookout Meno Ya Win Health Centre provides health services to 28 First Nations communities and the 4 municipalities with a total population of 27,000 (2004). The population estimate of 16,000 people is based on statistics that were available at the time of the study. This number is also consistent with the 2004 population of 27,000 if you take into account the size of the municipalities (58). The population of the communities and the entire Zone itself have likely increased since this time.
10 days a month. When not visiting the communities, physicians are based in the Zone Hospital in the town of Sioux Lookout (population 5,000). While there, physicians take phone calls from nurses in the communities, review lab results and approve medication prescriptions. They also attend to northern patients hospitalized in Sioux Lookout. Patients requiring specialist visits or tertiary care are flown to regional urban centres in Winnipeg and Thunder Bay.

**Study population**

Health care providers were eligible for participation if they were active members of the Sioux Lookout Diabetes Program or were permanent staff in 2 First Nation communities with more than 80 diabetic patients. Snowball sampling was used to recruit eligible providers. The 3 diabetes educators working in the region acted as point people for this recruitment. Potential participants were contacted via phone or email to inform them of the study. The initial pool of providers reached through the diabetes educators suggested other providers to contact, who in turn suggested others. Twenty-four providers were recruited through this snowball sampling method.

As represented in Table I, the study population included nurses, physicians, diabetes educators and community health representatives (CHRs), with varying degrees of experience. On average, participants were experienced nurses and doctors. The 3 providers that identified as Aboriginal were all community health representatives (CHRs) who had been born in the region.

**Data collection and analysis**

Individual interviews (n=24) and focus groups (n=2) were conducted by a researcher/family physician (OKB) and a research assistant/medical student. While interviews allow for in-depth exploration of a given topic, focus groups allow participants to explore new themes and discuss the varying perspectives that emerge during the session. A semi-structured interview guide with questions on barriers to clinic management and guideline implementation (Table II) was used for both the interviews and focus groups, as is common in qualitative health services research. Individual interviews were conducted in the communities or in the Zone Hospital. The 2 focus groups were conducted with all of the nursing station staff involved in diabetes care (2 nurses and 1 CHR) present in the 2 participating communities at the time of the study.

| Health care provider | Number of interviewees | Male | Female | Mean # years in practice | Range of years in practice |
|----------------------|------------------------|------|--------|--------------------------|----------------------------|
| Nurses               | 11                     | 1    | 10     | 22.1                     | 7-35                       |
| Physicians           | 7                      | 4    | 3      | 16.2                     | 6-24                       |
| Community health representative | 3                  | 0    | 3      | 16                        | 12-20                      |
| Diabetes educators   | 3                      | 0    | 3      | 4.5                      | 4-5                        |

*Community health representatives (CHRs) are lay health workers that work with others in health care teams to improve and maintain the spiritual, physical, intellectual, social and emotional well-being of individuals, families and their communities. They provide a range of services in all or some of the following categories: health promotion, client care, health protection, community advocacy, cultural liaison and administration (59).*
Table II. Example interview questions.

| Provider type                                      | Example questions                                                                 |
|---------------------------------------------------|-----------------------------------------------------------------------------------|
| Nurses & physicians                               | What difficulties do you find, if any, in arranging regular patient follow-ups for diabetes counselling and complications screening? |
|                                                   | What difficulties do you find, if any, in modifying oral antihyperglycemic medication to achieve (or approach) an A1c of <7%? |
|                                                   | Please comment on the division of tasks for management of diabetes and complications screening between doctors, nurses and community health representatives in the community where you work? |
| Community health representatives & diabetes educators | Please describe your responsibilities with regard to diabetes care.               |
|                                                   | Please comment on the division of tasks for management of diabetes and complications screening between doctors, nurses and community health representatives in the community where you work? |
|                                                   | Do you feel that you are supported in your responsibilities with respect to diabetes care? |

Results

The 24 individuals that participated in this qualitative study included doctors, nurses, CHRs and diabetes educators. Because of the small proportion of diabetes educators (n=3) and CHRs (n=3), relative to the number of nurses (n=11) and doctors (n=7), the results presented here largely represent the views of the doctors and nurses. The participating diabetes educators and CHRs represent all full-time diabetes educators working in SLZ and all CHRs working on diabetes in the 2 participating remote communities.

The findings of this study are grouped into 3 main themes, which we have labelled as patient-related barriers, clinic-related barriers and system-related barriers.

Patient-related barriers

Patient-related barriers to care were a significant focus of the interviews. Doctors and nurses, in particular, voiced frustration with their lack of success in managing and preventing serious complications among their diabetic patients. Providers’ responses, however, were divided between those advocating for greater patient-
provider partnership and those arguing for greater patient responsibility.

