

# Diabetes, Obesity and Nutrition Strategic Clinical Network: Capitalizing on interdisciplinary networked thinking

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■ Cite as: *CMAJ* 2019 December 4;191(Suppl 1):S17-8. doi: 10.1503/cmaj.190564

The prevalence of diabetes in Alberta is projected to more than double from 2011 to 2035 to about 11%,<sup>1</sup> with rural and First Nations communities having even higher rates. This is driven not only by obesity (about 24% in adults<sup>2</sup>), but also by social determinants of health and limited access to nutritious food and other resources. Canadian data show that about 45% of patients admitted to hospital are malnourished, and the length of stay of these patients is 2 days longer than for those who are well nourished.<sup>3</sup> Better treatment options, ensuring uptake of guidelines and addressing unwarranted clinical variation are things that can be addressed within the health care system. However, prevention of diabetes, obesity and poor nutrition involves a wide range of stakeholders outside of health care. To reduce the societal burden of obesity, poor nutrition and diabetes comprehensively, an interdisciplinary approach such as that provided by a strategic clinical network is required.

The Diabetes, Obesity and Nutrition Strategic Clinical Network (DON SCN; [www.ahs.ca/donscn](http://www.ahs.ca/donscn)) in Alberta is uniquely charged with providing impetus to improve delivery of health care in its 3 inter-related domains. Recognizing that equitable attention must be paid to public health and health system innovations, prevention and management strategies, care in the community and hospital care, makes finding solutions complex. Thus, putting aside siloed thinking to consider issues as an interdisciplinary network has been key to the DON SCN's approach. The DON SCN community is committed to galvanizing ideas, mining evidence, and engaging with patients and families to provide generalized rather than overspecialized solutions with provincial scope and effect as outlined in our current Transformational Roadmap ([www.albertahealthservices.ca/assets/about/scn/ahs-scn-don-roadmap.pdf](http://www.albertahealthservices.ca/assets/about/scn/ahs-scn-don-roadmap.pdf)) (Summary, Appendix 1, available at [www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.190564/-/DC1](http://www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.190564/-/DC1)). We call this "interdisciplinary networked thinking." We highlight 2 DON SCN signature projects that illustrate how interdisciplinary stakeholder groups have tackled gaps in care identified as priorities in Alberta.

An opportunity to create a partnership with primary health care arose from a conversation with a home care nurse who was frustrated with a lack of standard practices for treatment of diabetic

### KEY POINTS

- Operational changes have been facilitated through project management, clinical support and continuing education provided by the Diabetes, Obesity and Nutrition Strategic Clinical Network.
- Partnerships with organizations and individuals who are willing to put aside traditional siloed thinking, both inside and outside the health care sector, are fundamental for improved prevention and treatment of diabetes, obesity and nutrition-related conditions.
- Strong knowledge translation plans supported by practical tool kits and analytical support are necessary to sustain innovations.

foot ulcers, resulting in unnecessary amputations of the lower limbs and tremendous impact on quality of life. Among people with diabetes, 15%–25% will have a foot ulcer during their life, which may lead to amputation, and postamputation 5-year mortality as high as 75%.<sup>4</sup> Yet, 50%–85% of diabetic foot ulcers can be prevented by screening and aggressive treatment that is started in primary health care with appropriate specialist support.<sup>5</sup> This led to the creation of the Diabetes Foot Care Clinical Pathway project.

Organizationally, primary health care services sit outside of Alberta Health Services (AHS); however, without their agreement to prioritize the initiative and help populate an interdisciplinary steering committee, the foot care project would have failed because screening, the first and most critical step in the pathway, ideally occurs in a family practice setting. The DON SCN was directed by the steering committee to conduct an environmental scan, which found unwarranted variation in practice, lack of access to specialists outside of urban centres and low capacity for screening. Interdisciplinary networked thinking and collaboration among stakeholders (Appendix 2, available at [www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.190564/-/DC1](http://www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.190564/-/DC1)) enabled a creative, site-adaptable approach under the overarching guidance of the pathway, thereby empowering primary health care clinicians to screen feet, educate patients and refer appropriately to newly established High Risk Foot Teams, resulting in fewer amputations.<sup>6</sup>

To overcome barriers to implementing the pathway, the DON SCN supported this initiative with a project manager to oversee implementation, a clinical practice lead to provide education on a screening tool and other materials,<sup>7</sup> and continuing education for diabetic foot care. Spread of the pathway — parallel innovations in specialist limb preservation clinics, updating the benefits policy and assessment of new technologies for treatment of at-risk feet — has increased capacity to prevent this severe complication of diabetes.<sup>6</sup> The DON SCN continues to support spread of the pathway across the province, providing data analytics to track health care encounters and amputation rates.

An initiative to improve in-hospital diabetes care in Alberta arose after data from AHS showed that one-third of all results from glucose tests exceeded the recommended targets in patients with diabetes while they were in hospital. An audit of selected hospitals also showed that basal bolus insulin therapy (the current standard of care)<sup>8</sup> was included in only 27% of insulin orders.<sup>9</sup> DON SCN Core Committee members together with experts in patient engagement and in-hospital management of diabetes led several stakeholders in the development of a multi-faceted strategy to address these issues (Appendix 2). This in-hospital diabetes care initiative built on lessons learned from an earlier failed pilot implementation in a single hospital that used education and an order set as the primary tools to facilitate change but lacked a comprehensive integrated knowledge translation strategy to support the change process.

