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Limb Preservation JOURNAL

Special Supplement: 2023 Wounds Canada Limb Preservation Symposium

FOCUS ON INDIGENOUS HEALTH CARE

Regional Perspectives:
- Nova Scotia
- Quebec
- Northern Ontario
- Saskatchewan
- Alberta

Addressing Health Disparities And Fostering Resilience

Co-creating Pathways To Move Forward: A QI Approach

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April 28, 2023

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Eskasoni Health Centre, Eskasoni Mi'kmaw First Nation, Cape Breton, Nova Scotia

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Foreword

Unbreaking The Circle

This special supplement to the *Limb Preservation Journal* is dedicated to the memory of Mr. James Peters, who passed away this summer, a few days short of his 61st birthday.

James was a proud Indigenous man who survived unspeakable horrors and trauma to find hope and the will to preserve against tremendous odds. He was taken from his family in the Caldwell First Nation in Ontario, Canada during the so-called "Sixties Scoop", a dark and shameful period in Canadian history, during which a large number of Indigenous children were forcibly removed from their communities and placed in the care of the state's welfare system.

James' formative years were spent enduring terrible physical and emotional abuse. In addition to psychological injuries, he developed numerous medical conditions that troubled him for most of his life. He also suffered from chronic wounds that led to the amputation of one of his legs.

Fortunately, James found refuge in a Christian support group that helped guide him to the path to recovery. He was also aided on this difficult journey by the unwavering support of his wife, Christine, who supported him with unconditional love and remained by his side to the very end. James' remarkable story was chronicled in his acclaimed autobiography, *Broken Circle*.

At the 2023 *Wounds Canada Limb Preservation Symposium*, held in April of this year, James was the keynote speaker, talking passionately about his life experiences. The Symposium's theme was 'amputation prevention in Indigenous communities', and James' message was that of hope and resilience, endurance and faith and the importance of not despairing in the face of adversity.

This supplement, the first published by the *Limb Preservation Journal*, summarizes James' and other presentations from this important Symposium. It highlights the work of groups from across Canada who are heeding James' message and working hard to improve the amputation prevention supports available to Indigenous and other communities. There are experiences shared, some by Indigenous health-care professionals, and lessons to be learned, not just for those working directly with Indigenous peoples, but for the limb preservation community.

I had the privilege of serving as James' vascular surgeon and wound care physician. I greatly admired his wittiness and presence of mind. The last time that we connected, a few weeks before his passing, he asked me why he and many others had been allowed to suffer so much. I told him that I didn't know. Nor did I, or anyone I knew, have any ability to erase the injustices of the past. But what is certain is that our limb preservation community is committed to doing everything possible towards building a better future for James and others like him.

May you find solace in the stars, James, and may your example continue to inspire us. You will always be loved and remembered.

Sincerely yours,

Ahmed Kayssi MD MSc MPH FRCSC
Editor-in-Chief

Wounds Canada News

NEWS

Limb Preservation Alliance Launched

Wounds Canada has joined forces with the American Limb Preservation Society, the Canadian Podiatric Association and D Foot International to create a Limb Preservation Alliance to address, promote and advocate for limb preservation.

The new alliance aligns with Wounds Canada's mission to enable health-care providers to improve their practice and ensure the best possible care for persons with wounds or at risk for developing wounds.

The Limb Preservation Alliance would also like to extend an invitation to other relevant organizations who would like to collaborate on educating the public and health-care professionals on the prevention and management of wounds.

For more information contact loukia.papadopoulos@woundscanada.ca.

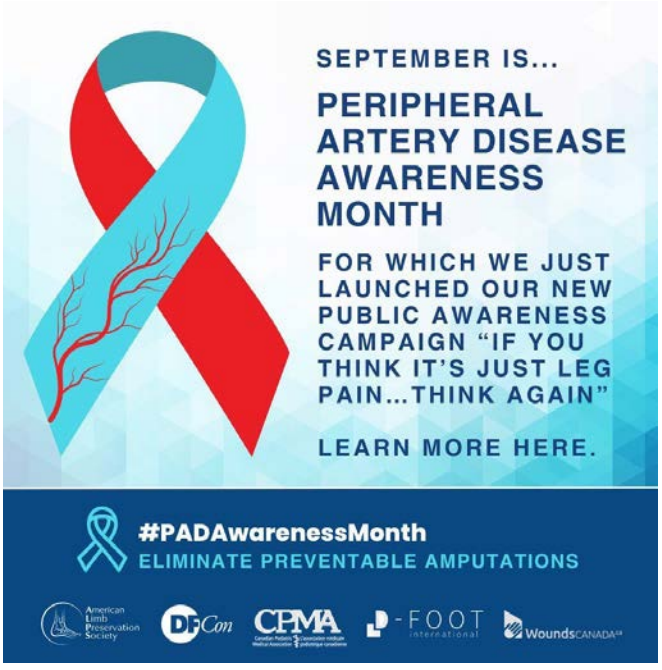
September Is Peripheral Arterial Disease (PAD) Awareness Month

September is PAD awareness month and the Limb Preservation Alliance has put together a social media campaign to educate and inform on the condition which affects millions worldwide. The *If You Think It's Just Leg Pain… Think Again* PAD awareness campaign will provide information for clinicians to enhance patient collaboration and awareness programs targeting Canadians with diabetes and the professional health-care community.

Five key messages will be highlighted throughout the month:

1. **Stay in Step with PAD:** Discuss symptoms with your physician
2. **Sock Signals:** Stay informed about PAD symptoms
3. **Beyond the Cramps:** Decode the signs of PAD
4. **Feet First:** Take vigilant steps this PAD Awareness Month
5. **Every Leg Tells a Story:** Consult with your health-care expert for unusual PAD symptoms.

To learn more, please visit our dedicated webpage.



KEYNOTE: INSIGHTS FROM INDIGENOUS PERSPECTIVES ON LIMB PRESERVATION

Addressing Health Disparities And Fostering Resilience

James Peters and Christine Kenel-Peters

Abstract: This report offers an overview analysis of the experiences of James Peters and Christine Kenel-Peters. It highlights the challenges that Indigenous populations face in the realm of limb preservation and summarizes the inspiring stories shared by the presenters.

Key words: *quality improvement, limb preservation, implementation, data collection, patient care, community support.*

How to cite: Peters J, Kenel-Peters C. Addressing health disparities and fostering resilience. Limb Preservation Journal. 2023;4(2): 6-8. DOI: https://doi.org/10.56885/JHXC72891.

The *Wounds Canada Limb Preservation Symposium* marked its fifth anniversary with this year's event. It is worth celebrating its growth from a modest beginning in Toronto to a widely recognized platform garnering support from health-care professionals, lay audiences and industry stakeholders. Such a sustained engagement speaks volumes about the continuing relevance of discussions on amputation prevention across Canada. This year's focus on the intersection of amputation prevention and Indigenous communities underscores the need for inclusivity and equity in health-care initiatives

James Peters: Triumphing Through Adversity

James Peters, a Potawatomi/Ojibwa member of Caldwell First Nation (also known as the Chippewas of Point Pelee and Pelee Island), shared a compelling narrative highlighting his life through an array of challenges and eventual triumphs. His personal journey emphasizes the profound impact of forgiveness and unwavering community support in overcoming deeply ingrained struggles.

Raised in non-Indigenous foster homes and group homes, Peters' life was marked by adversity, including instances of abuse and trauma. However, he sometimes found solace in activities like horseback riding and ice hockey. As a young adult,

Peters continued to navigate a challenging path, including encounters with the law and struggles with addiction. He also battled with necrotizing fasciitis, diabetes, and kidney disease.

A turning point came when he had a transformative experience in a church, where he felt a powerful spiritual presence. This encounter marked the beginning of Peters' journey toward healing and recovery. In the sanctuary of the church, he began to find solace and a renewed sense of purpose. The unwavering support and guidance he received from mentors played an essential role in redirecting his life's trajectory, inspiring him to distance himself from the streets and work towards reconstructing his life.

Despite enduring immense difficulties, Peters also found love, purpose, and a sense of belonging through his relationship with his wife, Christine. Their shared faith, along with the support of family, community, and medical professionals, has been instrumental in his ongoing recovery from various health challenges.

Peter's story is ultimately one of redemption, faith, and the power of human connection. It serves as a testament to the importance of holistic well-being and the potential for transformation even in the face of seemingly insurmountable obstacles. His journey illustrates that despite confronting apparently impossible odds, transformation and recovery are attainable through the confluence of determination, faith and connection.

