

# Wound Care

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C A N A D A

THE OFFICIAL PUBLICATION OF THE CANADIAN ASSOCIATION OF WOUND CARE

## An Overview of Advanced Therapies in the Management of Diabetic Neuropathic Foot Ulcers

## Health Policy in the Real World: The Art and Science of Knowledge into Practice

## Skin and Wound Care for the Indigent and Homeless

## A Pharmacist's Role in Wound Care

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The Canadian Association of Wound Care ([www.cawc.net](http://www.cawc.net)) is a non-profit organization of health-care professionals, industry participants, patients and caregivers dedicated to the advancement of wound prevention and care in Canada.

The CAWC was formed in 1995, and its official meeting is the CAWC annual conference held in Canada each year. The association's efforts are focused on four key areas: education, research, advocacy and awareness, partnerships.

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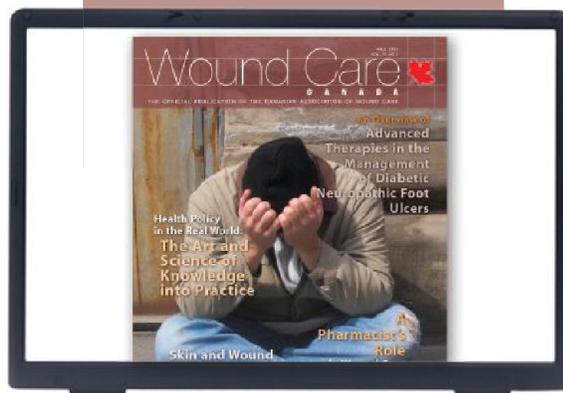
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# Delivering the Best Possible Care Despite Barriers

Every day, frontline clinicians are expected to deliver care at a high standard—even when there are significant obstacles in their way. But how can they deliver top-quality care when the appropriate policies aren't in place? When resources are scarce? When standard therapies are not working and the evidence for alternatives is limited?

In this issue, we address these barriers and explore solutions for overcoming them.

In the article on advanced therapies for the management of diabetic foot ulcers (page 10), we look at what the literature and expert opinion say about the use of advanced therapies. The article provides a summary of the evidence despite its limitations and presents a protocol to guide decision-making.

Few clinical settings are as

challenging as a drop-in facility for homeless and indigent individuals. And yet a team in Calgary has found a way to deliver a high standard of care under less-than-ideal circumstances. Despite limited resources and a transient client base, the team interviewed on page 18 in "Wound Care in a Drop-In and Rehabilitation Centre: A Calgary Perspective" does it by making the best use of limited resources and aligning the delivery of care to the needs and abilities of their clients. By all working together they are able to make best-practice-based care decisions despite the obstacles they face.

Developing and implementing new health policy presents unique challenges for reasons outlined in the last of our policy series: The Role of Health Policy in Wound Management. Entitled

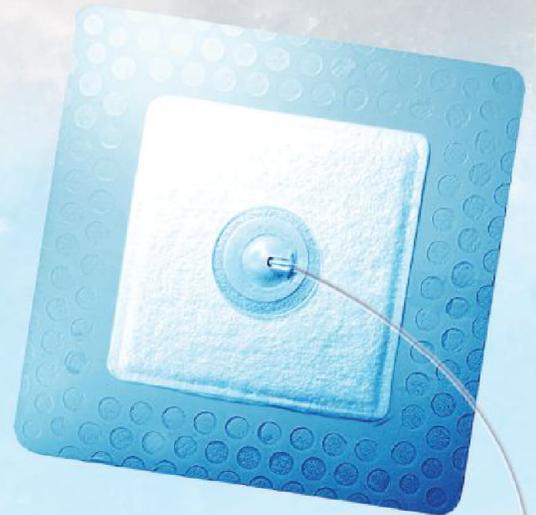
"Knowledge into Practice: Two Examples of Health Policy in the Real World" the article on page 26 outlines, among other things, why it is important for clinicians to understand "how policy can impact the politicized complexity of health-care reform as well as the link between policy and advocacy." One of the barriers is self-imposed and relates to the lack of experience or desire on the part of frontline clinicians to become aware of and involved in policy-making.

I hope you will find our line-up of articles useful and worthy of sharing with your colleagues. To make sure they have easy access to the online magazine and receive bulletins about it and other CAWC programs and publications, please encourage them to get on the free mailing list by emailing [info@cawc.net](mailto:info@cawc.net). 📧

— Sue Rosenthal, Editor



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# CAWC News

## Education

### Clinician Education

2015 has been a busy year for educational events delivered by the CAWC. In the early months we held three two-day Changing Practice through Applied Knowledge workshops, in Whitehorse, Yukon; Truro, Nova Scotia; and Stratford, Ontario. These two-day interactive sessions focus on helping attendees learn how to apply their knowledge to real-life situations that are common in their practice as well as creating a network of colleagues in their geographical areas.

In September CAWC faculty travelled to Winnipeg, Manitoba, to deliver the one-day Prevention and Management of Diabetic Foot Complications, which reviews the risk factors that contribute to the development of diabetic foot complications and helps learners design effective treatment plans.

As well, more people than ever registered for The Foundations of Wound Care program, basic online courses that the CAWC offers through the Ontario Hospital Association at <http://www.oha.com/Education/OnlineTrainingandTools/Pages/WoundCare.aspx>. This program forms the prerequisites for the Changing Practice workshop but can also be taken as a stand-alone program by anyone wishing to learn the fundamentals of wound care.

The CAWC is currently speaking with several regions regarding education in 2016. If your facility or region is interested in hosting an educational event and has a minimum number of 50 participants, we will be able to deliver the program in your community. For more information on this opportunity, please email Executive Director Mariam Botros at [mariam@cawc.net](mailto:mariam@cawc.net) or Director of Education and Communication Sue Rosenthal at [sue@cawc.net](mailto:sue@cawc.net).

### Patient Education

The CAWC can also deliver *PEP Talk: Diabetes, Healthy Feet and You* to your region. This popular and effective peer-education program (PEP), empowers people living with diabetes to adopt self-management behaviours that can help them prevent foot complications.

For more information on the PEP Talk program, please visit <http://diabetespeptalk.ca/en/diabetes>.

### Conference

The annual conference of the Canadian Association of Wound Care will be held in Toronto, at the Westin Harbour Castle, October 29 through November 1, 2015. The title of the conference is **“The Future is Now: Transform Your Practice”** and attending will



**Toronto 2015**

improve your practice through new knowledge, new ways of doing and new connections.

Next year's conference will be held beside one of Canada's most famous and beautiful landmarks: Niagara Falls. By the end of the 2015 we will announce the exciting program we have planned. In the meantime, mark your calendars with the dates so you don't miss out. **Niagara Fallsview Casino; November 3–5, 2016.**



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## Branching Out

The CAWC would like to announce the formation of two committees that will help advance the cause of wound prevention and management in Canada in two areas: advocacy and research.

### Advocacy

Advocacy activities at the CAWC have been taking place throughout 2015. Along with other organizations and individuals, the CAWC has been addressing deficits in policy related to diabetic foot care. Starting in Ontario, the group has been meeting with personnel in the Ministry of Health and Long-Term Care and written a letter to Ontario Premier Kathleen Wynne, Minister of Health and Long-Term Care Eric Hoskins and Deputy Minister of Health Bob Bell to encourage them to address the gaps. The letter can be read [here](#). This effort will be expanded to other provinces and territories over the next year.

As well, an article aimed at policy makers was written on the hidden scourge of peripheral arterial disease (PAD). Entitled Just Leg Pain? Think Again: What Health Leaders Must Know about Peripheral Arterial Disease, the article was scheduled at press time to be published in the [upcoming issue of Healthcare Management Forum](#), the journal of the Canadian College of Health Leaders.