The general perspective of providers advocating for improved partnership is well articulated in the following quote:

*Somewhere there has to be a partnership and I think for the most part it is not a partnership. People are called in and it is almost as if...they are being called to the principal’s office again (laugh).* (Physician)

By drawing an analogy between patients interacting with their providers and students being called in by an authority to account for their actions, this doctor highlights the hierarchal and disciplinary relationship that exists between patients and their providers. While this relationship may inhibit engagement efforts, providers also suggested the role that the social determinants of health play: “They’re working on more basic issues than checking where their blood sugars are at” (Physician).

The desire for partnership among some providers was contrasted with the views of others, who suggested that the lack of success in treating diabetes was due to a lack of patient effort:

*I don’t know that we’ve made that much difference [here]. I don’t see significant improvement in diabetes when I know that they could be doing more themselves...I just don’t think we’re being that successful, because it’s all about lifestyle change.* (Nurse)

This nurse attributes poor outcomes to the fact that the patients (the “they” referred to above) “could be doing more themselves” and states that barriers to improvement are not clinical, but rather related to “lifestyle change.” The sense that patients ought to take ownership of their health was often tied to the providers’ perception that an undue degree of responsibility was placed on them. As one nurse described:

*The growing trend up here is two fold: (1) you as the nurse are responsible for my health and (2) give me a pill that will fix my problem, and everybody knows that’s not the crux of diabetes management...How do we change the attitude so that people are more concerned with their own health and realize that they’re responsible for their own health? I think until we do that I don’t think that any recommendations are necessarily going to be that effective.*

In other words, some providers felt that clinical efforts could not have an impact until patients made changes themselves.

**Clinic-related barriers**

Clinic-related barriers, such as staffing and training issues, were discussed by a number of participants. Staff shortages were discussed as a concern in relation to the ability of health care staff to focus on chronic disease care over acute care. As one nurse explained:

*Right now there’s nobody here to run the diabetes program, there’s only 2 full-time nurses here right now, so things like immunizations, prenatal, you know acute stuff, gets done before chronic stuff.* (Nurse)

A continually rotating staff was described as having the same effect:

*We have a lot of rotating nursing staff, so what I find [is] that people who see diabetics will deal with the acute issues they’ve come to the clinic for, and unfortunately don’t really look through the chart to see if they’re up to date.* (Nurse)
Both these quotes speak to a continuously overextended staff struggling to facilitate chronic disease management and continuity of care despite significant staffing challenges. In addition, nurses and doctors both noted that CHRs are not well utilized and that their role in the clinic is not well understood. Despite this, one physician highlighted that the clinic would “grind to a halt” without CHR support and assistance.

Lack of expertise among providers was also considered a clinical barrier. As one nurse explained, nursing stations are often staffed with “people [who] have less and less skills because there are [no] formal settings to get skills for this type of setting.” Participants explained that northern nurses used to graduate from specialized training programs, which prepared them for the demands of work in remote communities. Nursing shortages have forced the communities in SLZ to rely more on short-term replacement nurses (from agencies) who do not necessarily receive such training. The CHRs also voiced concern with their training and suggested that they did not have the knowledge or training to conduct a lot of the work that was required to support diabetes management in the community. This concern was echoed by nurses, one of whom stated that the CHRs she has worked with “haven’t had any Continuing Ed for 25 years…So what they know, they know from the nurses they work with and their experience.”

**System-related barriers**
The functioning of the health care system was also discussed by participants. In this category, providers most often highlighted the fragmentation of care. One doctor explained the management structure as follows:

It used to be that everyone was an employee of Health Canada, but now the support staff are employees of the band, the nurses are employees of Health Canada, and I am an employee of McMaster (University). So none of us answer to the same boss…You know, the accountability is in 3 different directions.

The impact of this is that the nurse in charge, who manages the clinic, is not directly responsible for the non-nurse staff that she works with every day, which makes proactive team-based care very challenging. In addition to concerns with fragmentation, providers frequently lamented significant environmental constraints: community isolation, poverty and rapid social change away from a traditional to sedentary lifestyle were commonly referenced. The impact of these social determinants of health were often discussed in relation to the patients’ ability to properly manage their diabetes or engage in their care: “Where else do people not have running water, unpaved roads, no vegetables or they’re three times the normal price?” (Nurse). These issues are separate from the health system, but they do affect the likelihood that people will (or can) follow diabetes guidelines as recommended by health professionals.