Christine Kenel-Peters: Unveiling Health Disparities

Christine Kenel-Peters, a Swiss-Canadian advocate deeply engaged in Indigenous issues, shed light on the complex interplay of social and systemic factors that give rise to health disparities within Indigenous communities.

She emphasized the nutritional advantages of traditional foods and practices, highlighting their superiority over modern alternatives. However, accessing nutritious food becomes a challenge in remote Indigenous communities due to various barriers, thus underscoring the need for improved health-care infrastructure and accessible resources in these regions.

The Power Of Community And Culture

The narratives of Peters and Kenel-Peters collectively exhibited the profound influence of spiritual resilience, support and strategic health-care interventions. Both speakers stressed the significance of reconnecting with indigenous culture, community bonds and familial relationships.

Kenel-Peters' involvement in northern communities showcased a tangible commitment to providing essential resources such as clothing, food and educational supplies. This outreach not only meets immediate needs but also cultivates a shared sense of responsibility and unity among members.

The Indigenous concept of the circle, symbolizing unity and interconnectedness, resonates throughout the experiences shared by the presenters. They articulated the importance of addressing individuals comprehensively—encompassing the mind, body and spirit—for achieving holistic health outcomes. Indigenous individuals often encounter barriers while accessing health-care services, frequently requiring them to leave their communities. Yet James Peters' heartening outreach to fellow patients during hospital visits emphasizes the vital role that community support plays in the healing process.

Amputation Prevention Through Cultural Empowerment

The narrative of the Peters illuminated the paramount importance of preventing limb amputations through timely intervention and well-rounded care. Nutrition, education and cultural reinvigoration emerged as pivotal pillars in combatting the root causes of health disparities prevalent in Indigenous communities.

By revitalizing time-honoured practices, addressing systemic challenges and bolstering community resilience, the rising rates of amputations and associated health disparities can be curtailed.

Conclusion

By sharing their personal stories encompassing challenges, setbacks and triumphs, the presenters hope to ignite conversations destined to drive positive transformations and heightened awareness regarding the unique obstacles encountered by Indigenous individuals in Canada. This symposium serves as a poignant reminder of the potential inherent in collaboration, empathy and cultural appreciation for addressing health disparities and fostering a healthier, more equitable future for all Canadians. ■

James Peters (1962-2023) was a Potawatomi/Ojibwa member of Caldwell First Nation. More information can be found at https://www.caldwellfirstnation.ca.

Christine Kenel-Peters is a Swiss-Canadian advocate deeply engaged in Indigenous issues.

This presentation is from the 2023 Wounds Canada Limb Preservation Symposium, a virtual one-day event held on April 23, 2023. A video recording of the full presentation can be accessed at https://drive.google.com/file/d/1H98hMrAQY8XGzSBUhSm-ltQAffIFpdyp4/view?usp=drive_link

Illustration on page 6: Mino-Mashkiki (good medicine) by Naomi Peters.

IN MEMORIAM It is with great sadness that we note the passing of James Peters (née-Gan-Nodin) subsequent to his presentation at the Wounds Canada Limb Preservation Symposium. Peters was a proud member of Caldwell First Nation, whose ancestral lands are located at the most southern tip of Canada. A full obituary can be found at https://memorials.marshallfuneralhome.com/james-peters/5245069/index.php

American Limb Preservation Society

Welcome to the American Limb Preservation Society, ALPS

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- The opportunity to apply for our ALPS Traveling Fellowship.
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PUTTING IT ALL TOGETHER

Co-creating Pathways To Move Forward In Limb Preservation: A Quality Improvement Approach

Amanda L. Mayo MD MHSc FRCPC

Abstract: Quality improvement (QI) work is key to limb preservation work. A structured approach should be taken to QI to avoid project failures and prevent clinical team and/or patient frustrations. This presentation provides an introduction and overview of the QI process and when and how to implement it within an organization.

Key words: *quality improvement, limb preservation, implementation, data collection, patient care.*

How to cite: Mayo AL. Co-creating pathways to move forward in limb preservation: A quality improvement approach. Limb Preservation Journal. 2023;4(2): 10-12. DOI: https://doi.org/10.56885/GWDS87653.

Quality improvement (QI) work is key to limb preservation work, and can be defined as collaborations of clinicians, patients/caregivers, researchers, health-care funders and educators to better not only patient outcomes, but also health-care systems and professional development.[1] The Institute of Medicine has defined six domains of health-care quality:

1. Safe (avoiding harm);
2. Timely (reducing waits and delays);
3. Effective (Evidence based);
4. Efficient (Avoiding waste);
5. Equitable (eliminating systemic disparities to provide fair and just opportunities for health care for all individuals) and
6. Patient Centred (care respectful of and responsive to patient preferences, needs and values).[2]

Quality improvement projects in limb preservation should address one or more of these six domains.

Selecting a QI project may seem overwhelming. There is so much to improve in health care. It is helpful to take a structured approach to project selection.[3] First look at the scope of the problem and do a baseline gap analysis to ensure it is a fre-

quent and severe issue in need of improvement. Then see if there has been any similar work in the literature you can learn from and/or practice guidelines you can adapt or use in your local setting. Consider implementation issues such as the cost and complexity of the project, support for your work (e.g., project team, funding, leadership buy-in) and whether it may have unintended consequences. To show improvement, you will also need access to data to measure change.[3]

Once you have selected your QI project and collected some baseline data, set an aim statement defining what you are trying to accomplish. An aim statement has three components answering the following questions:

1. What you are trying to improve?;
2. By how much? and
3. By when?.

Choose a 'SMART' aim; an aim that is Specific, Measurable, Attainable, Relevant, and Time-based. A well selected aim statement can focus QI team efforts and should be tied to your primary outcome of interest. An example aim statement for a limb preservation project may be: increasing rates of completed diabetic foot checks in a dialysis outpatient unit by 50% by December 2024. As your project evolves and you learn more about your QI issue, you may change the aim statement.

It is important to collect data frequently in QI work to demonstrate you are making a meaningful change, and to detect when QI projects may not be working as anticipated. QI projects have three types of measures:

1. Outcome Measures;
2. Process Measures and
3. Balancing Measures.

Impacts on patients and health-care systems are outcome measures; e.g., the number of diabetic foot screens completed, and number of patients referred for vascular assessment as a result of foot screens. Process measures track if interventions are being done as designed; e.g., a diabetic foot screen checklist being used, or a new wound care measurement tool completed. Unintended consequences or adverse effects of QI interventions are defined as balancing measures; e.g., increased workload on nursing staff to complete diabetic foot check forms. Typically, outcome measures are tracked over time to show change in a run chart or a control chart.

One of the biggest QI project mistakes is beginning with a solution before knowing the contributing factors causing the issue.[4] There are many QI tools you can use to understand why there is a gap in care and then link improvement interventions appropriately.[5] Commonly used tools include: '5 Whys' Analysis, the Fishbone/Ishikawa Diagram and Process Mapping.[5] 'Five Whys' is a simple tool based on asking "why?" five times to get to the root causes of a QI issue. This can be done anywhere and should be done with multiple involved parties such as clinicians, patients/caregivers, administrative staff, managers, etc. The Fishbone Diagram allows structured brainstorming of root causes and grouping them under categories such as clinician, patient/caregiver, equipment, policies/procedures and organizational. A Process Map is a visual way to determine how a system works and what individuals are responsible for tasks. Process Mapping can identify system redundancies, sources of wait times and variability in patient care. All QI tools enable better understanding of the QI problems and help identify interventions to improve.

It is important to engage diverse patient populations in your limb preservation QI work. Kiran et al. have developed a framework for engaging patients in a meaningful way.[6] This framework includes four phases:

1. Share;
2. Consult;
3. Involve and
4. Partner.

Share the QI issue and project using easy to understand information in the form of educational flyers/pamphlets, websites, emails or informal conversations. Consult with patients/caregivers to get feedback and learn how the issue impacts them and also their experiences in the health-care system. Consultation may be done by quick surveys, suggestion boxes, online comments on a webpage, focus groups and/or community group meetings.

Patients/caregivers should be involved in QI issue discussions and exploration of potential solutions. You could consider having patient representatives on the QI team. The best QI interventions are co-created, resulting from partnering with patients/caregivers and community groups.

