

A Wound Care Quality Monitoring and Reporting System for Home Care

By Sarah Brown, BSc, RN, MN, IIWCC and
Kathleen Klaasen, RN, MN, GNC(c), IIWCC

The Winnipeg Regional Health Authority (WRHA) Home Care Program provides approximately 800,000 nursing visits to 9500 clients annually. Over 40 per cent of clients received nursing services for wound care.¹ Accreditation Canada established a new Required Organizational Practice (ROP) for home-care services that requires organizations to “monitor the effectiveness of the skin and wound care program by measuring care processes and client outcomes and uses this information to make improvements.”²

Prior to 2014, the WRHA Home Care Program was not monitoring and evaluating any wound care quality indicators. The purpose of this quality improvement project was the development of a wound care quality and monitoring program within the WRHA Home Care Program, called the Balanced Score Card. The aim was to describe the impact of targeted interventions on quality indicator results. Results from the initial chart audits and secondary data analysis indicated that many opportunities exist for further wound care

quality improvement within the WRHA Home Care Program. This article will outline the way we undertook this project, the results and next steps.

Method

A quality indicator improvement team, comprising clinical experts, directors and managers, was formed to review the literature on possible wound care quality indicators and determine the feasibility of collecting and reporting results based on what is captured in regional home-care databases. The team wanted to ensure that the quality indicators were clinically relevant, psychometrically sound, feasible to collect and available over a period of time to enable trending.³ As a result of this work, a total of 13 wound care quality indicators were selected in the following areas: positive client experience, wound care cost-effectiveness, wound care appropriateness, prevention of pressure injuries and staff knowledge on wound care.

Capturing data for most of these quality indica-



tors required a focused chart audit, because visiting nurses within the WRHA Home Care Program use a paper chart kept in the client's home (except for the WRHA Home Care Community Intravenous Therapy Program [CIVP], where documentation occurs within an electronic medical record). Data for the wound care indicators for staff knowledge and wound care cost-effectiveness were obtained from a proprietary nurse

scheduling software. Data for the pressure injury prevalence and incidence were retrieved from the MDS-RAI software system (a resident assessment tool completed on admission and annually on all long-stay home-care clients).

Chart audits were completed in 2015 and again in 2016 to review the wound care quality data (see Table 1). A convenience sample of 80 clients discharged from home-care nursing during a

Table 1: Key information and questions from the chart audit documentation tool

General information: date of admission to home care, discharge from home care, community area, clinic, number of wounds, type of wound, location of wound, date wound first documented and when wound closed

- Was there any documentation specific to the assessment and/or management of wound pain?
- Was the Braden Scale for Pressure Ulcer Risk completed on admission to nursing services?
- For clients deemed at risk for pressure ulcers as identified by the Braden Scale, was a care plan developed and interventions taken to mitigate risks?
- For clients with venous leg ulcers, was compression therapy used?
- Frequency of dressing change on admission/first documentation of wound
- Frequency of dressing change one week prior to wound healing

three-month period who had received wound care nursing services was selected each year. All audits were completed by the home-care clinical nurse specialists (CNS) and nurse educators. Five clients were selected from each of the 12 home-care community areas and two home-care nursing clinics. Fifteen clients were audited from the WRHA Home Care CIVP (both community and infusion clinic clients).

Results from both the documentation audit and the secondary data analysis of those wound care quality indicators available from within both databases were analyzed and then compared to available benchmarks locally or from comparable settings across Canada. The Balanced Score Card (see Table 2) was developed based on the results of the audit.

For the 2015 audit, many of the results fell far below the identified benchmarks, demonstrating that there was opportunity for improvement in wound care quality within the WRHA Home Care

Program. Targeted interventions were developed to help improve wound management between 2015 and 2016. These multifaceted approaches taken to create change included:

- **Wound care education:** advanced wound care education for all registered nurses (RNs). The target was to have 100% of the RNs trained in advanced wound care by the end of 2016. The advanced wound care education was conducted over one full day and focused on pressure injuries (including staging, offloading and specialty mattresses, and nutrition), lower leg ulcers, surgical wounds, burns and advanced wound care case studies.
- **Wound Care Community of Practice:** established by the WRHA Home Care CNSs with the goal to develop the team members' knowledge of wound care and thereby improve client-centred care. Objectives of the Wound Care Community of Practice included the following: attending and giving educational presentations,

