

Identifying barriers to preventive care among First Nations people at risk of lower extremity amputation: a qualitative study

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Abstract

Background: First Nations people in Canada are overrepresented among those who have undergone nontraumatic lower extremity amputation, and are more likely to be younger, have diabetic foot infections and have no previous revascularization procedures than non-First Nations populations who have undergone lower extremity amputations. We sought to identify access barriers for high-risk First Nations patients, explore patients' experiences with health care systems and identify solutions.

Methods: Employing a community participatory research design, we engaged representatives from 2 communities. They assisted with research design and data analysis, and approved the final manuscript. Using a hermeneutic phenomenological approach and purposeful sampling, we conducted 5 semistructured focus groups between August and December 2021 with community health care teams and patients at risk for, or who had previously undergone, a nontraumatic lower extremity amputation.

Results: Patients' ($n = 10$) and community health care providers' ($n = 18$) perspectives indicated that barriers to health care access led to delayed care and increased complications and risk for lower extremity amputations, leading to aggressive procedures upon receiving care. Barriers to care led to negative experiences at urban centres and aggressive procedures created further distrust, leading to care disengagement and poor outcomes. Patients and providers both suggested building stronger partnerships between urban and rural health care providers, improving education for patients and health care providers and identifying innovative strategies to improve patients' overall health.

Interpretation: Systemic changes, health promotional program and reliable on-reserve primary care are needed to create equitable access for First Nation patients at risk for lower extremity amputations. The study results imply that health care delivery for First Nations patients at risk for lower extremity amputations can be improved through stronger partnership and communication between urban and community providers, and continued education and cultural competency training for urban health care providers.

In Canada, lower extremity amputations were performed more than 44 000 times between 2006 and 2011. In Saskatchewan, lower extremity amputations are performed an average of 419 times per year.¹ Lower extremity amputations put substantial physical, emotional and psychological stress on patients undergoing the procedure. Nontraumatic amputations most frequently occur as a result of peripheral arterial disease and diabetes mellitus and occur more frequently in the lower extremities than in the upper extremities. First Nations patients represent 23% of all patients undergoing lower extremity amputation in Southern Saskatchewan, while only representing 10% of the total population of Saskatchewan (W. Usama and colleagues, Saskatoon, unpublished data, 2019). First Nations populations undergoing amputation were more likely to be younger, have diabetic foot infections, have no previous revascularization procedures and live in First Nations communities (W. Usama and colleagues, Saskatoon, unpublished data, 2019). Comparatively, non-First Nations populations undergoing lower extremity amputation

in the same time period were more likely to be older, have chronic limb-threatening ischemia and have previous revascularization procedures (W. Usama and colleagues, Saskatoon, unpublished data, 2019). Limited primary care access, inadequate diabetes management, geographic location, racism in health care settings and social determinants of health influence First Nations peoples' health care access, leading to diabetes-related complications and poor wound management, increasing the risk of lower extremity amputations.²⁻⁵

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Amputations confer a tremendous burden on patients, families and the health care system. Patients who have undergone lower extremity amputations often describe tremendous difficulties with mobility, self-image and societal stigma, which affects their personal and professional lives.² Patients with lower extremity amputations often require lengthy in-hospital stays, readmissions for complications and exacerbation of their comorbid conditions.³⁻⁵ With adequate patient education, chronic disease management, intensive vascular care and access to multidisciplinary teams, wound clinics have been observed to prevent up to 50% of amputations.⁶ A high incidence of lower extremity amputations among Canada's First Nations populations motivated this study.^{4,7-9} We sought to identify health care access barriers among First Nations patients at risk of amputation or who had undergone amputation for diabetic foot ulcers in Southern Saskatchewan, explore experiences of patients who had undergone amputations for diabetic foot ulcers and those who sought care for diabetic foot ulcers and identify potential solutions to reduce health care barriers.