The Advocacy Committee has been formally set up and consists of:

**Chair:** James Elliott, BSc, MSc

#### Members:

Greg Archibald, MD, CCFP, FCFP

Rohit Khanna, BA, MBA, MSc

Janet L. Kuhnke, RN, BA, BScN, MSc, ET

Karen Laforet, RN, MCISC

Andrew Springer, BSc, DCh, FRSH

Nicola Waters, RN MSc PhD(c)

## Spread the Word!

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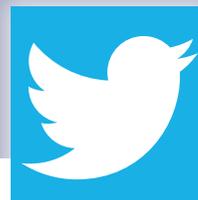
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### Research

The Research Committee will have their first meeting at the CAWC conference, where they will discuss their plans for the coming years.

**Chair:** Michael Stacey, MBBS, DS W. Aust., FRACS

#### Members:

Karen Cross, MD, PhD, FRCSC

James Elliott, BSc, MSc

Pamela Houghton, BScPT, PhD

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Kevin Woo, PhD, RN, FAPWCA

While the two groups will each have their own focus, they will both contribute to our organization's mandate to communicate about wounds and address issues such as the latest evidence and how it impacts practice and outcomes, address gaps in policy and care and improve awareness about the burden of wounds, both at a societal and personal level. Stay tuned for regular communiqués from the two committees.

# Summary of An Overview of Advanced Therapies in the Management of Diabetic Neuropathic Foot Ulcers



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*With the support of an unrestricted educational grant from industry partners\* the Canadian Association of Wound Care initiated a review of the literature regarding the use of advanced therapies in the management of diabetic neuropathic ulcers. The goal of the document was to provide an overview of the existing literature, review expert opinion and establish protocols for the use of advanced therapies in the treatment and management of diabetic foot ulcers. The full document has been published as a supplement to Wound Care Canada and Diabetic Foot Canada e-Journal and is available at [www.woundcarecanada.ca/supplements/](http://www.woundcarecanada.ca/supplements/). A summary of the article is provided here.*

\* Acelity Canada, Integra Canada ULC and Smith & Nephew

# An Overview of Advanced Therapies in the Management of Diabetic Neuropathic Foot Ulcers

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**F**oot complications in persons with diabetes are a major challenge, with diabetic neuropathic foot ulcers in particular being costly to the individual, caregivers and the health-care system.<sup>1</sup> If not managed properly they can lead to loss of limb and are associated with a high five-year mortality rate.<sup>2</sup> However, through education, monitoring, multidisciplinary teamwork and timely assessment and management,<sup>3</sup> diabetic foot ulcers (DFUs) are one of the most preventable diabetes-related complications.

The average costs associated with the healing of a DFU is reported to be as high as \$45,000.<sup>4</sup> Timely and proper use of advanced therapies can

be critical for shortening healing times, which may result in lower overall costs<sup>5,6</sup> when standard wound care options have failed. Therefore, determining the appropriate role of advanced therapies to manage DFUs is essential to ensure cost-effective, patient-focused outcomes.

While major hurdles exist—including cost, availability and lack of strong research data to support their use—advanced therapies have improved the clinician’s toolkit of DFU treatment options.

## Methodology

To arrive at the evidence to support the full document (of which this article is a summary), a structured literature search on research related to diabetic foot ulcers published since 2000 was performed, with the results reviewed by an international consultant and a panel of Canadian health-care professionals with clinical and research experience in diabetic foot ulcers. Clinical practice guidelines that included advanced therapies were also reviewed. This was supplemented by a survey sent to wound care clinicians who identified their actual practices relating to advanced therapies.

## Conclusions from the Evidence

Summaries for each type of therapy examined follow below.

For the complete reference list and tables of evidence, please see the [full document](#).

## Negative Pressure Wound Therapy (NPWT)

Negative pressure wound therapy (NPWT) has been considered an adjunctive therapy for healable wounds (meaning wounds where the cause has been corrected and there is adequate blood supply) that are stalled and where the exudate is greater than what can be managed with conventional advanced dressing modalities.

NPWT delivers sub-atmospheric pressure to a wound bed to promote and accelerate healing. NPWT creates suction that controls undesirable fluid (excess proteases) and promotes healing by influencing the shape and growth of surface tissues.

The removal of excess interstitial fluid using NPWT helps to reduce the intercellular diffusion distance, improving blood flow and augmenting local functional blood perfusion. Removal of excess interstitial fluid may also reduce the surface bacterial colonization and increase the sequestration of excess MMPs.

The studies reviewed demonstrated that NPWT has been most effective for the immediate post-surgical diabetic foot wound. Use of NPWT on these wounds decreased time to healing and improved rate of complete wound healing. In DFUs in general the cost of NPWT may not compensate for the time saved or rate of complete wound healing.

## Hyperbaric Oxygen Therapy (HBOT)

Adequate tissue oxygen tension is integral to the biologic processes involved in wound healing, and therefore an adequate oxygen supply to wounds may enhance healing. Hyperbaric oxygen therapy (HBOT) involves

improves transcutaneous  $pO_2$  in certain patients with ischemic ulcers.

Evidence regarding HBOT suggests that increased arterial oxygen tension can up-regulate growth factors and angiogenesis while down-regulating inflammatory cytokines and promoting antibacterial effects. However, a recent systematic review and meta-analysis of the role of HBOT in the management of DFUs concluded that there does not appear to be any benefit from adjunctive HBOT with respect to amputation rates compared with the control for chronic diabetic foot ulcers. This is related to the lack of randomized clinical trials (RCTs) on HBOT.<sup>7,8</sup>

Of the patients identified, a general trend of decreased time to healing and increased rate of complete healing were found with the use of HBOT therapy. Based on the available RCTs, HBOT did not decrease the amputation rate or improve long-term health-related quality of life.

At present, due to limited research, there is insufficient evidence from both systematic reviews and RCTs to determine whether HBOT is effective for the treatment of chronic DFUs.

### Growth Factors (GFs)

Growth factors (GFs) stimulate

the proliferation and growth of cells involved in wound healing and inflammation. They are biologically active peptides acting as cytokines that aid in cell activation during the wound healing process. After binding to specific cell surface receptors that trigger the induction of a complex cascade of signal transduction pathways, GFs modulate cellular behaviours. They can act on adjacent cells, on the cell itself or on remote cells. Many different types of growth factors were investigated, including: platelet-derived growth factor (PDGF), platelet-rich plasma (PRP), epidermal growth factor (EGF), basic fibroblast growth factor (bFGF), granulocyte-colony stimulating factor (G-CSF), talactoferrin alfa, thrombin peptide (TP508) and keratinocyte growth factor (KGF).

In terms of complete healing, studies have revealed that growth factors are only successful in conjunction with adequate wound bed preparation (sufficient blood supply for healing, infection control, pressure offloading and active surgical debridement). Overall, the adjunctive use of growth factors resulted in faster healing rates and a higher proportion of completely closed wounds compared with other treatments. PDGF is superior to HBOT in complete healing of DFUs.

### Artificial Skin Grafts

Artificial skin grafts are biologic substitutes or synthetic skin equivalents that mimic certain normal skin functions. Ideal



the administration of 100% oxygen to patients within an airtight vessel at pressures greater than one atmosphere absolute (usually 1.5–3.0 ATA) to promote wound healing and inhibit processes detrimental to wound healing. Typical HBOT sessions involve 45–120 minutes in an oxygen chamber daily for 20–30 sessions. Clinically, HBOT

functions of biosynthetic skin substitutes include rapid and lasting wound surface adherence, moisture vapour transmission, resistance to friction and shear stresses, prevention of bacterial proliferation, containment of low antigenicity and lack of local and systemic toxicity.

Artificial skin grafts accelerate healing rates by restoring biochemical balance and a moist wound environment as well as acting as structural support for tissue regeneration and the provision of cytokines and growth factors.