Table 2: WRHA Home Care Program Balanced Score Card

Outcome	Quality Indicator	2015	2016
Wound Care Cost-Effectiveness	Proportion of clients receiving daily or BID wound care	31%	23%
	% of clients using silver product*	Not assessed	0.25%
Pressure Injury	Pressure injury incidence	2.06%	2.2%
	% of clients with completed Braden Scale	86%	96%
	% of clients at risk of pressure injury that have documented care plan/interventions	29%	40%
	% of clients with PI with documentation offloading	38%	67%
Positive Client Experience	Documentation of wound pain assessment	45%	52%
Wound Care Appropriateness	% of clients with VLU in compression	73%	100%
	% of clients with lower leg ulcer with lower leg assessment completed	18%	33%
	% of clients with lower leg ulcers with current ABPI/Toe Pressure	47%	45%
Staff Knowledge	% of RNs and LPNs with Level 1	45%	59%
	% of RNs with Level 2	Unknown	84%

*As silver is among the more expensive options, the health region has guidelines relating to when and how to use it. It is monitored to ensure it is used effectively/appropriately.

Working Together to Improve the Health of Canadian Seniors: An Innovative Product and Partnership



Chronic wounds such as venous, diabetic and arterial ulcers can be hard to heal, particularly in older adults, who often have underlying health conditions. If not treated effectively, these types of wounds can lead to infection, reduced mobility and quality of life, and even the loss of a limb.

Recently, Revera, a leading owner and operator in the senior living sector, piloted the use of the geko™ device technology (Master Distributor in Canada, Perfuse Medtec Inc.) as part of Revera's Innovators in Aging Program, an initiative to bring the most promising products, services and technologies to the seniors who need them most. Consenting long-term-care residents who had non-healing wounds in their lower extremities were provided with geko™ devices applied bilaterally to their lower legs for 6 hours per day, 5 days per week.

What is geko™ Wound Therapy?

The geko™ is a self-adhesive muscle pump activator device designed to help hard-to-heal wounds by enhancing blood circulation and managing edema. The device also provides treatment for ischemia, poor venous blood flow and prevention of DVT.

What was discovered through Revera's pilot of the product?

This served as the product's international launch in the long-term care sector for chronic, non-healing wounds. Prior to the evaluation, there was an average weekly **increase** of 1.5% in surface area (SA). All residents were adherent with wearing the geko™ device, and nursing staff and cognizant residents could easily adjust the setting. Application and removal were simple. For those who were adherent to best practices such as compression therapy or pressure offloading as well as the geko™ device, there was a 10.9% ($p=0.00075$) weekly decrease in SA for 8 wounds over 14 weeks. It was effective in closing wounds, reducing pain and edema and improving quality of life. Most residents felt engaged with the therapy, "because they felt it working."

How has this part of the Innovators in Aging initiative led to future collaborations between the two companies?

The positive outcomes motivated Revera to invest \$820,000 (CAD) in the geko™ device to help support its further growth. The opportunity was invaluable in validating the use of this technology with long-term-care residents. Revera was thrilled to see how the device helped the seniors recover and hope to bring it to more older adults in need of help. The company felt that the geko™ device is a great adjunctive solution for many types of lower leg wounds (venous, mixed, diabetic, pressure) when added to best practices in the LTC and retirement home sectors.

What does this mean to health-care practitioners and their patients/clients/residents in Canada?

Improvement of lower limb venous and arterial volume flow and velocity, and microcirculation to the skin and wound bed have demonstrated statistically significant healing in an aged population with hard-to-heal wounds. Blood flow is essential to health and wound healing; as Canadians start to benefit from use of the geko™ device for chronic wounds, further research and evaluations are underway.

View a [webinar](#) featuring Dr. Keith Harding speaking on the geko™ device.

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providing examples of case studies that members can work through together, and working on wound care policies, procedures, protocols, documentation and care plans to improve quality delivery of wound care. Any visiting nurses within the Home Care Program who had an interest in wound care were invited to attend the quarterly meetings.