Methods

Community engagement

In a previous study, people with lived experiences in addictions and chronic disease, along with the First Nations leadership, highlighted the need for enhanced health care services within the community.¹⁰ In partnership with clinicians from the nearest urban centre, Regina, Saskatchewan, a community-led and partnered health care model, referred to as Wellness Wheel Clinics was developed and implemented in-community to address access barriers.¹⁰ Approval from the community Chief and Council, enacted through Band Council Resolution, and Industry and First Nations government funding, supported the Wellness Wheel Clinic's development and implementation.¹⁰ In addition, using a community participatory research approach,^{9,10} a research partnership was developed between a health authority research scientist (M.P., female), community health care providers, patients with lived experiences (peers) and urban clinicians. A collaborative decision was made to employ research as a tool to identify health needs, and address health care access barriers moving forward. M.P. and a registered nurse (S.N., female) worked on 2 subsequent community-partnered projects to identify community health priorities and leverage study results to address health care delivery gaps. As part of accountability, aggregate data highlighting emerging health issues are shared with communities, which also informs the research direction. We carried out this study to explore the high incidence of lower extremity amputations in this geographic region.

Study design

In partnership with community representatives, a medical student (T.W., male), M.P. and S.N. finalized the research design and focus group questions. A collective decision was made to explore the perspective of First Nations health care providers and patients residing in First Nations communities.

We considered a hermeneutic phenomenological approach appropriate to systematically document the lived experiences of both patients and health care providers.¹¹ This approach acknowledges that cultural and historic backgrounds shape individuals' beliefs and worldviews, leading to unique lived experiences.¹¹⁻¹³ This approach allows researchers privy to those unique lived experiences to gain a comprehensive idea of the phenomena through interactive discourse.¹¹⁻¹³ This method also called upon researchers to acknowledge and reflect on their perceptions, shaped by their experience of working for and receiving services from Western health care systems, which might influence interpretation of the current phenomenon.¹¹⁻¹³ T.W. completed the Tri-Council Policy Statement-2 certificate, reviewed related literature, OCAP (Ownership, Control, Access, Possession) principles and Indigenous research methodologies.

Setting and participants

We engaged 2 First Nations communities with a combined estimated population of 5715 people, located about 130 km from Regina. We used word of mouth and displayed recruitment posters at the community health centres for participant recruitment. Using a purposeful sampling strategy, community representatives recruited community health care providers and people living with diabetes or who have experienced diabetic foot ulcers or amputations from the participating First Nations communities between August and December 2021.

Data collection

All participants received the focus group questionnaire and signed informed consent (Appendices 1 and 2, available at www.cmajopen.ca/content/11/5/E906/suppl/DC1). The facilitators, acknowledging their affiliation with Western health care institutions, informed participants that research as a tool was employed to gather information on factors affecting lower extremity amputations and strategies for improvement. T.W., M.P. and S.N. each facilitated at least 1 group and took notes during other groups, along with a community note-taker. Through use of a conversational approach¹⁴ and open-ended questions, participants' experiences with diabetic foot ulcers, amputations, and health care access barriers were explored.¹³ The facilitators compiled the main discussion points that emerged after each focus group and shared it back with the participants to ensure that their views were recorded accurately.

Data analysis

We transcribed all audio-recorded data from focus groups verbatim and analyzed transcripts by employing QSR NVivo 9.¹⁵ Following the qualitative methods described by Miles and colleagues,¹⁶ M.P. read transcribed data line-by-line and broke it into small data chunks. Data chunks with similar meanings were organized under 183 base-level codes in the first coding cycle. M.P. assigned an appropriate descriptive title to each base-level code, and consulted the interview guide and facilitators' notes to ensure all discussion points and any new emerging ideas were included in this coding cycle. Base-level codes with similar ideas were then grouped under

14 intermediate codes¹⁵ in the second coding cycle. M.P. employed diagrams and figures to identify relationships between the intermediate code and grouped them into main themes. The data analysis was extensively reviewed by other researchers on the team and community representatives to ensure that researchers' personal and professional biases did not overpower interpretation and that the data analysis truly reflected the voice of the community members. We incorporated all feedback.⁹ The final manuscript was approved by community representatives and they serve as coauthors.