In summary, QI work is a necessary component of limb preservation. A structured approach should be taken to avoid project failures and can prevent clinical team and/or patient frustrations. Key elements of QI success are understanding the QI issue before developing solutions, and then developing solutions that address the root causes of the QI issue. Ensure you collect data frequently to see if improvement is occurring and QI solutions are working as you anticipated. Throughout the project, engage all involved parties including patients and caregivers so that the project is effective in changing your health-care system and patient outcomes in a meaningful way. ■

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References

1. Batalden PB, Davidoff F. What is "quality improvement" and how can it transform healthcare? Qual Saf Health Care [Internet]. 2007 Feb [cited 2023 Aug 25]; 16(1): 2–3. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2464920/ DOI: 10.1136/qshc.2006.022046.
2. Institute of Medicine (IOM). Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, D.C: National Academy Press; 2001.
3. Ranji SR, Shojania KG. Implementing patient safety interventions in your hospital: what to try and what to avoid. Med Clin North Am [Internet]. 2008 Mar[cited 2023 Aug 25];92(2): 275-93, vii-viii. Available from: https://pubmed.ncbi.nlm.nih.gov/18298979/DOI: 10.1016/j.mcna.2007.10.007. PMID: 18298979.
4. Macht R, McAneny. Barriers and Pitfalls in Quality Improvement. Surgical Quality Improvement. Springer: New York; 2017.
5. American Society for Quality. Quality Tools. Available from: https://asq.org/quality-resources/quality-tools.
6. Kiran T, Tepper J, Gavin F. Working with patients to improve care. CMAJ [Internet]. 2020 Feb 10 [cited 2023 Aug 25];192 (6) E125-E127.Available from: https://pubmed.ncbi.nlm.nih.gov/32041695/ DOI: 2020 Feb 10;192(6):E125-E127.

This presentation is from the 2023 Wounds Canada Limb Preservation Symposium, a virtual one-day event held on April 23, 2023. A video recording of the full presentation can be accessed at https://drive.google.com/file/d/1w-nysIoXE6frGDdJgkv5B0sTxY-S79UCS/view?usp=sharing

A NOVA SCOTIA PERSPECTIVE

Challenges And Approaches To Providing Health Care To Indigenous Populations In Nova Scotia

Matthew L Smith MSc RPVI FRCSC; **Jack Rasmussen** MD; **Carl Marshall** CCFP **and Erik Mandawe** MD

Abstract: Providing effective health-care services to rural and remote Indigenous communities in Nova Scotia presents several challenges, including geography, access to appropriate health-care professionals and services and issues of trust and acceptance. This report shares the insights of four health professionals who work extensively with Indigenous populations in the province.

Key words: *Indigenous health, remote communities, health challenges, collaborative medicine.*

How to cite: Smith ML, Rasmussen J, Marshall C, Mandawe E. Challenges and approaches to providing health care to Indigenous populations in Nova Scotia. Limb Preservation Journal. 2023;4(2): 13-15. DOI: https://doi.org/10.56885/XERS37284.

PRESENTER: MATTHEW L SMITH MSC RPVI FRCSC

Our focus is on the delivery of care and assisting community champions of wound care to deliver high quality/rapid access to subspecialty care in the rural and remote populations, with a significant focus on Indigenous health.

The modalities that I have incorporated into my practice include access to closer in-person clinics (where I travel to the community) and the increased use of telehealth. Telehealth includes phone calls, video visits and utilizing physician and other health-care platforms. Some examples of video visits include: home visits utilizing the patient's personal devices, home visits with community health nurses present, home visits with long term care (the HANS program in Nova Scotia), inpatient/emergency consults and more formal telemedicine clinics in hospitals and health centres.

The final area I see to improve care with local community champions involves identifying, motivating and supporting community physicians to take an active role in the care of these complicated wound care patients (e.g., those requiring general surgery/orthopedic surgery).

PRESENTER: JACK RASMUSSEN MD

Subacute and chronic lower extremity wounds with exposed tendons have traditionally been treated with either lower extremity amputation or free flap reconstruction. Amputation may address the issue of the wound, but this comes with significant functional and psychological consequences. Free flap reconstruction generally involves a long and complex surgery with risks and may not be an option in many vasculopaths.

With careful patient screening and assessment of their goals, novel approaches may allow for avoidance of amputation in these complex wounds with exposed tendons. Partial debridement of tendon at the bedside and immediate application of negative pressure wound therapy can allow for creation of a vascularized layer of tissue that can later be treated with a skin graft. This may allow for reconstruction of these wounds with minimal time/resources, even in patients who may not tolerate a long and involved surgery who wish to avoid amputation.

PRESENTER: CARL MARSHALL CCFP

Dr. Carl Marshall is a member of the Eskasoni Mi'kmaw First Nation. He focused on the health-care challenges and solutions in Eskasoni First Nation, a prominent Mi'kmaq community in Nova Scotia.

Eskasoni stands out as the largest Mi'kmaq community in Nova Scotia, and its geographic remoteness presents unique health-care challenges. Historical factors, including a lack of trust in institutions, contribute to the health-care difficulties faced by the community. These historical experiences have left lasting impacts on health-care access and utilization.

Land Acknowledgement

Dr. Marshall acknowledged the traditional territory of the Mi'kmaq people in Nova Scotia, where he works. Although he recognized the audience's diverse geographic locations, he stressed the importance of acknowledging and respecting Indigenous land acknowledgments.

Dr. Marshall comes from a family with significant involvement in his Indigenous community, including his father's role as a longstanding Chief and his brother's council membership.

Work In Eskasoni First Nation

Dr. Marshall works in Eskasoni First Nation. Their health centre offers a wide range of services, including family doctors, primary care nurses, public health nurses, lab services and dental care. While mental health services are available, they face a shortage of outpatient psychiatrists.

Challenges And Health Issues

There are formidable challenges faced by Eskasoni First Nation. Poverty is a significant barrier to accessing health care, and the community grapples with food insecurity and a housing crisis. There is a prevalence of comorbidities, such as cardiovascular disease, diabetes and obesity, as well as unique health issues. Mental health and inappropriate substance use issues further compound these health problems.

Barriers To Care

There are several identified barriers to care in Eskasoni. Poverty remains a major impediment to health-care access, and communication can be challenging due to limited access to phones or the Internet. Patients sometimes fear discrimination when seeking care outside their community, which can deter them from seeking help for serious medical issues.

Collaborative Efforts And Opportunities

The importance of collaboration between health-care providers and the community should not be underestimated. Building trust within the community and working with specialists from outside the community is essential to improving health-care access. Addressing racism and providing support and representation can play pivotal roles in enhancing health-care outcomes.

There are currently plans to expand their community health-care team, potentially offering opportunities for those interested in contributing to this important work. The ongoing growth of their services indicates a commitment to improving health-care access and addressing the unique challenges faced by Eskasoni First Nation.

PRESENTER: DR. ERIK MANDAWE MD

Dr. Erik Mandawe is originally from the Beaver Lake Cree Nation in northern Alberta. He is currently a second-year plastic surgery resident at Dalhousie University in Halifax. Dr. Mandawe also has a connection to the Gradel Child Sundance Family, which has roots in Northern Quebec and Northern Ontario.

Building Community Relationships

Dr. Mandawe recognizes the barriers to health-care access faced by Indigenous communities. He emphasized the critical role of building community relationships in health-care practice. The profound issue of 'trust' should not be ignored, as illustrated by his personal experiences within his own family. His grandmother, a residential school survivor, lived a life marked by trauma, addiction and mental health struggles. His mother's journey as a nurse navigating the health-care system further highlighted the disparities between Indigenous and non-Indigenous experiences.

The Challenge Of Belonging

The concept of 'belonging' as it relates to health and wellness is important. Many Indigenous patients struggle with a sense of belonging within health-care systems, a sentiment rooted in historical mistrust and cultural disconnect. The trauma and experiences that have been passed down through generations contribute to this prevailing lack of trust.

The importance of representation in health care was recognized. His experiences showed that when Indigenous patients encounter Indigenous health-care professionals, there is a profound understanding and connection. Patients feel seen and heard, which is crucial for establishing trust and overcoming barriers to care.

As a proponent of grassroots approaches to health issues, Dr. Mandawe also underscored the significance of community-driven solutions. These approaches prioritize the unique needs and challenges faced by indigenous communities and foster trust and belonging.