- **Client care reviews:** meetings between CNSs and visiting nurses where the visiting nurses could discuss their client caseload. The CNS listens to the assessment of the client and wound, current wound management and frequency of dressing changes. The CNS makes suggestions on how the wound might be better managed and if one or more frequent daily dressing changes is actually warranted. This practice was started with the hope of decreasing the proportion of clients receiving daily or more frequent wound care nursing visits from 31% per cent in 2015 to the Canadian benchmark of < 20% as well as providing higher quality client-centred wound management.

Figure 1 provides an illustrated summary of the method outlined above.

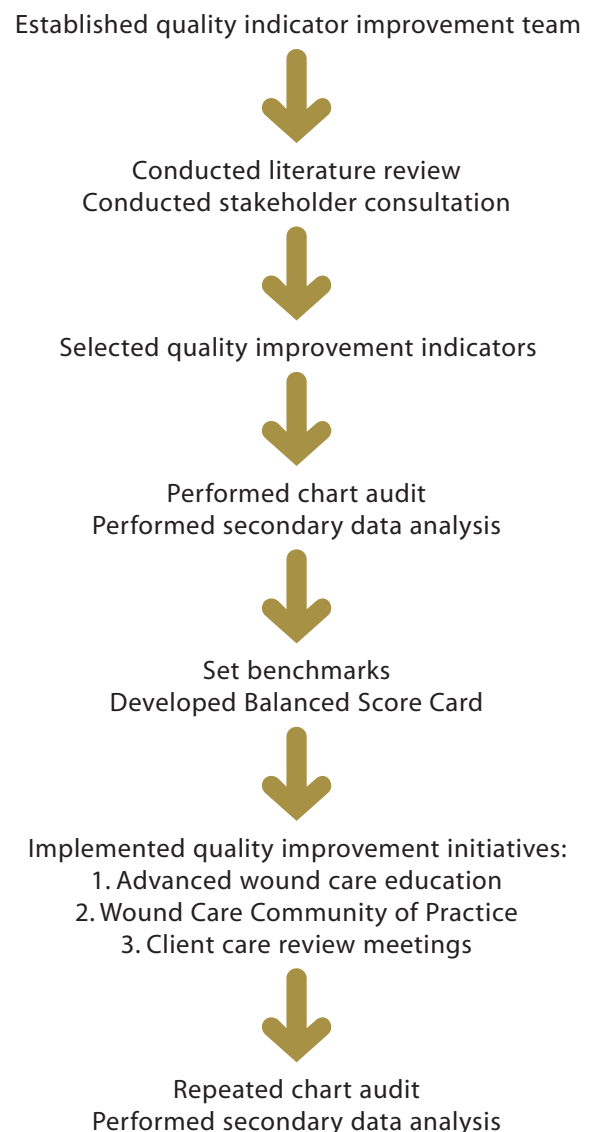
Results

Overall there was an improvement in the wound care quality indicators in the Balanced Score Card from 2015 to 2016, most notably in wound care cost-effectiveness (decreased number of clients receiving daily or more frequent wound care nursing visits [with each one-hour nursing visit costing approximately \$50]) and wound care appropriateness (particularly the percentage of clients with venous leg ulcers in compression therapy).

Incorporating a review of wound care frequency into client care review processes facilitated by the CNSs helped lower the number of once daily or more frequent wound care from 31% to 23%; closer to the < 20% found in other Canadian jurisdictions.⁴ Nurses felt the one-on-one sessions to review their client caseloads were extremely helpful. Many nurses commented “I didn’t realize I could do that!” and the sessions facilitated an

understanding of why one would do daily versus less frequent dressing changes. Many of the nurses did not know that they could use more absorptive products to decrease frequency of dressing changes. As well, every percentage decrease in the proportion of clients receiving wound care is equal to reducing the number of nursing visits by 8000 annually, saving the WRHA Home Care Program approximately \$800,000 per year. Client care reviews will continue to be facilitated by the CNSs to ensure that all or most of the nurses have a chance to review their client caseloads and have discussions around wound assessment and management.