Ethics approval

The Saskatchewan Health Authority Research Ethics Board (REB-20-126) approved the study and health managers from participating communities provided letters of support approving the study.

Results

We conducted 4 focus groups with community health care teams from 2 communities ($n = 18$), and 1 with patients ($n = 10$). Focus groups were 90–135 minutes long. Members of community health care teams all worked and resided in communities, and 16 (89%) were females. All patients had been living with diabetes for more than 3 years (excluding 1 participant who did not have diabetes) and were aged 45 years or older; 6 (66%) were males and 3 (30%) had diabetic foot ulcers and/or amputations.

Three main themes that emerged from the data analysis were barriers in health care access, impacts on health outcomes and solutions. Figure 1 illustrates the relationship between the 3 themes.

Health care access barriers

Patients and community health care agreed that a combination of systemic, sociocultural, economic and personal factors affected patients' ability to access health care services available within the community, in nearby small towns and in urban centres (Table 1).

Health care services in communities

Community health care providers mentioned that home care, nursing, immunizations, medication delivery, diabetes education, nutritional support and nutritional education are provided. Both patients and providers mentioned that community health care teams provided health promotion programs and supported patient access to health care services within the community, at urban centres, postdischarge and during health emergencies.

Funding

Community health care providers mentioned that additional coverage for orthopedic shoes for patients with diabetes mellitus varied annually and was limited during the COVID-19 pandemic, further limiting access. They indicated that patients who were unaware of the podiatry services covered through Non-Insured Health Benefits might not access those services.

Primary health care access barriers

Patients and community health care providers mentioned that, given the lack of consistent primary health care in communities, patients often sought care at various walk-in clinics on a need-to basis. Both groups agreed that continuity of care and chronic disease management are challenging for patients. Providers reported coordinating care with Wellness Wheel Clinic's visiting doctors to address patients' primary care needs.

Travel barriers

Patients and community health care providers reported that patients who were dependent on family members for transportation for medical appointments may delay health care access. Both participant groups mentioned that limited space on medical vans leads to prioritization of medical conditions and that patients might not be able to access health care in urban areas. Both groups identified that reimbursement for those arranging their own medical transportation is often insufficient to cover the true expenses. Community health care providers mentioned that privacy issues discouraged patients from using transportation services.

Racism and mistrust

Patients and community health care providers described several incidents of racism and discrimination experienced in health care settings outside the community. They reported being labelled as drug-seekers, being treated with disrespect or having symptoms ignored because of their ethnicity. Both groups mentioned taking several steps to overcome racism to access needed care.

Poor patient–provider communication

Patients and community health care providers observed that providers in Western health care settings often missed opportunities to educate or engage patients in their chronic disease management, leading to further confusion for the patient. Reporting lack of adequate patient–provider communication, patients questioned the value of treatment provided, which again discouraged health care access.

Personal factors

Patients and community health care providers observed that child care, financial strains and inability to take time off prevented older adults and female patients, in particular, from adequately caring for their health. They mentioned that costs related to health care equipment, medication and travel, as well as the cost and lack of healthy food alternatives, could affect patients' ability to self-manage diabetes. Both noted that insufficient knowledge about diabetes management led some patients to avoid care until a problem became severe.

Community health care providers and patients indicated that the impacts of intergenerational trauma have caused downstream effects such as mental health issues, addictions or even denial about their medical conditions. These co-pathologies were reported to delay accessing care or lead to disengagement from care, further exacerbating the condition.