Overall, all the studies revealed a faster healing rate and more completely healed wounds than the control groups. Engineered autografts demonstrated a good prediction of better weekly percentage reduction than the control group. While the study involving a "wound matrix" had a high drop-out rate, the grafts were found to be comparable to PDGF, with no significant differences between

time to complete closure or wound healing rate.

### **Collagen-based Dressings**

A number of different collagen dressings derived from purified bovine, porcine, equine or avian sources are available. The collagen is purified, making it non-antigenic, and introduced into a variety of carriers/combining agents such as gels, pastes, polymers, oxidized regenerated cellulose (ORC) and ethylene diamine tetra-acetic acid (EDTA). Collagen-based dressings produce a variety of effects designed to aid in wound healing, particularly in patients with diabetes who have a marked decrease in the ability to synthesize collagen.

Of the studies reviewed, the collagen studies had mixed outcomes. One of the collagen studies (with a high drop-out rate) reported no significant difference between collagen and control groups in time to closure, while the other had a wound closure reduction in

favour of collagen. Two studies revealed more wounds reaching complete closure with collagen, as well as a faster healing time when using collagen. Results of the two studies on protease-modulating matrix indicated it worked best for ulcers of less than six months' duration and for Wagner's grade 1 and 2 ulcers. More complete wound closure and greater ulcer reduction were found with the use of the protease-modulating matrix.

### **Physical Therapies**

A number of physical therapies were reviewed, including:

**Laser therapy:** Light stimulates cell activation, thereby intensifying healing processes. Low-energy laser therapy delivers energy of less than 10 J/cm<sup>2</sup> at powers of 50 mW or less. Various types of lasers exist for treatment, including crystalline, semiconductor, liquid and gas.

**Electrotherapy (including electrical stimulation – ES):**

The application of an electrical



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current that transfers energy directly through a wound or on the skin in close proximity to a wound. Electrotherapy generates an inward transepithelial potential of sodium ions through the membrane sodium-potassium pump. It



maximizes the naturally occurring low-resistance healing pathway flowing laterally to centrally in the wound.

**External shock wave therapy (ESWT):** Shock waves targeted directly to the wound area to speed healing. ESWT promotes

the generation of new connective tissue, has an analgesic effect for pain reduction and facilitates blood flow to the area.

**Low-frequency ultrasound through saline mist therapy:**

Use of saline mist to deliver low frequency ultrasound to the wound. It works to accelerate the healing process by removing barriers to healing, such as bacteria, inflammation, MMP-9 and by disrupting biofilm. It also causes vasodilation and angiogenesis and promotes growth factor release and collagen accumulation.

A greater wound area reduction was accomplished with laser therapy. Treatment with ES did not cause a significant difference in wound size and volume compared with local heat therapy alone, but did appear to have a superior effect after one month of treatment. ESWT resulted in faster healing and more completely healed wounds, and while more wounds completely healed with electric stimulation, there was no difference in the rate of healing from placebo groups. Low-frequency ultrasound through saline mist ther-

apy resulted in a significantly higher proportion of healed wounds than placebo. However, the data for most of these therapies are limited and not sufficiently robust to support their routine clinical use.

**Other Therapies**

De Marco Formula (DMF, a “procaine chemical combination of Procaine HCl and polyvinylpyrrolidone.”<sup>9</sup>): Patients who showed favorable responses to treatment had statistically lower fibrinogen concentrations than those with unfavorable responses within the DMF group. There were fewer amputations with the DMF plus standard treatment groups vs. the standard treatment group alone.

**Summary of Expert Panel Opinions**

Table 1 summarizes the opinions of the expert panel about the strength of evidence to support the use of each type of advanced therapy outlined above and their recommendations for use.

An overwhelming response to the role of advanced therapies in practice was that it is clearly an adjunct to primary strategies such as pressure offloading, infection control and improving vascular status. One expert stated, “no therapy is more effective than optimal pressure offloading” and another said, “advanced therapy may be considered as an adjunct to pressure relief, and not a replacement for common sense and good care.”

**Table 1.** Survey Summaries

|  |   |
|--|---|
| <b>Negative Wound Pressure Therapy</b> | Nine panel members stated they had used NPWT in the management of diabetic foot ulcers. Overall, the experts felt that NPWT had the strongest evidence, especially when used in post-surgical wounds. |
| <b>Hyperbaric Oxygen Therapy</b>       | Seven experts acknowledged that they had referred to or used HBOT with their patients.  |
| <b>Growth Factors</b>                  | Six respondents had experience with growth factors, primarily PDGF.   |
| <b>Artificial Skin Graft</b>           | Seven experts had experience with artificial skin.  |
| <b>Collagen-based Dressings</b>        | Eight experts had experience with collagen-based dressings.   |
| <b>Physical Therapies</b>              | Half of the experts' surveys stated they had used physical therapies or referred patients to physical therapy for specific advanced therapies.  |

Some experts identified an issue with the integrity of the available studies, referring to bias and limited evidence.

### **Advanced Therapies: Clinical Practice Guidelines**

In light of the varied opinions from the experts and limitations of the RCT evidence supporting the use of advanced therapies in the management of diabetic foot ulcers, the clinician may find some assistance from published clinical practice guidelines (CPGs).

The following CPGs discuss the use of advanced wound therapies specific to diabetic foot ulcer management. Note that the phrase *adjunctive therapies* is sometimes used instead of *advanced therapies*.

#### **Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada**<sup>10</sup>

states that evidence is currently lacking to support the routine use of adjunctive wound-healing therapies

such as topical growth factors, granulocyte colony-stimulating factors, dermal substitutes or HBOT in diabetic foot ulcers, but also that they may be considered in healable, non-ischemic stalled wounds when all other options have been exhausted.

#### **The International Working Group on the Diabetic Foot Practical Guidelines on the Management and Prevention of the Diabetic Foot 2011**<sup>3</sup>

states, under "principles of ulcer treatment," that mechanical offloading is the cornerstone of ulcer management and that optimal diabetes control and local wound care are required. In the section on "local wound care" the document does identify NPWT as a consideration in post-operative wounds. The following treatments are not established as routine management: "biological active products (collagen, growth factors, bio-engineered tissue) in neuropathic ulcers, systematic hyperbaric oxygen treatment, silver or other anti-microbial agents containing dressings."

#### **International Best Practice Guidelines: Wound Management in Diabetic Foot Ulcers**<sup>11</sup>

identifies that adjunctive treatments such as negative pressure wound therapy (NPWT), biological dressings, bioengineered skin equivalents, hyperbaric oxygen therapy, platelet-rich plasma and growth factors may be considered if appropriate. It goes on to state that these techniques require advanced clinical decision-making skills.

#### **Registered Nurses' Association of Ontario's (RNAO) Assessment and Management of Foot Ulcers for People with Diabetes Clinical Practice Guideline**<sup>12</sup>

states that a 2006 study found that people treated with a human fibroblast-derived dermal substitute had better wound healing rates when A1c levels were controlled or reduced over a 12-week period. Similarly, in a 2009 study, patients with higher A1c levels did experience wound healing, but over a significantly longer period than those with lower A1c.

## Next Steps

The general consensus among published research is that the decision to use advanced therapies must be guided by a combination of experienced wound care clinicians, patients, health-care systems, resource availability and the latest evidence. Yet the survey responses collected from the experts generally expected to guide the



use of advanced therapies presented a wide range of opinions in this document. Additionally, a standard has yet to be determined to ensure appropriate patient selection, use of any particular advanced therapy and an evidence-based record of its success.