Conclusion

The healing journey, whether undertaken as a guide, clinician or helper, should always be focused on building relationships. Time is often a limiting factor in health care, especially when clinicians face high patient volumes. However, investing time in building relationships is one of the most crucial aspects of creating a sense of belonging and ultimately improving health-care outcomes. ■

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Jack Rasmussen MD is Assistant Professor, Department of Critical Care, Division of Plastic Surgery, Dalhousie University, Halifax NS.

Carl Marshall CCFP is Assistant Professor, Dalhousie University, Halifax NS. He is a member Eskasoni Mi'kmaw First Nation.

Erik Mandawe MD is a Plastic Surgery Resident at Dalhousie University, Halifax NS. He is from the Beaver Lake Cree Nation in northern Alberta.

This presentation is from the 2023 Wounds Canada Limb Preservation Symposium, a virtual one-day event held on April 23, 2023. A video recording of the full presentation can be accessed at https://drive.google.com/file/d/18uDezPBC_YbN4fylh-p31xD1DHeuaqyz/view?usp=sharing

A QUEBEC PERSPECTIVE

Enhancing Diabetes Care And Preventing Foot Ulcers In Indigenous Communities: Two Examples Of A Holistic Approach In The Province of Quebec

Virginie Blanchette PhD DPM; **Loredana Talos** IPSSA - endocrinology MUHC; **Stéfanny Bleau** Inf MSc; **Karine Lamothe** Inf ISPSCC (c) **and Marie-Hélène Garneau** TP

Abstract: This review recognizes a dual initiative undertaken to address diabetes management and prevent diabetic foot ulcers within Indigenous communities in the Province of Quebec (Canada). It highlights two intertwined projects: *Culturally Adapted Diabetes Management and Interprofessional Care* and *Prevention of Diabetic Foot Ulcers: A Pilot Project.* Both initiatives underscore the importance of culturally adapted care, patient engagement and collaborative approaches in addressing diabetes management and preventing diabetic foot ulcers within Indigenous communities.

Key words: *diabetic foot ulcers, Indigenous populations, culturally adapted diabetes management, Quebec.*

How to cite: Blanchette V, Talos L, Bleau S, Lamothe K, Garneau M-H. Enhancing diabetes care and preventing foot ulcers in Indigenous communities: Two examples of a holistic approach in the province of Quebec. Limb Preservation Journal. 2023;4(2): 16-20. DOI: https://doi.org/10.56885/HFSD38870.

A recent systematic review has been published on the burden of diabetic foot disease among Indigenous peoples in Canada.[1] The use of an equity lens in this project demonstrated that we need to change our approach to diabetic foot research, prevention and care within the perspective of truth and reconciliation,[2] including the essential integration of Indigenous peoples' ways of knowing, being and acting.[3] We need to understand the unique situation of Indigenous peoples and the necessity to promote culturally safe and quality healthcare within Indigenous communities. Efforts are being made to manage the complications of diabetes, particularly in the lower limbs, and ongoing attention and support are needed to meet the needs and expectations of Indigenous peoples to ensure equitable prevention, access and care.

Within this context, there are current initiatives underway in Quebec, two of which were discussed in the session dedicated to Quebec at the Wounds Canada virtual Limb Preservation Symposia: *Culturally Adapted Diabetes Management and Interprofessional Care* and *Prevention of Diabetic Foot Ulcers: A Pilot Project.* Both initiatives highlight the importance of culturally adapted care, patient engagement and collaborative approaches to diabetes management and diabetic foot ulcer prevention in Indigenous communities. We report here the highlights of the presenters who kindly shared with us their initiative within their organization.

Culturally Adapted Diabetes Management And Interprofessional Care In Indigenous Communities

McGill University and affiliated health centres have developed an initiative to address the challenges of diabetes management within Indigenous communities with a focus on cultural adaptation and interprofessional collaboration. The aim was to dismantle barriers and promote effective diabetes care in populations that are disproportionately affected by the disease.

OBJECTIVE AND CONTEXT

- Identifying barriers to effective diabetes management in Indigenous communities
- Developing culturally sensitive tools and practices for diabetes education and care
- Introducing an interprofessional model of care to bridge gaps in health-care access and address geographical disparities.

CHALLENGES IN INDIGENOUS DIABETES CARE

Indigenous populations face an alarming disparity in diabetes prevalence, with early onset and severe complications.[4] Geographical disparities hinder access to specialized diabetes care and resources. As such, the prevalence of microvascular diseases, limb amputations, foot abnormalities, retinopathy and renal issues is notably high. Access to specialized diabetes care is also hindered by geographical distance from urban centres, resulting in limited health-care resources and support.

CULTURALLY ADAPTED CARE

McGill University's *IPS Diabetes Fast Track Clinic* demonstrates its commitment to culturally adapted care through a partnership-based approach, where health-care providers collaborate with patients to tailor diabetes management strategies. As an example, the clinic acknowledges the cultural context of dietary practices, incorporating traditional foods while promoting effective glucose control. Moreover, culturally sensitive tools from organizations like the National Indigenous Diabetes Association[5] are utilized to facilitate education and communication.

INTERPROFESSIONAL COLLABORATION

To overcome geographical barriers, an interprofessional model of care is introduced. Specialist expertise is combined with local health-care teams to provide continuous support. Information sharing between urban specialists and remote caregivers ensures consistent, patient-centred care. The *Libre View platform* facilitates seamless communication, enabling real-time discussions and collaborative decision-making.

BUILDING STRONG THERAPEUTIC RELATIONSHIPS

The success of diabetes management hinges on strong therapeutic relationships built on partnership rather than hierarchy.[6,7] Consequently, this

project leveraged resources from the National Indigenous Diabetes Association[5] to facilitate culturally relevant education. Additionally, the initiative at McGill emphasizes a patient-centred approach, enabling individuals to actively participate in treatment decisions, fostering ownership of their health and promoting adherence to recommended interventions.

OVERCOMING CHALLENGES AND FUTURE PROSPECTS

Despite technological mishaps and limitations in remote areas, successful diabetes management relies on understanding the cultural, financial, and lifestyle contexts of Indigenous patients.[6,8,9] This report underscores the need for health-care providers to demonstrate cultural humility, acknowledge disparities and actively collaborate with patients and local health-care teams. Future endeavours could involve enhancing communication between urban and remote health-care providers and expanding the use of technology to bridge gaps in diabetes care.

RESULTS AND IMPACT OF THE INITIATIVE

- Empowerment of patients to actively manage their diabetes
- Improved communication between specialists and caregivers in remote communities
- Enhanced diabetes outcomes through culturally adapted care and collaborative decision-making.

TAKEAWAY POINTS

This initiative exemplifies the importance of culturally adapted care and interprofessional collaboration in addressing the challenges of diabetes management in Indigenous communities. By fostering strong therapeutic relationships and involving patients as active partners, this approach holds the promise of improved diabetes outcomes and enhanced overall health and well-being for Indigenous populations.

Preventing Diabetic Foot Ulcers In Indigenous Communities: A Pilot Project

This is a pioneering pilot project that aims to address the rising concerns regarding diabetic foot complications within an Indigenous population in Quebec. The prevalence of type 2 diabetes within this population was a growing concern. Diabetes escalation raises apprehensions about diabetic foot ulcers and related amputation issues, necessitating a proactive approach to prevention.

OBJECTIVES

- Develop and implement a preventive strategy to reduce diabetic foot ulcers
- Identify suitable offloading devices for ulcer prevention and treatment
- Address barriers related to footwear and foot health awareness.

INITIATING THE PILOT PROJECT

The pilot project originated from a collaborative effort, combining internal data compilation and funding to hire an orthotist to 'kickstart' the initiative. In tandem with existing diabetes management services and resources - such as nurses who performed monofilament testing, vascular testing with ankle-brachial index and wound care - the project aimed to address a critical gap in biomechanical foot health care. The initial steps involved identifying suitable offloading devices for diabetic foot ulcers, with a focus on patient comfort and compatibility with various activities.

CHALLENGES AND SOLUTION EXPLORATION

The geographic and lifestyle diversity of this Indigenous community posed unique challenges. The total contact cast, considered the gold standard in offloading,[10] was deemed impractical due to time constraints and the need for extensive training. Moreover, accessing orthopedic or adapted shoes, as well as orthotic services, proved difficult, as basic footwear sizes and styles did not align with individual preferences and needs. Recognizing these barriers, the project team worked to identify effective offloading solutions that could be feasibly integrated including patient preferences.