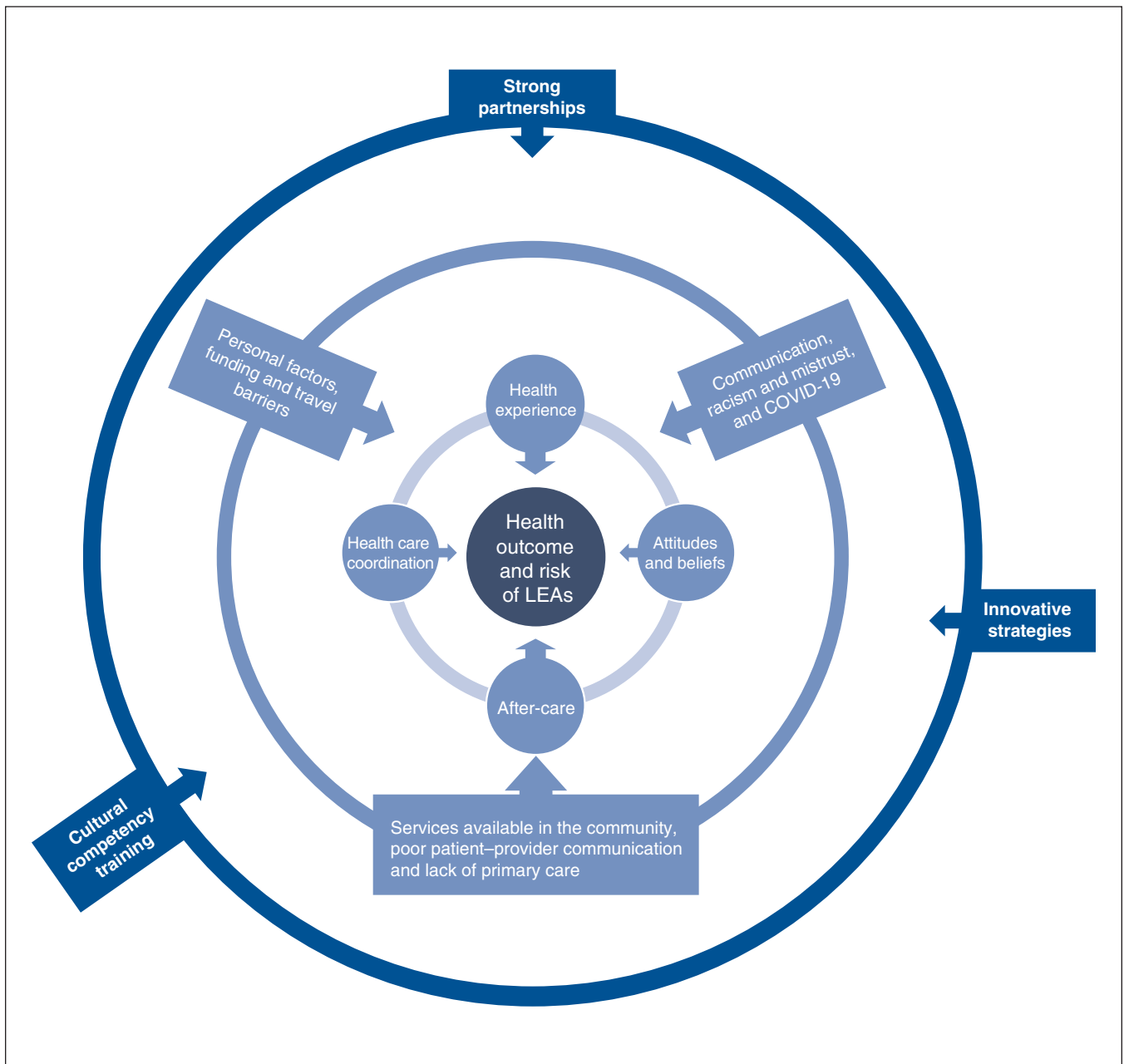


Figure 1: Interplay of social barriers that perpetuate diabetic foot complications. Note: LEA = lower extremity amputation.

Community health care providers mentioned that some patients preferred traditional medicines instead of seeking Western medical care, given their cultural beliefs.