To address these limitations, we propose the protocol on

page 17, which has been based on a review of the RCT evidence, the CPGs and expert recommendations. It is intended to serve as a guide for clinicians on the appropriate use of advanced therapies in practice, as well as for the collection of future evidence toward validating the use of the advanced therapies. 🍏

**In the next issue of *Wound Care Canada* we will look at the barriers to the delivery of advanced therapies as well as recommendations for overcoming them.**

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# Advanced Therapies Protocol for Diabetic Foot Ulcers

Canadian Association  
of Wound Care



Association canadienne  
du soin des plaies

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## Protocol

1. Select a patient for advanced therapy only if best practice management (including offloading to reduce plantar pressures, blood glucose management, arterial perfusion and infection control, a mental health and wellness assessment, family and social supports and funding) has been implemented and wound bed preparation has been addressed to reduce or eliminate impediments to DFU healing.
2. Identify the primary and secondary goals of care (or outcomes) such as wound healing, wound closure, pain management, exudate management, quality of life improvement and/or cost-effectiveness.
3. Plan the length of use (time) of the advanced therapy and ensure it is part of the assessment, treatment and evaluation processes.
4. Choose an appropriate advanced therapy, based on product description, evidence, availability, funding, available resources, clinician education and patient acceptance.
5. Develop a patient-centred management protocol based on the location and availability of resources and services.
6. Communicate the plan. Communication includes care plan, including the length of time of product use, regular reports, images and photos as needed (evidence).
7. Instruct clinicians, caregivers and patients on the management protocol and provide follow-up information, including written and/or verbal communication to the care team.
8. Initiate the management protocol, ensuring there are built-in standardized assessment parameters to measure progress toward the identified goals of care.
9. Evaluate the impact of the management protocol to identify met and unmet goals of care.
10. Reassess the management plan at least every 2–4 weeks—more often if required—to avoid long-term use of advance therapies with no evidence of improvement.
11. Document results.
12. Publish the findings if possible and applicable.

By following a standardized protocol, variability can be minimized, allowing treatment outcomes (based on goals of care) to be assessed and compared. This will contribute to the much-needed evidence base required to support the appropriate use of advanced therapies.

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# Wound Care in a Drop-In and Rehabilitation Centre: A Calgary Perspective

By Janet L. Kuhnke, RN, BA, BScN, MSc, ET; Genevieve Wright, RN,  
and Renae Kapteyn, RN, BN

*Delivery of best practices in wound care is challenging for many teams, especially for those working with street/homeless populations. The following interview was conducted by Janet Kuhnke with nurses from the Calgary Drop-In & Rehabilitation Centre (<http://www.thedi.ca/>) in Alberta to illustrate the journey of clinicians providing skin and wound care to indigent and homeless clients.*



## What inspires you to come to work every day?

Our inspiration comes mainly from our clients and the staff's dedication at the Calgary Drop-In Centre. Our clients trust us with their care, which comes with some difficulty from a population who have had many doors slammed in their faces and experienced stigma that would prevent them from asking for assistance. It is humbling to be "welcomed" by the clients and asked for help.

Staff come to work daily with smiles on their faces. They appreciate the feedback from our small nursing team and the education we provide daily. It is an honour to work with such amazing people.

## How did you get involved in wound care?

We had no choice but to seek out wound care education. Working in the largest homeless shelter in North America (approximately 1200 clients sleep here per night), we see a large number of wounds. As well, many of our clients have several chronic diseases (diabetes, respiratory diseases, claudication due to many comorbidities, as well as addictions) that lead to wounds.

Community-acquired MRSA is prevalent among the homeless population we serve. Clients may have a small bed-bug bite, but the scratching and picking at the area often lead to MRSA infection. In order to provide our clients with the best care possible, Renae and I (Genevieve) have ensured that our wound care knowledge and best practice guidelines are kept up to date by attending courses and conferences.

## What are some of the wound types you see in your setting?

- Wounds infected with MRSA
- Diabetic ulcers/amputations
- Lower leg ulcers – acute and chronic
- Abscesses – soft tissue
- Frostbite (with amputation)
- Porphyria cutanea tarda
- Street feet
- Surgical wounds

## What are some of the strategies you have used to manage each wound type?

Wounds with MRSA may start with a bed-bug bite or trauma to a lower limb that becomes infected. The clients often try to treat these wounds themselves with copious amounts of topical antibiotic cream and gauze dressings. As nurses, we will cleanse the wounds with antimicrobial washes and provide clients with an

antibacterial skin cleanser with which to shower. This helps other open areas from becoming further infected. We also offer a mild antibacterial wash for persons living with diabetes to help keep their feet clean. For open wounds, antimicrobial dressings are used. We see the clients two to three times per week for wound care depending on the needs of the wound and client.

### Key messages

- **Wound care is practised in a diversity of settings, including drop-in centres.**
- **Evidence-based wound education is important for nurses and clinicians serving the homeless population.**
- **Best practices in wound care are achievable with the homeless population.**

*Mental health issues and addictions play a large role in missed appointments.*

Diabetic foot ulcers are kept as dry as possible. We will paint the wound with an antimicrobial swab/solution. Clients are then provided with additional antimicrobial swabs/solution to paint

wound areas in between seeing the nurses for wound care.

Wound abscesses and cellulitis are common in the homeless population. After abscesses have a surgical incision and drainage, they may be gently packed with an antimicrobial dressing. Many clients will also be on intravenous antibiotic therapy through our urgent care centre. Unfortunately, due to the fact that they are homeless, they are not provided with a home parenteral pump for the antibiotic therapy and therefore must go to urgent care every 12 hours; this schedule can lead to non-adherence of their intravenous therapy.

Frostbite occurs to localized tissues and is related to wet and improper clothing, wound infections, diabetes and previous frostbite. In the clinic, frostbite wounds are seen in varying phases of healing. Clients are seen two to three times a week for wound debridement and wound care/dressing changes. We often monitor these clients for four to six months depending on how long it takes for the frostbite to totally declare itself. These wounds are kept as dry as possible, and we paint the affected areas with an antimicrobial swab/solution. Many of these frostbite wounds are non-healable and lead to spontaneous or surgical amputation of affected fingers and toes. For this care, the clients are referred to the outpatient burn clinic to be assessed by a team and a plastic surgeon.

Porphyria cutanea tarda (PCT) is a subtype of a complex group of diseases. Porphyria cutanea tarda results from a deficiency of the enzyme uroporphyrinogen decarboxylase. As many of our clients drink alcohol on a daily basis and spend a large amount of time outdoors, we have seen an increase in the blistering of hands and face due to



this condition. We provide the clients with education around alcohol consumption and encourage reduction of sun exposure (especially in the summer).

Many of our clients work outdoors, so we provide them with an SPF 30 sunscreen and encourage them to use it on their face and hands. We ensure that they have

hats, wear long-sleeved shirts and encourage them to stay out of the sun when possible. If the client is willing, we will have them assessed by an outreach physician for lab work and hepatitis C virus work-up; if the client is positive, they will then be referred to the hep-C clinic. These clients will then be referred to dermatology and internal medicine depending on the severity of their condition and results of lab tests.

Blistering of the hands and face is difficult to manage in this population. Antimicrobial dress-

*Working in the largest homeless shelter in North America we see a large number of wounds ... [and] many of our clients have several chronic diseases that lead to wounds.*

ings are used to manage infection, and we keep any open and weeping blisters covered on the hands to prevent further infection and aid in healing. Sunscreen and moisturizers are regularly offered. If needed, the client may have to take oral antibiotics.

"Street feet," or "immersion feet," are common. When initially assessed for street feet, the client's feet are rewarmed, pain is relieved, wounds are cleansed and infection is managed. For less com-



# Healing is believing

Total Contact Casting is recognized as the **Gold Standard** of care for off-loading diabetic foot ulcers (DFU). TCC-EZ<sup>®</sup> provides clinicians with a new, easy to apply, roll-on system which is proven to deliver outstanding healing while reducing the cost of care and offering significant savings.<sup>1-17</sup>

If you treat persistent DFUs, add TCC-EZ<sup>®</sup> into your protocol of care and see the difference . . . **fast.**

**89% DFUs healed in 33.5 days<sup>1</sup>**

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plex injuries we use anti-fungal creams and powders. Clients are referred to the community foot care nurses for ongoing foot care.