CUSTOM SOLUTIONS FOR DIABETIC FOOT HEALTH

The pilot project culminated in the selection of offloading solutions that proved most beneficial. Custom insoles emerged as a primary solution, tailored to individual patients' needs, including those with amputations or partial foot conditions. These insoles, along with specialized shoes,

effectively distribute pressure points across the feet, aiding in ulcer prevention. These specialized shoes, often hiking boots or trail shoes, were selected based on patients' outdoor activities and preferences. In addition, engagement and education were emphasized, thus encouraging patient involvement in discussions about their needs and preferences.

ADDRESSING SENSORY NEUROPATHY

Sensory neuropathy, i.e., reduction in pain sensitivity, posed an additional challenge. Patients' lack of awareness regarding foot health made preventative measures crucial. To address this, pressure mapping tools were employed to visually demonstrate high-risk areas and potential ulcer development points. Photographs illustrating pressure distribution provided patients with a tangible understanding of their foot health risks.

TAILORED FOOT HEALTH SOLUTIONS

The cornerstone of the project's success lay in understanding individual needs and preferences. By engaging patients in discussions about their daily activities and preferences, one could tailor offloading solutions to their specific requirements. From indoor slippers for those who preferred staying indoors to specialized outdoor shoes for those who enjoyed outdoor activities, each solution was designed to align with patients' lifestyles.

RESULTS AND IMPACT

- Customized solutions for foot health led to improved patient adherence
- Visual aids enhanced patient awareness of foot health risks
- Specialized footwear solutions provided practical preventive measures
- Ongoing education and engagement efforts aimed at sustaining foot health awareness.

TAKEAWAY POINTS

The pilot project for preventing diabetic foot ulcers in this Indigenous population underscored the importance of customized solutions, effective visual aids and patient engagement. By addressing barriers unique to the community and tailoring interventions accordingly, the project aimed to minimize the impact of diabetic foot diseases.

Going forward, the focus will remain on refining and expanding these solutions, enhancing patient education and fostering awareness about the significance of foot health within this Indigenous population. ■

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References

1. Blanchette V, Patry J, Brousseau-Foley M, et al. Diabetic foot complications among Indigenous peoples in Canada: A scoping review through the PROGRESS-PLUS equity lens. *Front Endocrinol* [Internet]. 2023 Aug 14;14:1177020. Available from: https://pubmed.ncbi.nlm.nih.gov/37645408/ DOI: 10.3389/fendo.2023.1177020.

2. Morgan J, Jameson K, Joolaee S, Ho A. Calls to action: Truth, reconciliation, and Indigenous rights for supportive decision-making in healthcare. *International Journal of Indigenous Health*. 2021;16(1).
3. King M, Smith A, Gracey M. Indigenous health; part 2: The underlying causes of the health gap. *Lancet* [Internet]. 2009 Jul 4;374(9683):76-85. Available from: https://pubmed.ncbi.nlm.nih.gov/19577696/ DOI: 10.1016/S0140-6736(09)60827-8.
4. Cheran K, Murthy C, Bornemann EA, et al. The growing epidemic of diabetes among the Indigenous population of Canada: A systematic review. *Cureus* [Internet]. 2023 Mar 15;15(3):e36173. Available from: https://pubmed.ncbi.nlm.nih.gov/37065334/ DOI: 10.7759/cureus.36173.
5. National Indigenous Diabetes Association. NADA. https://nada.ca/
6. Tremblay MC, Bradette-Laplante M, Witteman HO, et al. Providing culturally safe care to Indigenous people living with diabetes: Identifying barriers and enablers from different perspectives. *Health Expect* [Internet]. 2021 Apr;24(2): 296-306. Available from: https://pubmed.ncbi.nlm.nih.gov/33350572/ DOI: 10.1111/hex.13168.
7. Tremblay M-C, Graham J, Porgo TV, et al. Improving cultural safety of diabetes care in Indigenous populations of Canada, Australia, New Zealand and the United States: A systematic rapid review. *Can J Diabetes* [Internet]. 2020 Oct;44(7): 670-678. Available from: https://pubmed.ncbi.nlm.nih.gov/32029402/ DOI: 10.1016/j.jcjd.2019.11.006
8. Jacklin KM, Henderson RI, Green ME, Walker LM, Calam B, Crowshoe LJ. Health care experiences of Indigenous people living with type 2 diabetes in Canada. *CMAJ* [Internet]. 2017 Jan 23;189(3): E106-E112. Available from: https://pubmed.ncbi.nlm.nih.gov/28246155/ DOI: 10.1503/cmaj.161098.
9. Crowshoe LL, Henderson R, Jacklin K, Calam B, Walker L, Green ME. Educating for equity care framework: Addressing social barriers of Indigenous patients with type 2 diabetes. *Can Fam Physician* [Internet]. 2019 Jan;65(1): 25-33. Available from: https://pubmed.ncbi.nlm.nih.gov/30674510/.
10. Lazzarini PA, Jarl G, Gooday C, et al. Effectiveness of offloading interventions to heal foot ulcers in persons with diabetes: A systematic review. *Diabetes Metab Res Rev* [Internet]. 2020 Mar;36 Suppl 1(Suppl 1): e3275. Available from: https://pubmed.ncbi.nlm.nih.gov/32176438/ DOI: 10.1002/dmrr.3275

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A NORTHWESTERN ONTARIO PERSPECTIVE

Advancing Wound Care And Lower Limb Preservation In Northwestern Ontario Through Dedicated People, Pathways And Technology

Allison Luther BScOT; **Shelley Tees** MClSc-WH HBScN RN; **Jeremy Caul** RN BScN WOCC(c); **Jackie Wesley and Mary MacDonald** MD PhD

Abstract: Northwestern Ontario is home to 88 Indigenous communities, many remote and isolated. Lower extremity amputation rates are high in the region, and even higher among Indigenous populations. The Central Wound Intake system was developed over the past few years in consultation with a clinical working group with representatives from across Northwestern Ontario (Canada). The system attempts to address key components such as points of entry, triage and the development and communication of a wound care plan, with an ultimate goal of reducing amputation rates.

Key words: *lower extremity amputation, Northwestern Ontario, Indigenous communities, technology.*

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Could you find Pikangikum in your phone's GPS? It appears onscreen with the airport, the northern store, the school and the nursing station clearly marked. As you scroll in, smaller stores, the Ontario Provincial Police (OPP) station, hotels and roads appear. You might try to plan a route from Pikangikum to Meno Ya Win Health Centre in Sioux Lookout, the closest medical centre with an Emergency Department and surgical capability. Your GPS will tell you to "try again". If you persist, your technology may offer you a flight option: two and a half hour flights, available every few days.

Northwestern Ontario is home to 88 Indigenous communities, of which 24 are "fly-in", having only air travel as their year-round transportation. Winter roads and summer barges are seasonal, and all are subject to limitations of weather, infrastructure and competing transport priorities.

Rates of lower extremity amputation in Northwestern Ontario are high and amputation rates are higher among Indigenous populations. Estimates range from three to seven times higher than in Southern Ontario, with multiple factors being implicated. There is a high incidence of related comorbidities (diabetes, smoking, atherosclerotic disease). There are geographic, financial and logistic barriers for patients to access advanced wound care equipment and expertise. Prior to 2015, there was no vascular surgery service within Northwestern Ontario.

Organization

As Canadian health-care systems cultivate wound care and limb preservation strategies, a 'hub and spoke' model often evolves to ensure that wound care necessities are available without organizational or geographic restriction along the spokes, while high-cost, resource intensive modalities (revascularization, surgical debridement, advanced wound care practices) are concentrated at one or two service hubs. Such a model relies on strong connections between each spoke and hub.

In Northwestern Ontario, wound care specialists in the 'hub' communities (Sioux Lookout and Thunder Bay) began a dialogue early on with the surgeons in the newly developed division of Vascular Surgery at Thunder Bay Regional Health Sciences Centre (TBRHSC). We envisioned a robust network that would support individuals with wounds in their home communities and cultures; that would deliver easy, consistent access to wound care expertise and that would render subspecialty care whenever needed. The geographic constraints are real so, as health-care clinicians and planners, we began to employ flexible, redundant, network planning with synchronous and asynchronous advanced technology to bridge these gaps.