COVID-19 impacts

Community health care providers observed that, during the COVID-19 pandemic, funding was reduced for footwear and opportunities to engage the community through health fairs and education sessions were limited. They also observed that fear of infection deterred patients from travelling in medical vans, leading to delayed access to care, support and education.

Impacts on health outcomes

Patients and community health care providers observed that patient experiences, coordination of care, after-care and personal attitudes influenced patients' ability to use health care services and follow treatment plans, which negatively affected health outcomes (Table 1).

Health care experience

Community health care providers and patients described many suboptimal experiences where care was delayed, important symptoms were missed, insufficient investigations were ordered and treatments were delayed, which led to the exacerbation of the patient's condition. Long wait times in

Table 1 (part 1 of 2): Main themes, intermediate theme and quotes from focus group with community health care teams and patients*

Main theme	Intermediate codes	Quotes from participants
Factors affecting health care access	Services available within communities	“We help them stay on top of their appointments ‘cause, you know, sometimes people when noncompliant, sometimes it’s because they forgot or whatever. So with our high-risk clients, we try to keep on top of their appointment. We’ll call and remind them and make sure that they in Connected for medical transportation to make sure that they have a right to their appointment.” (CHCT 12)
	Funding	“While provincial health stopped funding Podiatry services, we are covered through Non-Insured Health Benefits (NIHB) we didn’t even realize it as a home care team. You can make this appointment. It’s not going to cost you a thing and you’re treaty number NIHB will cover it, so we make sure to make them aware.” (CHCT 11)
	Lack of primary health care	“Lots of people don’t have family doctors. We see whoever we can see when we need to see a doctor ... there’s times too where we can’t get their doctors to sign off on medications but they need refills. But there are circumstances where the doctor will say I’ll renew for 1 month, so we’ve arranged the refills for a month and then we got to make darn sure that the person comes in to see the doctor.” (CHCT 3)
	Travel barriers	<p>“So far we’ve got 3 vans and 2 are used for dialysis patients and the vans run Monday, Wednesday, Friday for dialysis, sometimes Saturday, Tuesday and Thursdays. The vans are used for people to See specialists.” (CHCT 14)</p> <p>“The travel rates has been like that for maybe 20 years ..., it hasn’t changed. We give them \$57.60 to go to Regina for a specialized appointment.” (CHCT 5)</p> <p>“And it’s kind of hard to find someone to drive you to Regina for \$57 with the cost of gas.” (Patient 1)</p>
	Racism and mistrust	<p>“Most of us, they don’t trust people from here. They don’t trust that they are professional enough to keep things confidential so that a barrier to accessing care.” (CHCT 6)</p> <p>“As a nurse, I had a sister who had an issue with her leg. The first thing I told her, one, go to the hospital, go to emergency, two, tell them you’re not drug-seeking because your First Nation, they’re going to assume that right away, three, ask for these tests, let’s rule out a break because it’s so swollen, let’s see if there’s a clot. Then the doctor spent less than 5 minutes with her, told her she had a skin infection, and sent her home. She walked on that leg for another week, her leg was broken!” (CHCT 17)</p> <p>“Big pharma are driven by greed. They probably have the cure to diabetes but they won’t make as much money.” (Patient 5)</p> <p>“It comes down to talking with people who trust, trust is big with First Nations people. The way you talk to them will be the deciding factor if they’re going to listen to you or if they’re going to be noncompliant.” (CHCT 1)</p>
	Poor patient–provider communication	<p>“When my diabetes was out of control, doctor said I could take up to almost 100 units of insulin a day. I did not want to do that. So I started keeping track of what and how much I was eating, exercise daily, then it comes under control. One day, I went talk with him, and again his plan for me was just giving myself higher doses of insulin. I did not agree with that and I thought, geez, this is coming from a doctor. His solution for my high sugars is to just keep giving myself more insulin.” (Patient 7)</p> <p>“I don’t know if he understood that they were taking his legs because he didn’t speak English too well, he spoke his own language when he woke up, he’s like, oh, what happened? So yeah that was a big loss for him.” (Patient 2)</p>
	Personal factors	<p>“I think the generational trauma has caused a lot of it, so we look at the they’re doing, drugs, alcohol model; that is just a painkiller to them. There’s extensive trauma from childhood that we’ve never dealt with, like the abuse. So I said before, so the trauma leads to a lot of illnesses too within your body.” (CHCT 16)</p> <p>“I’ve had diabetic ulcers and holes at the bottom of both my toes that went on for 6 years because I wouldn’t leave work and sit there and let them heal well, now they’re healed, but now I have a bone infection in my toe and I’m waiting for the doctor to phone me to tell me whether they’re going to put me on IV to heal my bone or else if they’re just going to cut off my big toe.” (Patient 3)</p> <p>“There’s a stigmatism, I know that my client who has cancer and she is treating both traditional and Western, she does not tell her doctor that she is treating with traditional medicine. She’s scared to be blamed ... that this is why it’s not working or a lot of times the doctors don’t understand the traditional ways right so right away there you get that stigmatism like you’re doing something wrong.” (CHCT 9)</p> <p>“We have a dietician, she gives us the foods but I have a problem a lot other people in the community have the same problem ... It’s really hard for the people to follow the diet because of financial issues.” (Patient 4)</p>
	COVID-19 impacts	“Pre-COVID, we had our yearly health fair where every program that health and wellness offers where we set up booths and provided that information.” (CHCT 7)