Surgical wounds are kept covered until well healed. Antimicrobial dressings are used as needed, and we see the client for dressing changes every two days.

### **Is there a multidisciplinary approach to wound care in your agency? If so, how is it organized?**

We have a multidisciplinary approach and work with outside agencies to provide our clients with the best care possible. Through Alberta Health Services our agency is partnered with the Sheldon M. Chumir Wound Care Clinic for home-care referrals.

The wound care nurse from Sheldon Chumir acts as a liaison between the Calgary Drop-In Centre and the Alberta Health Services wound care clinic. The goal is to gain a rapport with the client and refer them to the clinic for further assessment and a treatment plan. The wound care nurse is also an Alberta Aids to Daily Living (AADL) authorizer for pressure gradient stockings, high-risk footwear, total contact inserts and wound management products.

Community foot care nursing is provided one day per week through a nursing agency. Referrals for foot care are made directly from our

office. Alberta Health Services' chronic disease management nurses and dietitians are available to support clients at the Calgary Drop-In Centre. Referrals are made directly from our office. The chronic disease nurse has an office onsite and is available during the week. The dietitian is here weekly to support persons with diabetes and chronic diseases.

As well, our team regularly connects and collaborates with the Calgary Urban Project Society (CUPS) Community Outreach Clinics; CUPS focuses on health, education and housing issues. Physicians and nurse practitioners from CUPS hold outreach clinics at the Drop-In Centre several times per week.

### **How do you communicate the care plans between staff members?**

As we are working with external agencies, the majority of our communication is verbal and through clinician charting. We case-conference together to discuss care plans for clients.

*Dressings "to go" are effective. We understand our clients need to work, so we provide them with the education and dressing supplies to take with them.*

### **What is your greatest challenge delivering wound care in your setting?**

Adherence and follow-up by the client. Many of them pick up temporary work and if they get work, they won't follow-up for wound care.

Mental health issues and addictions also play a large role in missed appointments.

Costs of dressing supplies are high for a not-for-profit organization. To make sure we select the most effective ones, we continually educate ourselves by meeting with vendors at conferences and attending education days.

Staffing is a challenge for a building that houses up to 1200 clients. The Calgary Drop-In Centre is a not-for-profit organization that's not mandated to provide health services—but they do. They are committed to the care of the clients they serve, but with only two full-time registered nurses this can be challenging as wound care is only one small part of our role at the Drop-In Centre.

### **What changes have you been able to bring to wound care delivery in your agency?**

Some of the changes we have been able to bring about are improved diabetic foot care and assessments. We are committed to completing a diabetic foot screening and assessment on all our clients with diabetes, or suspected of having diabetes, this year.

Topical antibiotic cream with gauze was the “go-to” dressing used by our staff and clients. We try to provide staff education about best practices to ensure wounds are cleansed and covered until the client is able to see Renae or me, or go to an urgent care centre.

### **What are some effective client-centred strategies you use to deliver wound care?**

By providing clients with appointments for their wound care needs, we have better adherence. Clients don't want to wait outside our door any more than they want to wait in an emergency room. Pre-booked appointments help to accommodate their needs.

Dressings “to go” are effective. We understand our clients need to work, so we provide them with the education and dressing supplies to take with them. They then can change

their own dressing between nursing visits.

We assess clients without provincial health insurance in order to support them and treat their wounds.

We do not require a doctor's order to assess and treat wounds. We work within our scope of practice as registered nurses and follow best practice guidelines.

We provide the client with antimicrobial swabs/solutions and antimicrobial skin cleansers to keep non-infected skin/areas clean. Many of the clients rough sleep in the summer and are more prone to a breakdown in their skin integrity.

*We have a multidisciplinary approach and work with outside agencies to provide our clients with the best care possible.*

In summary, delivery of best practices in wound care is possible in a drop-in and rehabilitation centre environment. With support from agency leaders, managers, clinical nurse co-ordinators, nurses and physicians, such centres can deliver best practices in wound care. Though this can be challenging, education, sharing of knowledge and a commitment to client-centred care can make it possible. 🙌

**Janet L. Kuhnke** is an enterostomal therapist, CAWC PEP Talk Co-Director and Nursing Faculty at St. Lawrence College BScN Collaborative Program, Cornwall, Ontario.



**Genevieve Wright** is the Clinical Nurse Coordinator at the Calgary Drop-In and Rehabilitation Centre where she facilitates continuing education, professional development and evaluation of clinical skills for nursing staff. Genevieve has her S.W.A.T (skin-

wound-assess-treat) Advanced Level II certificate of completion.

**Renae Kapteyn** graduated from nursing in 2012 after completing her final senior focus practicum with Genevieve and has attended numerous wound care education days/conferences to improve her wound care knowledge.

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# Wound Sleuth

By Rob Miller, MD, FRCP, Dermatologist  
and Cathy Burrows, RN, BScN, MScCH (Wound Prevention and  
Care), Clinical Consultant

## History

The patient is an 82-year-old male who presents with a wound over the left fifth metatarsal head. He sustained this wound from a traumatic injury 62 years prior while a young man in the Second World War. He is a non-smoker, is non-diabetic, lives alone and remains very active. He has had numerous infections over the years that were treated with antibiotics.

**Q** What is the diagnosis?

**A** Due to the nature of his injury, the patient was suspected as having a foreign body in the wound.

**Q** How would you confirm the diagnosis?

**A** This patient had numerous X-rays of his foot over the past 62 years, none of which indicated the presence of a foreign body. However, a careful history and physical examination would lead one to deduce that the chronic infections were caused by possible foreign body.

**Q** What would the treatment be?

**A** The patient was taken to the day surgery department to have the wound surgically debrided. Post-op, the dressing selected was

cadexomer-impregnated ½-inch gauze packing three times a week. A secondary absorbent dressing was used to cover. He was followed at home by community nurses and reassessed in the outpatient clinic weekly for regular further debridement to the wound edges. The patient was also assessed by a podiatrist for appropriate off-loading footwear. He achieved closure by week eight. 🩹

***Rob Miller** is a dermatologist and **Cathy Burrows** is an independent wound care consultant, both in Halifax.*





# Knowledge into Practice: Two Examples of Health Policy in the Real World

By Karen Laforet, RN, MCISc

**M**any people dismiss policy as a government responsibility. While macro-scale policies typically do fall under government control, in reality, policies consist of complex interactions that factor into every aspect of human society. Policy examples might include the government's diabetes strategy, community stakeholders lobbying for change in a town's policy for ice-rink hours of operation or an agency's decision on how to implement short-term illness programs.

In the last issue of *Wound Care Canada* (Spring 2015, Volume 13, Number 1), we featured an article that reviewed what policy analysis is: a collection of techniques and tools used to examine the why, how and what of established policies.<sup>1</sup> We introduced frameworks for the development and critique of policy and learned that policy analysis is a technical, political and interpretive exercise. In many ways, policy analysis mirrors wound care; it is both a science and an art that draws on experience and knowledge guided by methodology. The push for health-care reform provides an impetus for health professionals (HPs) to become active

participants in health-care reform and increase their "policy savvy".<sup>2,3</sup> Now that the theory has been laid out along with a framework for analysis, this next article will explore how to put this knowledge into practice.

