A Home Care Practice Change in Compression Wrapping

By Shannon Bowman, RN MN IIWCC, and Sarah Brown, BSc RN MN IIWCC

The Problem

After the Winnipeg Regional Health Authority (WRHA) Home Care program held numerous wound care consults for lower leg ulcers in the home setting throughout Winnipeg, it was discovered that nurses were changing disposable, short-stretch compression bandages three or more times a week, regardless of the amount of wound exudate and despite the fact compression bandages can be left on for up to a week. The program conducted a needs assessment by examining how nurses currently determine when to change compression bandages. The rationale provided by many community nurses for changing the compression wraps three or more times a week was "That's how we've always done it." They also stated the belief that compression bandages cannot be left on for more than three days.

These responses emphasized a knowledge gap among the nurses. As a result, WRHA completed an analysis of the data on compression wrapping frequency throughout the 12 community areas within Winnipeg. In the period August to October 2016, pre-intervention results were as follows:[1]

- On average, 42 out of 142 patients recieved wrapping three or more times/week (30% of the total wound care patients receive compression wrapping three or more times/week).
- On average, the number of hours/week for wrapping three or more times totals 111 hours.
- On average, the total number of visits/week for wrapping three or more times is 156.
- $5,550/week of nursing time is spent on wrapping three or more times/week.
- $288,600/year of nursing service time is spent on compression wrapping three or more times/week.
- $103,671/year is spent on disposable, short-stretch compression wrapping for one leg three or more times/week (see Table 1).

The WRHA Home Care Program provides approximately one million nursing visits to 9,500 clients annually. More than 40% of the clients receive nursing services for wound care.[1] Venous leg ulcers account for 40% to 70% of chronic lower extremity wounds, and, in the absence of any significant arterial disease, compression therapy in the form of bandaging is the cornerstone of ulcer management.[2] Thirty percent of the total wound care clients in the WRHA area receive compression wrapping three or more times a week for the management of venous leg ulcers or

mixed (venous and arterial) ulcers with adequate arterial perfusion.[1] The cost of each nursing visit is approximately $50, and the annual cost to WRHA Home Care of compression wrapping three or more times a week is $288,600.[1] Clients with venous and mixed disease represent a significant and costly concern to the health-care system, which was evident in the annual cost of compression wrapping in Home Care.

The Aim of the Practice Change

The goal was to implement a wound care best practice change based on the indications for compression wrapping (e.g., amount of exudate and/or slippage) to avoid nurses routinely changing dressings three or more times per week. Another aim was to reduce WRHA Home Care's supply cost for disposable, short-stretch compression bandages by $20,000 in 2017/2018.

Literature Review and Methods

WRHA completed a literature review on best practices for lower leg ulcers, formed an improvement team, which included the director, members from the Home Care senior leadership team, CNSs, and Nurse Educators (NEs), and shared results from the literature. The team established measures to determine what evidence would show that a change was an improvement. Outcome indicators of compression wrapping in WRHA Home Care were as follows:[1]

- Reduction in the frequency of compression wrapping
- Percentage reduction in the frequency of compression wrapping

A practice change in compression wrapping may be useful for any Home Care program wishing to improve the management of lower leg ulcers and reduce the annual cost of compression wrapping.

- Reduction in the cost associated with nursing visits
- Reduction in the total number of visits spent on wrapping
- Decrease in weekly cost associated with nursing visits
- Decrease in annual costs associated with nursing visits

- Decrease in annual cost associated with disposable, short-stretch bandages

Many of the community nurses expressed that they did not have a good understanding of the indications for the various types of compression bandaging systems. Expert wrappers also voiced concerns that the novice wrappers were not providing a constant level of tension to the bandages, resulting in boggy spots in various areas. Tinker, Hoy and Martin[3] and Welsh[4] articulate that clinicians' knowledge and skill in the techniques of compression bandaging can directly influence patient outcomes (i.e. wound healing) and their quality of life. Poor bandaging techniques can lead to pain, tissue damage (especially to areas of bony prominences, which include the malleoli, medial and lateral aspects of the foot, and the Achilles tendon) and even necrosis.[5]

After recognizing that there were significant gaps in community nurses' understanding of the indications for use of disposable and reusable short- and long-stretch compression bandaging systems, when to change compression bandages, deficits in compression bandaging techniques, and the cost of compression wrapping to WRHA Home Care, the team developed an educational program that was delivered to each of the 12 community areas throughout Winnipeg.

During this time of economic change, the Manitoba Provincial Government had requested all Regional Health Authorities find opportunities to reduce spending, thereby helping to decrease the overall provincial deficit. WRHA Home Care identified the need to reduce the cost of disposable, short-stretch compression bandaging systems and submitted a WRHA Deficit Reduction Proposal Analysis to reduce the supply cost of disposable, short-stretch bandages in 2017/2018 by $20,000.