Table 1 (part 2 of 2): Main themes, intermediate theme and quotes from focus group with community health care teams and patients*

Main theme	Intermediate codes	Quotes from participants
Impacts on patient care	Health care experience	<p>“A few years back, client phoned me, I went over there right away. She was having a stroke, I took her to the hospital. She had 2 mini strokes on the way to the hospital and they still made her sit. I went up to the front and I tried I just told them where I was from and I was a CCA in community and how we’ve been sitting here just about an hour. She’s now she had a massive stroke. Her face is red now. I explained to them right away when we first got in here that she’s having a stroke, her high blood, her blood pressure, her sugars are way up. I said she’s going to have a heart attack, but they just let her sit there. Finally, when she did have a massive stroke there, that’s when they raced around.” (CHCT 2)</p> <p>“People in the community are scared to lose their toes or their feet. A client just refused to go see the doctor and his big toe turned black only then he went to the hospital ended up losing that toe. Because he waited too long, when the big toe started to heal, the other toes got infected, so he lost his foot. That person eventually lost his 1 limb below the knee and that all started, just from the big toe.” (CHCT 4)</p>
	Health care coordination	<p>“We do our best to refer them to Podiatry and connect them, if it’s serious enough, with the Wellness Wheel doctors because they offer such great services to the community. We trust that they’re going to send them to the right specialists to get the issues taken care of as quickly as possible.” (CHCT 12)</p> <p>“A client from this community, discharged from hospital, has below the knee amputation. He had an instrument catheter. He wanted his meds and his leg site was still fresh, so his bandages were leaking So that I could change on my own but as for everything else, I was kind of lost as to what to do with this man. I looked on his eHealth and even that was like barely helpful, so it was really hard coordinating care for that fellow.” (CHCT 15)</p>
	Attitudes and beliefs	<p>“We had a single father last year, discharged himself early with a VAC dressing because he had young kids all under the age of 12 and he was our primary providerThey come home early, a lot of them do discharge themselves and then they always end up going back all the time.” (CHCT 6)</p>
	After-care	<p>“Client got fitted This bone here [indicating tibia] just rubs on that prosthesis and he’s always got it open, it hasn’t been infected where it’s bothering him . . . it’s so frustrating because we went on September, for the 8th appointment They filed the prosthesis down. It’s still worse, so it’s been quite frustrating with his walking . . . I go home for lunch every day because of his health. His heart is also working only at 20% and like yesterday I went home and he fell and he couldn’t get up, so he had to wait till I got home.” (CHCT 8)</p>
Solutions	Stronger partnerships with urban care providers	<p>“Here, it works good with the Wellness Wheel, there’s always some who advocate in there with the doctor. But like, somewhere else, there’s not going to be someone out there advocating for you.” (CHCT 10)</p>
	Improved education	<p>“Consistency is a major thing . . . also education on those pills ‘cause I didn’t know taking metformin was no good for my kidneys. I took metformin for 12 years. And then doctor said I need to get you off metformin. Because metformin is filled with chalk, actually blocks off your kidneys.” (Patient 6)</p> <p>“For people with first-time diagnosis, it would be good for like a doctor to explain to people after years of being diabetic about losing the veins and sensation in your leg and the circulation.” (Patient 8)</p>
	Innovative strategies	<p>“But I start eating less, just small portions and that the nurses give me, and eating less done more good than medicine, I didn’t really change what I eat . . . I started eating less. I went from 238 to 192; my last A_{1c} was 6.8, it went down as low as 5.8.” (Patient 10)</p>
<p>Note: A_{1c} = glycated hemoglobin, CCA = continuing care assistant, CHCT = community health care team, IV = intravenous, VAC = vacuum-assisted closure. *Patients were people who had undergone lower limb amputation or were at risk of amputation.</p>		