The Central Wound Intake system was developed over the past few years in consultation with a clinical working group with representatives from across Northwestern Ontario, using referral management software. Key components of the Central Wound Intake (CWI) are:

1. Multiple points of entry including individual self-referrals, primary care, nursing, emergency department referrals and specialty sites such as dialysis units – essentially, any care setting
2. Triage of each referral by an Advanced Practice Specialist (APS), who enlists resources to support wound healing and prevent recurrence (treatment of infection, diabetes care, offloading, vascular assessment, foot care resources, footwear etc.)
3. Communication of a Wound Care Plan back to the referring provider and primary care team with coordination of acute care including surgery, home and community care, private sector resources (such as custom offloading and footwear, etc.) and rehabilitation services.

The Rapid Access to Vascular Evaluation (RAVE) facilitates assessment of anyone with lower extremity wounds by the Vascular Surgery team within a few days of referral. RAVE works closely with the CWI system to ensure that the potential for revascularization is assessed early in the wound healing process.

Technology

We are also developing an ecosystem of technology-enabled health care. *Swift* is an asynchronous wound management application that has particular value in the northern communities where images, referrals and care plans may need to be generated and accessed by a wide variety of providers with suboptimal connectivity. It is currently available in six communities.

TeleVu is a real-time image acquisition and sharing system that enables remote medical assistance for nurses at the isolated nursing stations who use high-resolution 'smart glasses' to assess the wound, visible in real time to the Advanced Practice Specialists and physicians who support them with the *TeleVu* app. It is currently available in three communities with plans to expand this year.

Future State

In our region, we have dealt for many years with obstacles of geographic distance, patient and cultural expectations, gaps in health human resources (from nursing to primary care to specialty services), organizational impediments with a patchwork of financial support for equipment and services and communication challenges at every level. We believe that dedicated people, pathways, and technology will advance wound care and lower limb preservation in Northwestern Ontario. ■

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A SASKATCHEWAN PERSPECTIVE

The Saskatchewan Lower Extremity Wound Pathway: A Missed Opportunity

Nicholas Peti MD FRCSC FSVS; **Jennifer Culig** MD FRCSC **and Erin Peti** RN

Abstract: In 2013, the Lower Extremity Wound Pathway (LEWP) was one of two provincial pathways initiated in Saskatchewan (Canada) to standardize patient care and remove surgical bottlenecks. The multidisciplinary pathway was led by vascular surgery and family medicine. The result of the pathway was a significant increase in wound referrals to vascular surgery, with a trend towards decreased major limb amputation. However, this led to increased demand in one tertiary hospital in Saskatoon, ultimately overwhelming local hospital resources and leading to suspension of the pathway.

Key words: *lower extremity wounds, amputation, Saskatchewan, standardized care.*

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In 2013, government and health-care leaders in the province of Saskatchewan were invited to assess potential pathways for a combination of patient impact and system readiness. Acute stroke and lower extremity wounds were selected. The Lower Extremity Wound Pathway (LWEP) was co-led by representatives from Vascular Surgery and Family Medicine. The goal was to prevent wounds by identifying and treating pre-wound conditions and to standardize assessment and treatment of wounds. This would be facilitated by utilizing primary providers, regional surgeons and home care teams.

Needs Assessment

In Saskatchewan, 60% of leg amputations are for diabetic wounds (CIHI). Most amputations are preceded by a diabetic foot ulcer. Many patients who undergo major lower extremity amputation will have the contralateral limb amputated within the next five years. In Saskatchewan, referral patterns were different between two tertiary cen-

tres, one in Regina and the other in Saskatoon. In Saskatoon, most diabetic foot ulcers, swollen legs, stasis ulcers and even cellulitis, were referred to vascular surgeons. In Regina, lower extremity wounds were assessed by a variety of specialists.

Challenges

Wound care patients are complex with diverse needs. Outpatient management may require assessment of perfusion, revascularization, and serial debridement. Vascular surgeons can address all these needs. Patient access to outpatient appointments may be a challenge. Ambulatory care space and operating room time are limited. Podiatry was defunded by Saskatchewan Health, resulting in decreased access to a valuable resource in the community.

Implementation

We had hoped to distribute wound care across the province to improve patient experience and decrease the incidence of complex wounds. Advanced care nursing would be able to offer debridement and limit travel for patients. However, regional centres in Saskatchewan may be small, with regions having a population as low as 3,000 to 6,000. Advanced NSWOC nursing coverage is variable, with a small number of local experts. As well, some 36,000 Indigenous people live in the far north of Saskatchewan, half on reserve. This group is at risk, but lacks access to local services. An ideal tertiary wound centre would provide "one stop" access to a surgeon, with further care to be delivered in the community, but would also have a patient navigator, home IV support, access to offloading devices, total contact casting, debridement and minor procedures in one location.

The goal was to build capacity among care providers. A Saskatchewan Polytechnic course for *Care of the Patient with Lower Extremity Wounds* was started. The goal was to improve comfort for home care nursing. There was an accredited online course for physicians. However, despite best efforts, internal polling showed only half of family physicians were aware of the LEWP.

The vascular surgery-led wound pathway did not obtain new resources to improve care or accommodate the increasing volume of patients. Care essentially remained a vascular surgeon offering foot debridement and minor amputation in ambulatory care and admission for revascularization, care of complex wounds and major amputation. While advanced NSWOC Registered Nurses were part of the team, they were not physically dedicated to the outpatient clinic, covering both other hospital services and a heavy in-patient volume as well.

The LEWP put out management algorithms. The goal was to standardize and improve care in the community. LEWP algorithms attempted to include best evidence where available. Challenges occurred with dogma, such as requiring an ankle brachial index prior to compression, even where 'clearly palpable pulses' existed. In these cases, significant resources went into testing ABI. This led to an increase in unnecessary outpatient referrals to vascular surgery, where no question about perfusion existed. Vascular surgery also received lower extremity referrals outside the scope of the LEWP, where primary providers were uncertain which service would manage undifferentiated or vague leg complaints.

In Regina, there is a lower wound volume, and a more balanced care model without implementation of the LEWP. Regional centres and surgeons are more involved, while distributed care is less standardized.

In Saskatoon, St Paul's Hospital represents one high-volume wound centre for the northern half of Saskatchewan. Initially, approximately 2,000 to 3,000 annual unique out-patient visits were seen in ambulatory care. By 2022, this number increased to 5,154 total ambulatory care out-patient encounters, including 809 new patients. Approximately 15% of these appointments led to admission, on par with guidance from other high volume Canadian wound centres. The total number of admissions for vascular patients, including wounds, has declined in the past two years. However, the increased use of resources after LEWP implementation affected access to ambulatory care, in-patient beds and OR times for other

Table 1. Amputation volume of Vascular Division, by year during initial decade of LEWP implementation

Year	Above Knee Amputation	Below Knee Amputation	Partial foot or toe amputation
2013	31	41	139
2014	37	37	144
2015	43	54	148
2016	41	39	143
2017	25	29	162
2018	22	38	167
2019	29	38	165
2020	16	49	185
2021	14	31	231
2022	18	38	223