The need for an appropriate knowledge translation strategy was reinforced by initial strong uptake of the basal bolus insulin therapy order set followed by recidivism. To facilitate change, knowledge translation specialists from the Alberta Strategy for Patient-Oriented Research platform and AHS were added to the team. Before any further implementation attempts were made, barriers and enablers were identified through focus groups with clinicians, including physicians, nurses, pharmacists and administrators. A tool kit<sup>10</sup> was designed to assist sites in identifying solutions to the barriers identified in their environment; in addition, the training provided for implementation of basal bolus insulin therapy was based on theory-driven behaviour change models. After implementation of the knowledge translation strategy, uptake of basal bolus insulin therapy has been strong and sustained.<sup>9</sup> To maximize the sustainability of knowledge translation efforts in this and other projects, 1 member of the DON SCN leadership team has received formal knowledge translation training.

Building on the relationships developed and projects undertaken since 2013, the DON SCN consulted widely in drafting its 2017/21 Transformational Roadmap, summarized as follows: prevent the onset and progression of diabetes, obesity and malnutrition; empower patients and providers to better manage diabetes, obesity and malnutrition to live well and long; and transform the health care system through research, surveillance and partnerships (Appendix 1).

In 2018, a regional hospital agreed to conduct a pilot project to improve care for patients with bariatric care needs, largely through staff training to reduce weight bias and increase procedural confidence (e.g., lifting and moving these patients).

An important new initiative has been funded by a grant from the Canadian Institutes for Health Research to tackle malnutrition (as a component of frailty), particularly after a hospital stay in which malnutrition has been identified through screening. Creation of the Diabetes Infrastructure for Surveillance, Evaluation and Research project will enable the DON SCN and its partners to continue to strive for better health outcomes through ongoing surveillance, identification of research and care gaps, and development of appropriate solutions (Appendix 2). The benefits realized to date by the DON SCN have occurred because of relationships formed and strengthened over time. To measure long-term benefits, we will analyze utilization of health services and cost data to calculate return on investment, and monitor uptake and sustainability, as well as patient-reported outcomes and experiences.

## References

1. Lau RS, Ohinmaa A, Johnson JA. Predicting the future burden of diabetes in Alberta from 2008 to 2035. *Can J Diabetes* 2011;35:274-81.
2. *Overweight and obesity in adult Albertans: a role for primary healthcare*. Calgary: Health Quality Council of Alberta; 2015.
3. Diabetes Obesity and Nutrition Strategic Clinical Network. *Fact sheet: malnutrition in AHS*. Edmonton: Alberta Health Services; 2016.
4. Lysy Z. Prevention of diabetic foot ulcer: the bottlenecks in the pathway. *Diabetic Foot Canada* 2014;2:38-40.
5. Cook JJ, Simonson DC. Epidemiology and health care cost of diabetic foot problems. In: Veves A, Giurini JM, LoGerfo FW, editors. *The diabetic foot: medical and surgical management*. Totowa: Humana Press; 2012.
6. Strilchuk A, Harris G, Mork M. *Alberta's Strategic Clinical Networks: improving health outcomes: retrospective 2012-2018*. Edmonton: Alberta Health Services; 2019:54.
7. Diabetes Obesity and Nutrition Strategic Clinical Network. *Pathway toolkit: Diabetes Foot Care Clinical Pathway*. Edmonton: Alberta Health Services. Available: [www.albertahealthservices.ca/scns/Page13331.aspx](http://www.albertahealthservices.ca/scns/Page13331.aspx) (accessed 2019 May 9).
8. Malcolm J, Halperin I, Miller DB, et al. In-hospital management of diabetes. *Can J Diabetes* 2018;42:S115-23.
9. Helmle KE, Chacko S, Chan T, et al. Knowledge translation to optimize adult inpatient glycemic management with basal bolus insulin therapy and improve patient outcomes. *Can J Diabetes* 2018;42:505-13.e1.
10. Basal bolus insulin therapy. Edmonton: Alberta Health Services; 2019. Available: <http://bbt.ca/#> (accessed 2019 May 9).

**Competing interests:** Petra O'Connell is an employee of Alberta Health Services (AHS), and Peter Sargious and Catherine Chan are remunerated through a contract with AHS. Catherine Chan has received research grants from Alberta Innovates, Canadian Institutes of Health Research and Canadian Foundation for Dietetics Research outside the submitted work. No other competing interests were declared.

This article has been peer reviewed.

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**Contributors:** All of the authors contributed equally to the conception, writing and critical editing of this article, with additional contributions from the members of the DON SCN Leadership Team (Glenda Moore, Naomi Popski, Kathy Dmytruk and Edwin Rogers). All of the authors approved the final version to be published and agreed to be accountable for all aspects of the work.

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