both walk-in clinics and emergency departments were reported by patients. Both reported that this led to disengagement from care, hindering future health care use and poor outcomes.

Health care coordination

Patients and community health care providers reported that coordinating health care services and policies among various jurisdictions resulted in challenges in health care navigation. Providers acknowledged receiving insufficient information from urban settings after discharge. Lack of knowledge

about patients’ discharge plans often resulted in community health care teams lacking the necessary medical supplies to adequately support these patients in the community, leading to disjointed care and increased risk of subsequent infections, readmissions and further complications.

Attitudes and belief

Community health care providers described how patients often did not want to put additional burden on their families or health care workers and, thus, avoided using care until absolutely necessary. They mentioned that patients often

prioritized familial responsibilities above their own health, which could lead to untimely self-discharge from hospitals and poor prognosis.

After-care

Patients and community health care providers observed that amputation puts substantial strain on the physical, mental and spiritual aspects of patients' lives, especially with limited availability of physical and mental support. Patients described slow, complex recovery that was exacerbated by comorbid conditions. Providers described how patients and families must coordinate various appointments with specialists, rehabilitation and prosthetic clinics, which increased financial burden for families.

Solutions

Patients and community health care providers both suggested building stronger partnerships between urban and rural health care providers, improving education for both patients and health care providers and identifying innovative strategies to improve patients' overall health (Table 1).

Stronger partnerships

Community health care providers proposed that a stronger partnership between them and urban health care providers and continued advocacy to enhance access to health care services. They noted that providers from the Wellness Wheel Clinic were eliminating barriers to care and enhancing continuity in care and overall quality of care, leading to better health care outcomes.

Improved education

Patients mentioned that education about chronic disease management and about dosage and adverse effects of medication was necessary for self-management, especially for patients with a new diagnosis. Patients requested that health education used language that was easy to follow.

Patients suggested starting health promotion, diabetes education and diabetes prevention at elementary schools. Community health care teams suggested they would benefit from a list of services in urban centres. Participants discussed how urban health care providers should receive cultural competency training and information about the impacts of intergenerational trauma on health outcomes and strategies to address systemic racism and discrimination.

Innovative strategies

Community health care providers mentioned that alternative strategies — such as increased nutritional support and dietary consultation, which has shown promising results — are needed to promote self-management of diabetes. Other strategies — such as health education on self-care, personal grooming, foot care and diabetes prevention — are needed and well received in the community. Access to exercise options was also mentioned as an adjunctive measure to help improve overall health of community members.