Home Care implemented the following multifaceted interventions to promote this wound care best practice change:

Key Lessons Learned

Allow more time for nurses to perfect compression wrapping techniques.	Feedback on evaluation forms indicated that more time would have been beneficial to practise various bandaging techniques. In the future, education sessions may be arranged to provide community nurses with another opportunity to practise and improve their wrapping techniques.
Include the patient's perspective.	There was no involvement with the patient's perspective. We may consider a patient survey about their experiences with compression wrapping, wound outcomes, ambulation and impact on quality of life.
Audit wound care charts.	It would be beneficial to complete a wound care chart audit on WRHA Home Care patients with lower leg ulcers that are in compression to assess wound outcomes, healing and pain. Results could then be used to further improve wound care quality and outcomes.
Reconsider location of education sessions.	Nurses expressed challenges with finding parking when attending the downtown education sessions. We will try to schedule future education sessions where parking is free and readily available.

Table 1: Compression Wrapping Evaluation and Outcomes in Home Care

Outcome Indicators	Pre-Interventions (August – October 2016)	Post-Interventions (April – July 2018)	Percentage Change
Average number of patients that receive compression wrapping 3 or more times/week	42	30	↓ 29%
% of total wound care patients receiving compression that are wrapping 3 or more times/week	30% (42/142)	19% (30/154)	↓ 37%
Average total hours of service/week spent on wrapping 3 or more times/week	111	77	↓ 31%
Average total number of visits/week for wrapping 3 or more times/week	156	109	↓ 30%
Cost/week of nursing time spent on wrapping 3 or more times/week	$5,500	$3,800	↓ 31%
Cost/year of nursing service time spent on compression wrapping 3 or more times/week	$288,600	$200,304	(↓31%) = $88,296
Cost/year of disposable, short-stretch compression system wrapping for one leg 3 or more times/week	$103,671	$72,437	(↓ 30%) = $31,234 (Actual savings)

- Compression wrapping education sessions: CNSs and NEs delivered educational sessions to 12 community areas in Winnipeg. These sessions featured a theory component on the various types of compression wraps and safe ergonomics in wrapping, and included some practice wrapping.
- Compression bandaging tip sheet: Educational material was provided to the community nurses about when to initiate compression, when compression is contraindicated and when to change compression bandages. Tip sheets also included data on the frequency and cost of compression wrapping in the community.[1]
- Clinician enabler: A practice tool was developed to help nurses determine whether active or passive compression should be selected and to review the various types of compression bandages available.
- Patient care review meetings: CNSs attended meetings in each community area identified as having a high frequency of compression wrapping. This allowed the CNSs to actively listen to the assessment of the client's wound(s), the current wound management and the frequency of dressing changes. The CNSs then made suggestions for individual patients on how wound exudate or slippage might be better managed and, if clinically appropriate, decreased the frequency of compression bandage changes to once or twice a week.

Results

Post-interventions outcome indicator data were collected at three different intervals; however, for the purpose of this paper, the April to July 2018 time frame will be compared to the pre-intervention outcome indicator data from August to October 2016 (see Table 1). For the period April to July 2018, Home Care patients saw a reduction in the following:

- Frequency of compression wrapping by 29%
- Percentage of total wound care patients receiving compression wrapping by 37%
- Average total hours of service per week spent on wrapping by 31%
- Average total number of visits per week by 30%
- Cost per week of nursing time spent on wrapping by 31%

- Cost per year of nursing service time spent on compression wrapping by 31%

These results add up to $88,296 in savings of nursing service time, and a 30% saving in cost per year of disposable short-stretch compression wrapping for one leg, for an actual savings of $31,234.[1]

Conclusion

Overall there was a significant reduction in the average number of Home Care patients who received compression wrapping three or more times/week since completing multifaceted interventions. There was also a reduction in the average total hours and average total number of visits per week. Most notable were the verbal reports from nurses about how numerous patients' venous leg ulcers had healed after they were switched from a short-stretch to a long-stretch compression system. Other areas of savings to the WRHA Home Care were a reduction in the weekly cost of nursing time spent on compression wrapping and a reduction in the supply cost of disposable, short-stretch compression systems. In summary, a practice change in compression wrapping may be useful for any Home Care program wishing to improve the management of lower leg ulcers and reduce the annual cost of compression wrapping.

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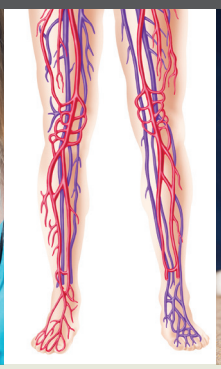


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