**DISCUSSION**

Barriers to diabetes care in SLZ, as perceived by health care providers, were grouped into 3 categories: patient-related, clinic-related and system-related. Patient-related barriers were the most salient theme, with providers voicing continued frustration with the inability to improve patient outcomes. While providers’ frustration has been discussed in the literature (19), the division
between providers eager to foster partnerships with patients (but feeling challenged to do so) and providers eager for patients to take greater responsibility for their health was an interesting finding of this study. These 2 divergent views match descriptions in the literature of (1) the partnership paradigm, which credits patients with an expertise similar in importance to the expertise of professionals, and (2) patient empowerment, which places responsibility for disease management on the patient with minimal direction from providers (20). The concept of patient empowerment is often viewed in a positive light, as it gives greater autonomy and power to patients to make their own decisions about their health. However, patients’ empowerment can also be a guise for providers seeking to offload responsibility for their patients’ health, which can be detrimental if the patients are not ready for, or able to take on, this responsibility. Since providers describe themselves as being overstretched, the push to empower patients to “take responsibility” for their care might reflect this offloading.

The Chronic Care Model (21,22) states that the effective treatment of diabetes care is “reliant on the dynamic interplay of patient, physician and systemic factors.” This may be a more productive way to advocate for the distribution of responsibility for diabetes care; and it may also provide a foundation for partnership. The literature in this area has shown that patient–provider relationships are associated with improved adherence, self-care and outcomes (23,24). Our study suggests that interventions that focus on the patient (i.e., assistant-guided patient preparation for visits to doctors, empowering group education, group consultations, etc.) may be a constructive and well-received means to reduce frustration and encourage patient–provider partnership, while also improving outcomes.

Moving towards a collaborative model of care may also require an examination of the preparedness of providers to engage in partnership. The role that cultural awareness and understanding plays in patient–provider relationships should not go without notice. Cultural issues were not raised in the interviews, suggesting that providers may not be aware of cultural barriers, know how to navigate them effectively or deem them to be significant. Yet cultural safety and competency are key priorities for First Nations communities, policymakers and patients (25,26). Studies in British Columbia (27), Saskatchewan (28) and Alberta (29), among others, demonstrate that Aboriginal patients feel a need for providers who understand the spiritual, emotional, cultural and socio-economic aspects of diabetes and healing. The literature suggests that cultural competence is an important determinant of the success (or failure) of patient–provider collaborations (30,31); a recent systematic review demonstrated that cultural competence training improves provider knowledge, attitudes and skills, and also increases patient satisfaction (32).

In light of the challenges that providers face in conceptualizing and operationalizing cultural competence, linking cultural competence with evidence-based practice, improved outcomes and some of the long-standing ethical values in health care may help providers understand its clinical relevance. Curricula for providers such as the PRIADE program in Edmonton have been effective in reinforcing “the importance of holistic health care” and improving the relationships between Aboriginal clients and non-Aboriginal providers and amongst interprofessional teams (29). More research about best practices for implementation, the potential cost savings of cultural competence training and its impact on patient health outcomes is needed.
(32), but it appears that implementing cultural competence training will benefit patients and providers.

More effective utilization of CHRs, who are often community members themselves, could potentially improve both cultural-appropriateness of care and continuity of care. Yet, as this study and others have found, the role of CHRs is often ill-defined and their training inadequate (33–36). In Ontario, Minore and colleagues have written for over a decade on the barriers that CHRs and paraprofessionals face in Aboriginal communities in Northwestern Ontario (12,34–37). Their research has suggested that ambiguous roles, undervalued skills, questions about liability and confidentiality, the dearth of continuing education, the complexities of working in one’s own small community and the poor execution of team-based care preclude the full inclusion of CHRs within the clinical teams.

Better utilization and inclusion of CHRs in the health care system might also serve to ameliorate some of the ongoing challenges related to staffing and training in First Nation communities, raised both in this study and others (37–39). High rates of staff turnover were often cited as putting strain on the health care system. Research on this issue suggests that personal, economic and professional factors affect recruitment and retention of providers in rural and Aboriginal settings (40–44). Family and community-related factors, rather than compensation or professional satisfaction, were found to be the strongest predictors of physician retention, which suggests that strategies aimed at community integration may be most important in retaining rural physicians (45). However, improved training, more full-time positions and easing the transition to rural and remote nursing could also reduce attrition within the workforce (46). Goertzen (44) characterized the balance of personal interests/background, appropriate training, community attributes and working conditions that predict a rural practitioner’s satisfaction as a “four-legged stool” that must be stable to assure workforce retention.

Creating a more stable workforce and health care system also requires dealing with what participants referred to as a fragmented health care system. One doctor explained that different agencies are currently overseeing different staff members, which obscures or precludes any clear chain of command. Together with a high-degree of staff turnover and chronic staffing shortages, this fragmentation makes initiating or implementing coordinated chronic care programs difficult. In the absence of any integrated system or clear leadership, acute care issues or those that “come through the door” tend to be prioritized over chronic care (47).