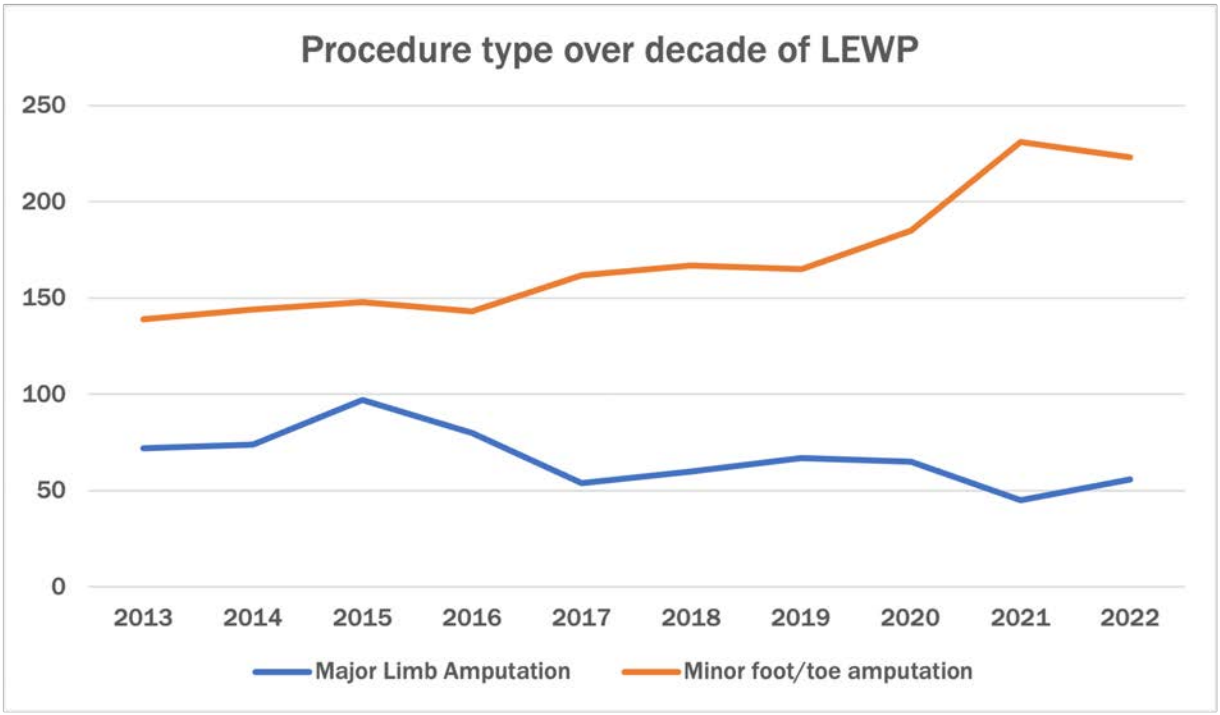
Source: Authors' notes

services. This led to criticism by colleagues and, ultimately, administration.

The number of lower limb amputations was taken from office EMR billing data, which may miss some procedures, in particular minor procedures, that may not have been billed. It is not possible to provide statistical analysis, given a lack of a robust database.

The above knee amputation rate peaked at 43 in 2015, presumably due to an initial increase in referrals to vascular surgery. Above knee amputations decreased to 14 in 2021, despite vascular surgery seeing a greater number of

Table 2. Procedure type over decade of LEWP



Source: Authors' notes

patients with lower extremity wounds. The rate of below knee amputation seemed stable but may have a downward trend. It appears that combined above and below knee amputations (major limb amputations) declined over time despite an increased patient volume. Minor limb amputations (trans metatarsal, toe and ray amputations) increased from 139 in 2013 to 231 in 2021. (See Tables 1 and 2.)

Conclusion

Limb preservation is resource intensive. There is no one solution to improve care. In the case of the LEWP, a high volume, single centre model may decrease major limb amputation, with an increase in wound patient volume and minor procedures like toe amputation. The LEWP failed at keeping wound care in the community, increasing wound referrals to a tertiary vascular centre as awareness increased. This model faced unanticipated resistance due to its effect on other services.

With the loss of administrative support, the Lower Extremity Wound Pathway was suspended in 2022. Complex wound referrals in the setting of clearly palpable pedal pulses are now referred to regional orthopedics, where a service exists. Further analysis may be needed to see if improvements in major limb amputation rates are preserved. ■

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AN ALBERTA PERSPECTIVE 1

The Impact Of The Zivot Limb Preservation Centre

Alisha Poonja DPM FACFAS

Abstract: Indigenous populations in Canada, including First Nations, Métis and Inuit peoples often have limited access to health care, increasing the prevalence of many chronic conditions, including diabetes mellitus. Diabetic foot ulcers are a common problem. This presentation outlines the impact of the Zivot Limb Preservation Centre in Alberta (Canada), its use of the 'Toe and flow' model of care and its role in decreased major amputation rates.

Key words: *diabetic foot ulcer, Indigenous populations, prevention, detection, 'toe and flow', amputation rates.*

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Canada's Indigenous people amount to 6.5% of the total population, including the Métis, First Nations and Inuit people.[1] Due to geographical, language, and historical factors, Indigenous people may have limited access to health care, thus increasing the prevalence of many chronic conditions such as diabetes mellitus.[2] Diabetes affects 26% of Albertans, with rates in Indigenous groups up to 3.5 times higher.[3,4] Diabetic foot ulcerations (DFU) affect 15-25% of people during their lifetime, with proportionally higher rates in Indigenous communities.[4] DFUs contribute to impaired mobility and quality of life, with patients having similar mortality rates to all cancers.[5]

Zivot Limb Preservation Centre

Figure 1: Canada's Only Clinic Based on the 'Toe and Flow' Model

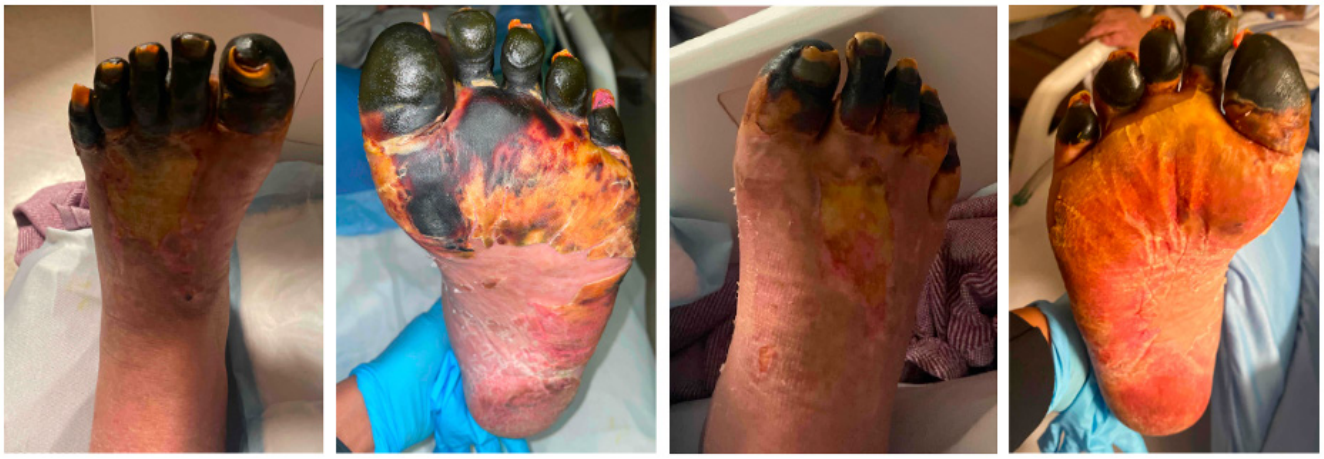


Figure 2: Ischemic Toes Secondary to Frostbite Prior to Amputation

The Zivot Limb Preservation Centre (ZLPC), localized in Calgary, Alberta, is home to Canada's only clinic based on the 'toe and flow' model, where a podiatric surgeon and vascular surgeon work synergistically.[6] In addition, ZLPC has a multi disciplinary approach to limb salvage involving various specialities including infectious disease, plastic surgery, orthopedics, endocrinology, nursing, orthotists, etc.

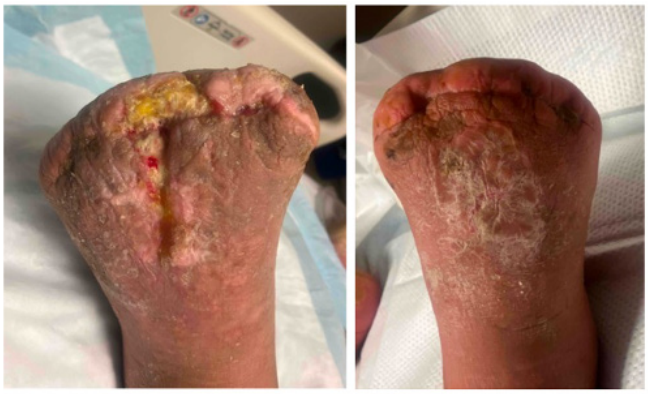
Since the inception of ZLPC and the 'toe and flow' model, the Calgary area has seen a 45% reduction in major amputation rates (below and above knee amputations) compared to the standard of care.[7] Additionally, the reduced rates of major amputations and limb threatening conditions in Calgary can be attributed to the Peter Lougheed Hospital Minor Surgery Clinic (MSC), where many foot lower extremity ulcerations are treated on an expedited basis under local anesthesia. This obviates the complications of general anesthesia in a comorbid patient population, as well as the need to keep patients fasting prior to surgery.

Both ZLPC and MSC have significantly improved patient quality of life and lowered morbidity and mortality, as illustrated in the following case. Consent was obtained from the patient prior to publication.