Figure 1: Summary of Method



Key Lessons Learned

The Power of Measurement	Numerous stakeholders commented on the clinical relevance and usefulness of the presented data to drive practice change. While many noted they had subjective “gut instinct” feelings that there was room to improve wound care services, the Balanced Score Card made this “feeling” measurable and concrete.
So Many Dressing Changes	It was interesting to note that during the client case reviews for the “disadvantaged” areas of the city, daily wound care was provided not necessarily based on the amount of drainage from the wound but because they needed to schedule a client for daily visits because the client would frequently cancel. Thus, the visiting nurses would actually only see the client once or twice per week. However, in the electronic system, there is no way to adjust the data to include the reasons why the visits are daily. Another reason for frequent dressing changes was that the client was non-adherent to the wound management plan. For example, the client declined compression therapy and thus needs more frequent dressing changes, because their venous leg wounds are draining heavily. As well, it is not uncommon for the prescriber to order daily dressing changes of wet-to-dry gauze for wounds. In advanced wound care education, nurses are encouraged to decide if more absorptive products would benefit the client, thus decreasing dressing change frequency.

As well, advanced wound care education emphasizes the need for nurses to use compression therapy for venous leg ulcers and to use their professional judgment to determine how frequently a dressing should be changed. By spring 2016, 84% of RNs had completed the advanced wound care education. Educating the registered nurses on advanced wound care by mandating that they attend these full-day sessions was important to achieve a 100% target rate. Advanced wound care education will continue with regional education sessions, as well as

the addition of “voice-over” presentations that the nurses can access online at any time.

The development of a Wound Care Community of Practice team enabled the nurses to continue with their wound care education through the review of case studies and presentations, as well as become more involved with wound care documentation, policies and protocols to ensure high-quality client-centred wound care. The addition of wound pain to the wound assessment flow sheet will help the nurses remember to ask the client about pain, a concern that should not



be neglected. As well, this team is currently making changes to the Braden Scale for Predicting Pressure Ulcers form to embed targeted interventions and prompt the use of a standardized care plan and client education tools.

Limitations

The sample size of 80 discharged clients from the community and clinic limits the data to clients who have their home-care file closed. This sample mostly consists of healable surgical wounds, although there are some lower leg venous ulcers and pressure injuries. Many clients on the WRHA Home Care Program have chronic, complex wounds and, as a result, are not discharged from the program but receive wound care for many years. Few to no clients with these chronic wounds were in this convenience sample of discharged clients. It may be helpful for future audits to include clients that are still on service to get more of a sense of what interventions and quality of wound care they are receiving. This would also provide a larger sample size.

Another limitation was that all the reported wound care indicators relied on the accuracy of what was documented in the client's in-home file or what was entered into the electronic databases. Difficulties with documentation eliminated the ability to accurately report wound healing outcomes according to type of wound and identified our need to revisit how we document wound-related services within the WRHA Home Care Program.

As well, client feedback was not included as part of this quality improvement project. A survey of clients on what constitutes high-quality wound care may be appropriate.

Conclusion

Ongoing wound care quality indicator monitoring and reporting via the Balance Score Card will be done annually using the chart audit tool to measure change based on improvement initiatives. Some indicators are still well below the 100% target, but with the new initiatives underway



in wound care documentation, there should be an improvement in some of the indicators, most notably in documentation of wound pain assessment, lower leg ulcer assessment and targeted interventions that aim to address risk factors of pressure injuries and implement offloading measures. RNs with advanced wound care education were close to 100% at the end of 2016, and there has been an increase in Licensed Practical Nurses (LPNs) participating in the education sessions as well.

The Balanced Score Card may be useful for any home-care program wishing to improve wound care quality monitoring and identify opportunities for enhancing wound care services. The targeted interventions identified can be adapted within any home-care program to aid in improving quality indicators on the Balance Score Card. 📌

Sarah Brown and Kathleen Klaasen work in the Winnipeg Regional Health Authority (WRHA) Home Care Program in Winnipeg, Manitoba.

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A Call to Action to All Canadian Communities: Establish Diabetic Foot Care Pathways

This is a brief summary of a presentation given at the spring conference of Wounds Canada, in Kamloops, British Columbia, May 12, 2017. It has been produced with the financial support of Medtronic. The presenters were Petra O'Connell, BSc, MHA, Senior Provincial Director, Diabetes, Obesity and Nutrition Strategic Clinical Network, Alberta Health Services and Edie Attrell, RN, BN, ET, IIWCC, Clinical Nurse Educator, Alberta Health Services.