Interpretation

Our findings document the complex interactions between systemic, personal, socioeconomic and sociocultural factors that affect access to health care services, health care use and quality of care, which, together, increase the risk for lower extremity amputations. Lack of sufficient funding and poor coordination of care on- and off-reserve increase challenges for patients trying to access health care services and create additional burden for community health care teams entrusted with the responsibility of supporting patients with health care navigation. Absence of easily accessible primary care leads to delayed health care access, discontinuity of care and disjointed diabetes management, which exacerbates associated complications and increases the risk for lower extremity amputations.^{4,17} Several studies have highlighted the high incidence of lower extremity amputations among First Nations communities across the country.^{7-9,17,18} Our study results add to the existing literature by highlighting the root causes that increase the risk of lower extremity amputations for First Nations patients residing in communities from the perspectives of patients and community health care teams.

Consistent with other studies, the continued impacts of colonization and racism in health care settings and its disastrous implications on health issues among First Nations Peoples are highlighted.^{3,19,20} Health care funding determines the availability of health care services, expenditure and coverage, which can lead to out-of-pocket expenses, and thus delayed access and poor health outcomes.²¹ Negative experiences in Western health care settings can create hesitancy among patients, leading to disengagement and early self-discharge from care, and may delay future care access.^{19,22} Consistent with literature, participants indicated that use of public transportation for health care access was reduced during the COVID-19 pandemic, which may have negatively affected vulnerable peoples' health outcomes, such as deterioration of their health condition, reinfection, readmission and more aggressive procedures to manage their complications.²³ Aggressive procedures such as amputation have led patients to question physicians' motives, deepening distrust with Western health care systems.²² Thus, patients may be caught in a vicious cycle of delayed care, increased complications, invasive procedures, distrust, negative experiences and delayed care.

Participants suggested the need for stronger partnerships and better communications between urban and community health care providers to facilitate chronic disease management.²² These results emphasize the need for continued education at 3 levels. First, improved patient-provider communication and continued health education are needed to support self-management and encourage timely health care access and use.²² Second, urban health care providers should be informed about and supported to consider social determinants of health in chronic disease management plans.^{22,24} Third, community health care teams should be supported through informational resources and collaboration from

urban providers to support patients after discharge.²² These study results call for focused and targeted efforts to develop culturally responsive and trauma-informed health care services for First Nations people to improve timely access and use of health care services, and to reduce risk of lower extremity amputations.^{5,22,25}

Future studies should explore the barriers and challenges to providing health care services to First Nations people from the perspectives of urban health care providers. Research can start discussion on barriers to health care access for all First Nations communities and identify strategies to address community-specific challenges in partnership with First Nations stakeholders. Strategies should emphasize uptake of health care services. Health, well-being and diabetes prevention can be promoted through health education programs targeted to specific age groups and sexes.

Limitation

This study included perspectives of 2 First Nations communities in central Saskatchewan, and may not reflect views of other sociocultural, diverse First Nations communities and those who did not participate. Study participants may have given socially desirable responses. Given that the study was conducted by health care researchers representing publicly funded health care systems, the interpretations could be biased. However, we engaged a community note-taker and the communities reviewed and approved our data analysis to reduce biases.

Conclusion

Patients and community health care providers identified several factors associated with increased risk of lower extremity amputations. These factors lead to vicious cycles that perpetuate illness severity and thus lead to more invasive interventions. Through continued education, urban health care providers should be informed about access barriers for First Nations patients, systemic racism experienced in health care setting and intergenerational trauma that affect health outcomes for First Nations peoples. Focused efforts to facilitate partnership and communication between urban and community health care teams are needed to ensure timely linkage to appropriate care and a smooth transition of care to and from urban centres and communities. Systemic changes to increase funding for medical travel, health promotion programs and reliable on-reserve primary care are needed.

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Data sharing: A summarized version of the data may be made available based on the appropriateness of the request by contacting the corresponding author. A summarized version can be shared after receiving approval from the First Nations communities engaged in the study, to honour OCAP (Ownership, Control, Access, Possession) principles. However, such data will no longer be available 5 years after the study is closed as all data collected for this study will be deleted after this time, as per the guidelines of the ethics board.

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