A 46-year-old Indigenous male from the Dene community was found disheveled and confused in his unkept home during a wellness check. He was admitted to the intensive care unit for extensive frostbite. His wife had passed away a week previous and his car had been impounded, resulting in him having to walk long distances during a cold Canadian winter. On exam, he had ischemic toes. Unfortunately, he was not a candidate for iloprost (vasodilator) due to the unknown timing of his cold injury and the fact that his digits had already begun to mummify on initial exam. Amputation was recommended, though the patient declined. Many Indigenous communities believe that the body must remain whole and leave the world in the way they came into it.[8]

The patient opted for traditional herbal creams for many weeks with minimal improvement of his symptoms, at which point he was agreeable to a staged transmetatarsal amputation. To assist in this decision and his postoperative care, Indigenous liaisons were consulted during his hospital stay, which helped facilitate traditional smudging ceremonies. This involves burning of sacred medicines such as sage and sweetgrass.[9] Given his mobility

Figure 3: Amputation Stumps Three Months Post Operatively



restrictions with his bilateral foot amputations, accommodations were made for the patient to have the smudging ceremony performed in his room during his recovery. This necessitated turning off fire alarms, disconnecting oxygen supplies and posting signs to allow for privacy. He continues to receive wound care to his left foot which is slowly improving, though he is now ambulatory in prescription footwear.

Delivering culturally sensitive, competent, and responsive care is a priority at the Zivot Limb Preservation Centre in Alberta. Open mindedness along with incorporating patient beliefs and attitudes in a care plan lay the foundation for shared decision making. They pave the way for long-term success, especially when treating chronic conditions. Staying curious, asking when uncertain, and recognizing that different approaches to medicine can be tried in parallel are helpful strategies when addressing the needs of the diversity of our patients, including the Indigenous people we have the privilege of learning from and caring for. ■

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References

1. Government of Canada; Indigenous Services Canada. (2022, March 29). Indigenous peoples in Alberta. Government of Canada; Indigenous Services Canada. https://www.sac-isc.gc.ca/eng/1647614714525/1647614742912
2. Cheran K, Murthy C, Bornemann EA, Kamma HK, AlabbasM, et al. The growing epidemic of diabetes among the Indigenous population of Canada: A systematic review. Cureus [Internet]. 2023 Mar [cited 2023 Aug 25]; 15(3): e36173. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10103803/ DOI: 10.7759/cureus.36173
3. Diabetes in Alberta. Diabetes.ca. https://www.diabetes.ca/DiabetesCanadaWebsite/media/Advocacy-and-Policy/Backgrounder/2021_Backgrounder_Alberta_FINAL_1.pdf
4. Ruth C, McLeod L, Yamamoto JM, Sirski M, Prior HJ, et al. Changes in prevalence and incidence at the population level of type 2 diabetes in First Nations and all other adults in Manitoba. *Canadian J Diabetes* [Internet]. 2023 Jul [cited 2023 Aug 25];47(5): 413-419.e2. Available from: https://pubmed.ncbi.nlm.nih.gov/36996969/ DOI: 10.1016/j.jcjd.2023.03.005
5. Armstrong DG, Swerdlow MA, Armstrong AA, Conte M, Padula WV, et al. Five year mortality and direct costs of care for people with diabetic foot complications are comparable to cancer. J Foot Ankle Res [Internet]. 2020 Mar 24 [cited 2023 Aug 25];13(1): 16. Available from: https://pubmed.ncbi.nlm.nih.gov/32209136/ DOI: 10.1186/s13047-020-00383-2
6. Rogers LC, Andros G, Caporusso J, Harkless LB, Mills J, et al. Toe and Flow: Essential components and structure of the amputation prevention team. J Vasc Surg [Internet]. 2010 Sep [cited 2023 Aug 25];52(3 Suppl): 23S-27S. Available from: https://pubmed.ncbi.nlm.nih.gov/20804929/ DOI: 10.1016/j.jvs.2010.06.004
7. Basiri R, Haverstock BD, Petrasek PF, Manji K. Reduction in diabetes-related major amputation rates after implementation of a multidisciplinary model: An evaluation in Alberta, Canada. J Am Podiatr Med Assoc[Internet]. 2021 Jul 1 [cited 2023 Aug 25];111(4): Article1. Available from: https://pubmed.ncbi.nlm.nih.gov/31674800/ DOI: 10.7547/19-137
8. Jorgensen L. Creating harmony in care with Indigenous communities in Alberta. Alberta Health Services Diabetes, Obesity and Nutrition. 2023.
9. Smudging Protocol and Guidelines. Province of Manitoba. Retrieved from https://www.edu.gov.mb.ca/iid/publications/pdf/smudging_guidelines.pdf

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AN ALBERTA PERSPECTIVE 2

FEET: First Nations Empowerment Through Enabling Technology: An Indigenous-led Health Pilot For Diabetic Foot Ulcer Prevention

Justine Jones MBA; **Cheryl Sorensen** RN; **Kristen Smith** LPN **and Breanne Everett** MD MBA

Abstract: Diabetes is a significant health challenge for Indigenous populations in Canada. Diabetic foot ulcers are common. Siksika Nation, a First Nation in Alberta, Canada provides health care to nearly 8,000 members through Siksika Health Services (SHS). This presentation highlights a 24-week pilot focusing on the prevention and early detection of diabetic foot ulcers and on promoting foot health for Siksika Nation members.

Key words: *diabetic foot ulcer, Indigenous populations, prevention, detection, foot health.*

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Diabetes poses a significant health challenge for Indigenous populations in Canada. Among on-reserve Indigenous communities, the prevalence of diabetes is 17.2%.[1] Diabetic foot ulcers (DFUs) are a common and costly complication of type 2 diabetes (T2D), often leading to amputation and mortality; however, the majority are preventable with proactive care.

Siksika Nation, an advanced and progressive First Nation in Alberta, Canada, is committed to providing quality health care to nearly 8,000 members through Siksika Health Services (SHS). Cheryl Sorensen, RN, Siksika Health Services' Home Care Team Leader, and Kristen Smith, Home Care Nurse, noticed an alarming increase in DFU cases among Siksika Nation members. Recognizing the long-term health implications, Sorenson collaborated with Orpyx Medical Technologies Inc. to launch an Indigenous-led digital health pilot funded by PATHWAYS Indigenous Health Collaboration.

Guided by CEO Dr. Tyler White, Siksika Health Services conducted a 24-week pilot focusing on the prevention and early detection of DFUs and on promoting foot health within the Nation. Thirty-five Siksika Nation members diagnosed with T2D participated, receiving remote physiological monitoring (RPM) using Orpyx SI® Sensory Insoles. These insoles, equipped with sensors measuring plantar pressure, patient adherence, step count and temperature, enabled real-time pressure offloading; a vital strategy in preventing foot complications. Orpyx's dedicated RPM team, comprising of credentialed nurses, utilized predictive analytics and a whole-person approach to deliver culturally sensitive personalized care with clinical escalation when needed. During the pilot, only one participant with a history of recurrent DFUs experienced a low-grade wound, which was promptly escalated to the Zivot Limb Preservation Centre (ZLPC) In Calgary, now actively engaged with Siksika Health's Home Care team.

A critical aspect of the pilot's success was the culturally sensitive approach taken throughout its development. Collaborating with Nation members was paramount in designing an effective program tailored to the community's specific needs. Social events played a pivotal role in fostering a sense of community and strong support networks among participants and staff. Consistent support and continuity of care were essential in gaining acceptance and nurturing strong relationships.

The health pilot at Siksika Nation highlights the significance of culturally sensitive digital health interventions in managing and preventing DFUs among Indigenous populations. Participants expressed high satisfaction with the coaching provided by the RPM nurses and enjoyed being part of the pilot. Wear time consistently increased after community gatherings, generating significant interest through positive word-of-mouth. The success of the health pilot resulted in a waitlist at SHS, showcasing strong community interest. Phase two is currently ongoing in Siksika Nation and the Orpyx team is actively working to implement Indigenous-led health pilots in other Indigenous communities throughout Canada. ■

Cheryl Sorensen RN is Team Leader, Siksika Home Care.

Kristen Smith LPN is with Siksika Home Care.

Justine Jones MBA is Senior Vice-President Commercialization, Orpyx Medical Technologies Inc.

Breanne Everett MD MBA is CEO and Co-Founder, Orpyx Medical Technologies Inc.

References

1. Diabetes Canada Clinical Practice Guidelines Expert Committee. Type 2 diabetes and Indigenous peoples (Ch 38). *Diabetes Canada Clinical Practice Guidelines*. 2018. Available from https://www.diabetes.ca/health-care-providers/clinical-practice-guidelines/chapter-38#panel-tab_FullText

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