Before proceeding it is important to remember that when using any type of analysis framework, whether it is Collin's<sup>1</sup> or others, all of the steps presented are not required for every problem, nor are the steps linear. What the framework provides is a template for asking a series of questions at the appropriate times in the policy process. There is the risk of using the framework iteratively, which most likely will result in needless frustration. Policy analysis frameworks are, by their nature, a guidance construct. The purpose of this article is to use examples to demonstrate how such analysis may be used for the development of a policy (such as

an organization's need for a policy on conservative sharp wound debridement\*) and to evaluate policy implementation (Ontario's Diabetes Strategy). The terms *organization, agency* and *company* will be used interchangeably throughout the article.

### Example One: Policy Development for Conservative Sharp Wound Debridement

At the time of this publication, an Ontario provincial policy for health professionals specific to the act of conservative sharp wound debridement (CSWD) is non-existent. Professional regulatory bodies responsible for public safety have put the onus of responsibility onto the HPs, requiring them to use their individual judgement to determine if they have the knowledge, skills and critical thinking to discern the appropriate treatment.<sup>4</sup> While the Canada Health Act (the Act)<sup>5</sup> addresses the scope of practice for nurses within a hospital setting, the policy for reduction of patient harm, clinical competency and risk management is left to the individual organization. The result: a wide variation of training methods, techniques and competencies. How does an organization have the assurance the HP's practice meets quality and risk indicators? What would constitute a strong organizational policy for CSWD?

The policy content for CSWD in a clinical setting needs to address clinical governance, risk mitigation and patient safety.<sup>1</sup>

The search for evidence to determine key CSWD policy features has been made easier thanks to the Canadian Association of Enterostomal Therapists' CSWD recommendations in 2011.<sup>6</sup> The first of their kind in Canada, these recommendations were developed to inform practice for the individual HP as well as the organization. In this policy example, key issues may include: methods of debridement, treatment option decisions, practitioner competence, potential complications—if CSWD is provided or not and independent practitioner action vs. employer-supported procedures.

Conservative sharp wound debridement is an advanced-practice skill. Health professionals who perform advanced procedures are viewed as experts; therefore, it is the responsibility of the organization to ensure quality of care and credibility of the clinicians who offer those services.<sup>7</sup> Given this responsibility, policy options and their considerations would include:

- **Option A:** Provide the infrastructure to provide CSWD to selected patient populations:
  - Clearly defined and designated scope of practice for the individual and within the interdisciplinary team
  - Minimum level of educational preparation and practice-based mentoring
  - Regulatory process for ongoing competency assessment, quality control and management systems
- **Option B:** Choose not to offer CSWD:
  - Economic implications—if the organization is the only one not offering this service will it impact the organization's ability to conduct business
  - Ethical concerns for not providing the service
  - Risk management: what are the legal ramifications if CSWD not offered

The organization exploring CSWD policy would uncover evidence indicating wound debridement is a gold standard. While the data supporting one method of wound debridement over another are inconclusive, there is sufficient evidence that

\* The scope of this article focuses on policy development rather than clinical evidence or clinical practice.

CSWD is a necessary intervention that can expedite wound healing.<sup>8,9,10</sup> Since the role of debridement in wound management is established, there is a risk for the HP who doesn't perform the act when necessary to be held in breach of duty of care to the patient. Where the patient suffers harm through either an act or an omission, the HP may be found negligent.<sup>11</sup>

When considering the different policy options it is important to remember that they may not be mutually exclusive.<sup>1</sup> In the example cited here, the organization may determine that their clinical governance framework cannot support the rigour required for Option A and that the number of patients requiring CSWD is insufficient to maintain clinical competence, yet the outcomes presented with Option B are perceived as a high risk. To mitigate that risk, adding a policy action such as partnering with another agency with demonstrated expertise would lessen risk for HPs and the company and provided the needed treatment for the patients.

Thus far, Collins' framework<sup>1</sup> has been utilized in a step-by-step fashion (Table 1). Continuing with the analysis, we'll follow through using the last three steps; examining the evaluative criteria, what the trade-offs might be choosing Option A

or B and finally, deciding on a course of action. Collins lists five criteria to use when evaluating the outcomes of the options, four of which are pertinent to this policy:

- **Relevance:** Is CSWD a requirement for the patient population? In this scenario, the answer is yes, based on current practice and available evidence.

- **Effectiveness:** Does the company need to provide it or is it possible to outsource to an agency that has demonstrated expertise? Partnering with an agency would meet the objectives to sustain the business, support HP in their practice and reduce potential for patient harm.

- **Efficiencies:** Partnership would augment existing resources and provide added value to the patients relatively quickly vs. developing an internal program.

- **Impact:** Using a risk management lens for patient care, partnership would improve clinical outcomes and minimized risk for staff and the company.

Weighing the outcomes as presented, the organization decided to explore an agency partnership to provide CSWD (see sidebar page 29). Next steps would include policy implementation. The devil is in the details

**Table 1.** Collins<sup>1</sup> Framework for Health Policy Analysis: Policy for Conservative Sharp Wound Debridement



## Example of a Policy Statement for Conservative Sharp Wound Debridement (CSWD)

Company X will provide CSWD through partnership with a qualified agency as per the following criteria:

- Current and full accreditation
- CSWD qualification program includes: risk management module, infection control, handling of bio-hazardous waste, minimum of 8 hours theory (anatomy and physiology) and demonstrated skills competency using a mentorship process.
- Each qualified health-care professional has good standing with their professional college
- Quality control program includes random routine observational audits (minimum quarterly audits)
- Medical director reviews, approves and signs off on each HP practical skills and knowledge annually as part of an annual requalification program
- Financially viable for the company
- Regional Health Authority approval

with policy implementation and as we'll see in the next example, this is where a significant breach may occur between what is intended and what actually happens.<sup>12</sup>

## Example Two: Ontario Diabetes Strategy

In 2008, the Ontario government announced a four-year, \$742 million plan called Ontario Diabetes Strategy (ODS).<sup>13</sup> The policies and their implementations were intended to expand services and improve the health of Ontarians with diabetes. The strategy included an online registry, educational tools and five key elements:

- Improving access to insulin pumps and supplies
- Expanding chronic kidney disease services
- Implementing a strategy to expand access to bariatric surgery
- Education campaigns to prevent diabetes by raising awareness in high-risk populations: Aboriginal and south Asian communities
- Increasing access to team-based care closer to home by mapping prevalence across the province and locating dia-

betes programs to align services and address service gaps

The five “strategic elements,” as they are referred to by Ontario’s Ministry of Health and Long-Term Care,<sup>13</sup> will guide the policy analysis—specifically, implementation and achievement of outcomes. Before proceeding with the analysis it is important to step back and look at the national health-care picture to place the ODS into perspective. One of the key policy challenges facing all provinces and territories is the hospital-centric nature of the Canadian health-care system. Put another way, the health-care system has historically been designed to treat acute episodes of illness. The Canada Health Act universal principle is

for the provision of “medically necessary care”<sup>5</sup> and since its inception, care has been hospital based. Health promotion, prevention and chronic disease management have been secondary concerns, taking a back seat for program funding. This is the context within which the ODS was developed.