In Alberta, the landscape of diabetic foot complications leading to amputation, like the rest of Canada, has been discouraging. Diabetes prevalence rates in Alberta are high (6.89–8.51/100 people) and continue to climb. The number of lower limb amputations increases each year, with 60% resulting from diabetic foot ulcers. With the same five-year mortality rates in patients post-amputation (50%) as the rest of the country, and lifetime risk for a foot ulcer in persons with diabetes at 15–25%, the result is significant financial impact on the health-care system and personal cost to patients and their families.

Diabetic foot ulcers can undergo rapid deterioration as a result of their complex nature and because of the lack of sensation in the feet of persons with neuropathy. In many cases, patients and health-care professionals do not realize the seriousness and urgency of the situation, and without prompt and appropriate interventions, amputation may be the result.

However, given that up to 85% of these amputations could be prevented, we knew it was possible to make positive change in our province if the Diabetes Obesity Nutrition Strategic Clinic Network identified and recognized the opportunity to implement a process for ensuring patients received the right interventions at the right time.

The Project

In spring 2014 we initiated a project to develop a diabetic foot-care pathway that promoted foot screening in

primary care settings for all Albertans with diabetes to support earlier intervention to prevent unnecessary amputations.

During the barrier identification stage of the project it was determined that:

- Tremendous variation of diabetes-related foot-care services existed in the province. There were no standards in terms of screening processes.



- Wound clinics tended to see only patients with wounds and not people at risk of developing a wound.
- In tertiary and rural settings where there were no wound clinics people with foot problems tended to go to emergency/hospitals; but by that time it was often too late to be treated effectively.
- There was a lack of communication and co-ordination between acute care and primary care. Follow-up after an ER visit or an acute care admission and discharge was similar.
- The footwear benefits program from government posed significant barriers and costs to patients.

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Based on the identified gaps and barriers in services the goals of the project became clear:

- Improved access to foot screens for all Albertans with diabetes
- Earlier detection of foot problems
- Timely treatment to address complications and risks for ulceration, with the overarching goal of reducing the development of diabetic foot ulcers and amputations.

Beyond Blood Work

As we were developing the process we worked with a number of patients from pilot sites to determine the factors that led to amputation. In the year prior to and in the year of their amputation, over 33% had blood sugars in the normal range. Key learning: Don't rely just on blood work; do a proper physical assessment that includes foot screening.

Once the gaps were identified, we deconstructed all the components and began to develop a pathway that involved broad engagement of all stakeholders, including frontline clinicians, patients, pharmacists and diabetes educators.

A Pathway for Prevention

Diabetic foot-care pathways have been utilized successfully in several developed countries. Many components are universal and can be incorporated into any health system. The Diabetic Foot Care Clinical Pathway was developed in conjunction with best practices and has been piloted in Alberta. The key components include:

- Screening, assessment and treatment standards along with patient referral/transition processes
- Tools and educational resources for patients and primary care providers
- Support for patient self-management
- Support and education by a clinical practice lead in foot and wound assessment and management for primary care networks
- Support for integrated care by fostering engagement with community-based high-risk foot teams to encourage acceptance of referrals from primary care networks that have completed foot screens and identified feet at risk in persons who do not have a wound
- Access and timely use of diagnostic technologies, revascularization procedures and advanced wound care

This comprehensive modification of the current system is expected to have many benefits, and early indications are promising. For example, one of our pilot sites is now screening 100% of their patients with diabetes. Preliminary data are also showing that ulcer and amputation rates are starting to decrease.

Overall, the anticipated outcomes include improved patient self management, more consistent and timely screening in primary care, earlier and more appropriate care of moderate- and high-risk diabetic foot problems in triage and care, fewer referrals to acute care and increased patient and health provider satisfaction.

Ultimately, we expect to see the fulfillment of the primary goal for this project: reduced rates of foot ulcers and amputations.

Did you know?

In Canada, only 51% of adults with diabetes reported receiving an annual foot screen.¹ (CIHI 2013)

For more information view previous Medtronic Presentation Digests:

- Amputation: Avoidable or Not? – <https://www.woundscanada.ca/docman/public/wound-care-canada-magazine/2015-13-no3/72-amputation-avoidable-or-not/file>
- Canadian Limb Salvage: A Call to Action – <https://www.woundscanada.ca/docman/public/wound-care-canada-magazine/2016-14-no3/ads-3/133-wcc-winter-2016-v14n3-medtronic-pd/file>

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