Establishing a clear chain of command may encourage the development of a system to monitor chronic disease management and improve the quality and continuity of care provided to patients living with diabetes. Appointing team leaders and dedicating a certain amount of staff time to chronic care could also assist with resolving some of the barriers articulated by study participants (32). While initially labour intensive, planned care models have been shown to improve outcomes for diabetic patients through a systemized approach to treatment (48,49).

Notably absent from providers’ responses was any recognition of the potential for organizational interventions like novel models of care or information systems to improve quality of care, though these are within their control and have demonstrated benefit in Aboriginal
settings in the U.S. and Australia (50–52). The focus on patients and lifestyle change may represent an instance of “offloading” responsibility, where in fact diabetic patients at high-risk benefit from aggressive treatment programs in addition to support for making lifestyle changes (53).

**Strengths and limitations**

This study employed a qualitative methodology, utilizing semi-structured interviews and focus groups to create a platform for health care providers to frame and discuss their understanding of the barriers to diabetes management. Interviews and focus groups were conducted by the principle investigator (OB), who is a family physician with experience delivering care in SLZ, and a medical student. Their familiarity with the work and the context enabled them to develop a good rapport with the nurses and doctors. At the same time, strong identification with physicians and nurses may have made it more difficult to get CHRs and diabetes educators to open up and engage freely. In addition to this power dynamic, the small number of diabetes educators and CHRs participating in the study (and indeed working in the region) may have limited the presence of their voice. Previous work by Minore and colleagues has covered the CHR perspective using local language interviewers. This paper speaks largely from the perspective of nurses and doctors, and thus complements this other work. Since a patient perspective is also missing, the results should be considered alongside other studies that have examined patient perspectives and priorities with regard to diabetes care (54–57). Future research could juxtapose these perspectives directly to better understand the patient–provider dynamic in this study’s context.

**Study implications**

A review of this study’s findings within the context of the current literature highlights some key actions that can be taken by researchers, policymakers and practitioners to improve the provision of diabetes care in on-reserve First Nation communities.

**Implement patient-focused interventions**

Providers in this study revealed frustration with patient-related barriers to diabetes care. While the response to this frustration was divided between those promoting improved patient–provider partnerships and those promoting greater patient responsibility, they both highlight that providers would be receptive to initiatives that engage and involve patients more in their diabetes care. This is why we believe that initiatives such as group counselling and self-management support groups could help facilitate partnership, reduce provider frustration and improve patient health outcomes.

**Fund cultural competence training**

Our work suggests that there is discordance between communities and health care providers in the prioritization of cultural competence, perhaps underscoring the need for a more comprehensive approach to preparing physicians and nurses for the unique needs of caring for First Nation patients. The literature on Aboriginal health care suggests that cultural competence can improve provider knowledge, attitudes and skills; increase patient satisfaction; and influence patient and provider dynamics (30,32). More research into the complexities around implementing and resourcing cultural competence training is needed, but we believe that efforts to raise cultural awareness among providers will benefit providers, patients, communities and the health care system.
Define clinic roles and utilize available human resources

The simultaneous shortage and high turnover of nurses and doctors working in SLZ is a significant concern for health care workers, community members and policymakers alike. Studies examining the complexity of staff retention make a strong case for not only improved training and human resources but also for better utilization of local CHRs, who may not only alleviate staffing shortages but also improve the continuity and cultural appropriateness of care. While the complexity of further establishing the CHR role must be taken into account, we believe that existing recommendations to define the scope of practice and competencies for CHRs, educate physicians and nurses about the roles of CHRs and incorporate CHRs into care teams (34–36) are important and attainable goals.

Fill current research gaps

While this study revealed health care providers’ perceptions of barriers to diabetes care in SLZ, further research is needed to assess the relative importance of these barriers and to design strategies to overcome these barriers in the future. Research that includes patients’ perspectives is needed to complement the perceptions of health care providers. Finally, clinical research should incorporate the social determinants of a health perspective in order to better understand the upstream determinants of health and how they impact the provision (and receipt) of appropriate diabetes care. Some of this research is already ongoing (13–15), but it requires further exploration.

Conclusion

This paper has presented the perspectives of health care providers working in remote Aboriginal communities with high rates of diabetes. In doing so, it has highlighted key patient, provider and system-level barriers and suggested potential solutions for the challenges that providers face. Providers describe patient engagement and partnership, short-staffing, high staff turnover and fragmentation as key barriers, but do not mention cultural awareness or organization of the clinic, both of which are within their control. These descriptions can help us understand providers’ concerns and help health system managers move from characterizing barriers to designing strategies that address the rising burden of diabetes in Aboriginal communities.

Conflict of interest

All authors (Onil Bhattacharyya, Irit Rasooly, Elizabeth Estey, Stewart Harris, Merrick Zwarenstein and Jan Barnsley) confirm that they have no financial and personal relationships with other people or organizations that could potentially influence the results or interpretation of the research presented here.

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