According to Collins,<sup>1</sup> a clear problem statement is the critical first step of analysis. The problem serves as the filter for the policy analysis process to make sure the policy issue has been identified and successfully addressed. The Ontario government defined the health policy problem as how to improve the health and expand services for persons with diabetes (PWDs). The context for the policy was based on the facts that 90% of PWDs have type 2 diabetes<sup>14</sup>



and approximately two million Ontarians will be diagnosed with diabetes by 2020. The complications of this chronic disease are also well documented: approximately 1600 Ontarians have diabetes-related amputations each year. In addition to amputations, the burden of illness includes kidney dialysis, heart attacks, blindness, and/or strokes.<sup>15</sup>

What options are available to address the Ontario government's mandate to improve the health of and expand services for PWDs? As stated earlier, the ODS elected to implement a multi-faceted service-oriented approach combining data capture (via an online registry and base-line data set), education, treatment (chronic renal disease and obesity, insulin pumps and supplies) and improved access (through regional centres). The ODS outcome metrics included:

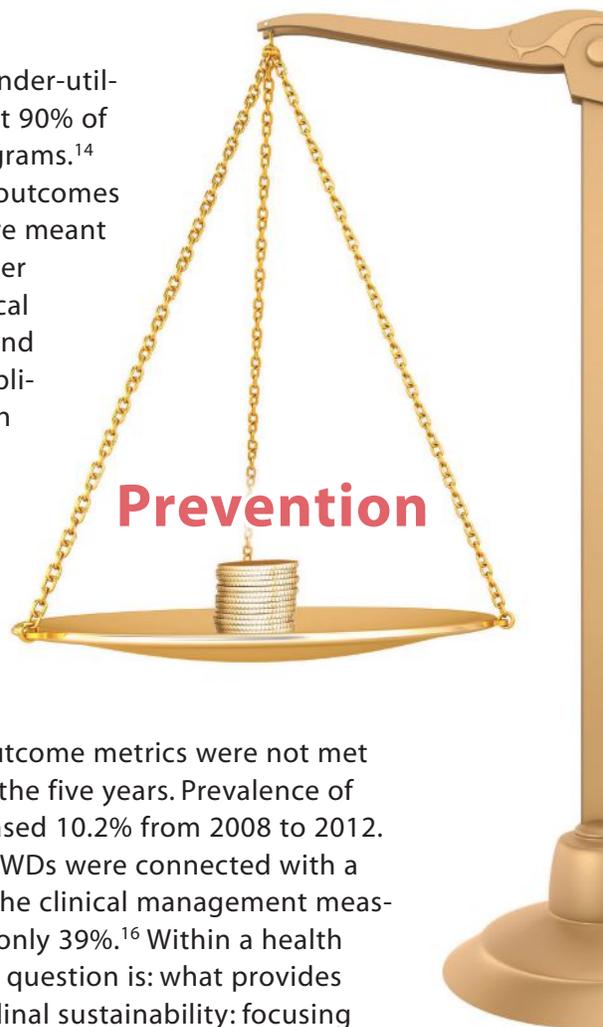
- Access to care: percentage connected with a primary care physician, regional centres or percentage signed into the registry
- Reducing risk: percentage reduction of inactive persons and percentage of PWDs who are overweight or obese
- Decreasing diabetes burden: percentage prevalence tracking data via a diabetes registry
- Clinical management: percentage who completed an eye exam, LDS-C and HbA1c test within guideline periods
- Complications: percentage of ER visits for glycemic control, renal replacement therapy; hospitalization rates for infections, DFUs or amputations; MIs<sup>15</sup>

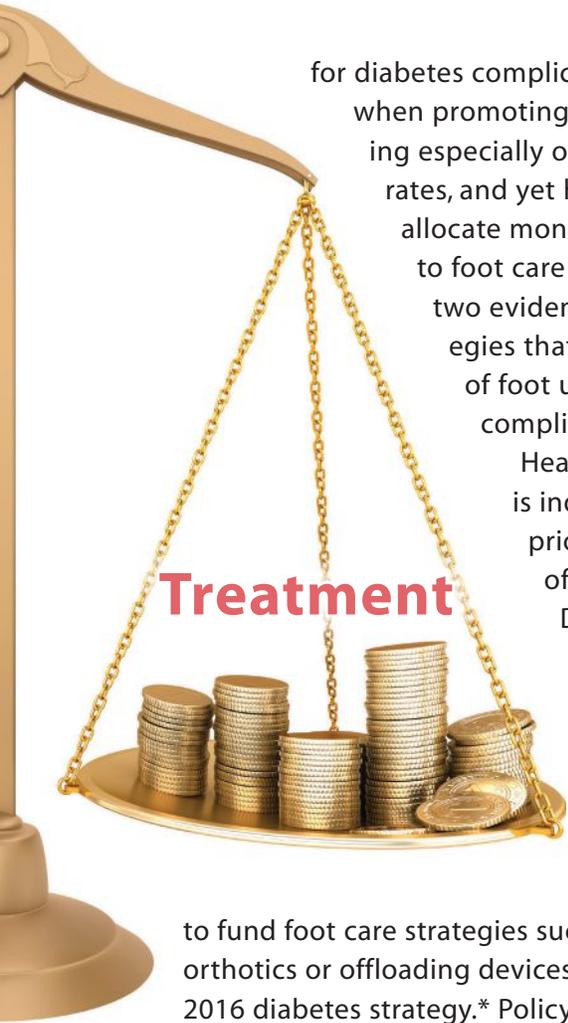
In 2013, the Auditor General of Ontario and the MOHLTC issued reports on ODS's progress. Results were mixed. New program offerings increased availability of diabetes care and provided more options for education and support. Diabetes education teams (DETs), consisting of a registered nurse, dietitian and other professionals were added to the existing 152 diabetes education programs (DEPs) for a total of 322. The teams help teach people with diabetes about the disease and how to manage it. Unfortunately, hospitals and family health teams had also set up their own DETs with alternative funding (some from another branch within the MOHLTC), resulting in service

overlaps and under-utilization of about 90% of education programs.<sup>14</sup> The projected outcomes of the ODS were meant to provide better access for clinical management and to reduce complications through improved monitoring. Despite an approximately 30% increase in diabetes support

services, the outcome metrics were not met within each of the five years. Prevalence of diabetes increased 10.2% from 2008 to 2012. While 80% of PWDs were connected with a family doctor, the clinical management measures averaged only 39%.<sup>16</sup> Within a health policy lens, the question is: what provides better longitudinal sustainability: focusing on treating persons after they become ill or keeping them healthy in the first place? Evidence supports health promotion and prevention. Despite this evidence, the only comprehensive strategy to reduce risk was the cigarette smoking reduction programs.<sup>14</sup>

The noticeable absence of prevention and health promotion within the ODS strategy has been the most widely criticized aspect of the program. Ninety percent of type 2 diabetes can be prevented or managed effectively, with complications reduced through prevention strategies. Yet the ODS allocated only 3% of its total funding to prevention—\$19 million out of \$742 million. At the same time, the ministry paid out over \$24 million for a diabetes registry that never materialized.<sup>14</sup> The Auditor identified that a number of diabetes service providers were underfunded and that these providers believed more funding needed to be directed toward preventive services. Ironically, the MOHLTC cited the burden of illness





for diabetes complications routinely when promoting the ODS, focusing especially on amputation rates, and yet has refused to allocate monetary resources to foot care and offloading—two evidence-based strategies that reduce the risk of foot ulcers and foot complications.

Health-care funding is indicative of the priorities and values of a government. Despite the Diabetes Expert Panel's and the Auditor General's recommendations, the MOHLTC has chosen not

to fund foot care strategies such as chiropody, orthotics or offloading devices in their 2012–2016 diabetes strategy.\* Policy analysis/review requires illumination at multiple levels, from individual patients to the top decision makers. At every level, persons with diabetes are impacted. The ODS has attempted to expand services and improve the health of Ontarians with diabetes, but our policy analysis shows that much more work needs to be done. To coin a phrase from the Canadian Diabetic Foot Strategy: "Is anybody listening?" Diabetes-related foot amputations can be reduced by 85% with early screening and appropriate footwear.<sup>17</sup> The illness model continues.

## Conclusion

Health-care policy presents unique challenges<sup>18</sup> due to several factors:

- The influence of health-care professionals in the field
- It is difficult to offer patients a choice of services
- Decision making frequently involves life-and-death decisions

Given these challenges, it is important for clinicians to understand how policy can impact the politicized complexity of health-care reform as well as the link between policy and advocacy.<sup>19</sup>

The use of a framework in policy analysis is helpful for clinicians for a number of reasons: it strengthens one's knowledge and understand-

*"According to the Diabetes Expert Panel established by the Ministry in 2006, 'keeping people well and preventing disease is the most cost-effective, affordable and sustainable strategy for coping with chronic disease. . . . we believe an increased focus on prevention warrants consideration.'"*

ing of the role policy plays in organization and society; it enables sharing of evidence, common-sense and real-time practice knowledge to decision-makers to effect change in addition to critical assessment of policy decisions; and, most importantly, it provides a basis from which to advocate for our patients. 🍷

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\* In 2015, the CAWC, along with the Canadian Diabetes Association, the Registered Nurses' Association of Ontario and the Canadian Association for Enterostomal Therapy, began a process of consultations with the MOHLTC of Ontario to encourage policy changes to support the funding of foot care, orthotics and offloading. At press time, no changes to policy have been announced. The consultations continue.

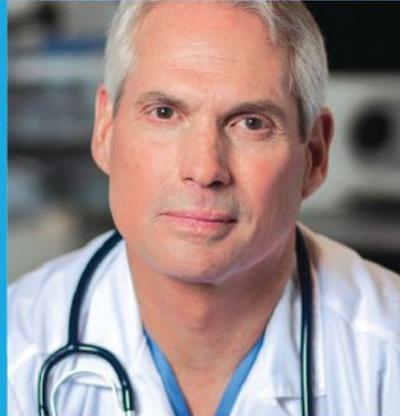


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# A Day in the Life: A Pharmacist's Role in Wound Care

By Susie Jin, RPh, CDE, CGP

It is now well established that the management of wounds and other chronic diseases is best practised by an organized inter-professional team that can offer support through self-management of the condition.

In fact, strategies that promote self-management through self-management support and education along with collaborative interprofessional team-based care have evidence for improved outcomes. The question then becomes: how can a pharmacist contribute to the interprofessional team in the management of wounds?

In this article, I hope to share some of my experiences and how I see the role of the community pharmacist integrating into a patient's wound care team. I work in a small-town community pharmacy where we service both walk-in patients and residents living in retirement homes or long-term care. This article will follow the organized approach to chronic disease management as outlined by the 5Rs in the Organization of Care Chapter of the Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.<sup>1</sup> These 5Rs are helpful tips that can easily be applied to the pharmacist's role in wound management.

## Recognize:

Pharmacists are often the first point of entry into the health-care system. Whether an interaction is patient-initiated (such as when a patient

approaches me to inquire about over-the-counter products to treat a wound) or pharmacist-initiated (such as when I proactively observe signs of venous insufficiency in a patient with poorly controlled diabetes and hypertension), pharmacists need to be able to recognize those patients who are at high risk for wounds and poor wound healing and then educate and/or refer appropriately.

## Register:

While it might be beneficial to develop a registry of all patients who have or have had wounds in one's practice, this topic is beyond the scope of this article. Readers are referred to [www.guidelines.diabetes.ca](http://www.guidelines.diabetes.ca) (keyword search: register, click on Register) for more information.

## Resource:

Community pharmacists are key resources who can support the patient's self-management. One of the most fundamental roles of a community pharmacist is to sit with a patient and/or patient representative to conduct a medication review. The medication review service meets several needs:

1. It helps to educate the patient so the patient is knowledgeable about the medications s/he is taking and why s/he is taking them.
2. It works to map each medication to an existing condition, thereby reducing medications that might no longer be needed.

3. It helps ensure each medication is being optimized for appropriate time of day administration, potentially optimizing medication efficacy with consideration of pharmacokinetic and pharmacodynamics characteristics and decreasing drug-drug interactions, including medication and over-the-counter drug interactions.
4. It works to optimize medication management by asking the patient about adherence to medication and, where possible, determining strategies such as switching medications to once-daily extended-release medications and/or combination products when appropriate and possible. Other strategies include dispensing the patient's medication in a multi-dose blisterpack system.
5. In more complex situations involving several medications and co-morbid conditions, a

pharmacist will work to prevent medications from interacting with, or causing, other disease states and minimize unwanted effects from medications being inadvertently prescribed to manage unwanted effects from existing medications.

In my practice, it is often during these comprehensive medication reviews that I am able to assess the patient's risk factors for wounds and note any early signs of venous compromise. These interactions give me the opportunity to discuss early interventions to improve general health, including preventing wounds through self-management education.

### Medications and Local Wound Care

More specifically with respect to the prevention and management of wounds, pharmacists can serve as a useful resource when applying a best

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practice approach to the management of all wounds. The most obvious contribution of a community pharmacist would be in the management of local wound care, specifically the management of inflammation and infection control.

Many antibiotics will interfere with other medications, including over-the-counter medications. For example, fluoroquinolones, such as ciprofloxacin, will bind to calcium, magnesium and iron in the gastrointestinal system and reduce the absorption and efficacy of the antibiotic. Pharmacists need to advise patients to stop their multi-vitamins and/or antacids when taking fluoroquinolones, or to take the products at separate times of the day.

### **Patient-centred Concerns**

Pharmacists can also be instrumental in assessing patient-centred concerns. Community pharmacists are often in contact with the patient or patient's representative frequently as the patient tends to return to the pharmacy several times a month for a variety of health-care needs. I find my relationships with my patients can often facilitate the ability to monitor adherence to the plan of care, to understand patient factors and assess quality of life.

I recall one of my patients who was quite familiar to me as I had been seeing her for insulin adjustments to support her in her diabetes self-management.



She had recently had surgery for breast-cancer and had a wound that developed an infection. She was on her third course of antibiotics when she confided in me that her high-dose oral antibiotics were causing her such gastrointestinal distress that she was considering discontinuing the antibiotics. In this situation, I was able to speak with her family physician by phone. We increased her proton-pump inhibitor medication to afford her potentially more gastrointestinal protection, and I started her on probiotics for the duration (and a little extra duration) of the antibiotics.

### **Relay:**

Pharmacists need to work collaboratively and effectively within the patient's health-care team. Many times, this can be particularly challenging as community pharmacists, working in their pharmacies, are generally off-site from the rest of the interprofessional team. Nonetheless, when information, such as non-adherence to therapy and complicating patient factors, is identified, it should be managed and com-

municated to all team members. Communication may take place via fax, phone or by sending a note along with the patient back to the wound care nurse or primary care provider.

In my small town, my community pharmacy is blessed with the closeness of inter-professional relationships.

There are times when I have collaborated with the home-care nurse to co-ordinate the measurement of compression stockings with dressing and compression wrap changes. Similarly, the relay of information has served to improve patient outcomes when co-ordinating care for in-hospital patients. We also service residents in long-term care and retirement homes. This affords the opportunity to care for patients as they transition from their home to retirement and/or long-term care living, as well as when they transition in and out of the hospital.

### **Recall:**

Self-management of any chronic disease can be challenging. Pharmacists can be particularly helpful in the management of wounds by engaging a patient into the health-care system and by securing those patients who have been lost from follow-up. Even a simple follow-up phone call to a patient to support adherence to compression therapy is a form of recall. By recognizing venous skin changes (for example), knowing when to refer patients to their primary

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care providers and recognizing the patient's readiness to change, pharmacists can play an integral role in supporting the timely review and reassessment of wounds.

## Overcoming Barriers to Best Practice

The prevention and treatment of wounds is complex, often multi-factorial in origin and best practised through an organized, interprofessional team approach. This collaborative approach poses challenges such as facilitating communication when team members are physically located in separate offices and work different hours. Moreover, the priorities (and management plans) of the patient can change rapidly and drastically, particularly in the complex case of wounds where there are several concurrent



co-morbid conditions.

I encourage any pharmacists who are interested in more proactive, interprofessional collaboration in the management of wounds to become members of the Canadian Association of Wound Care (CAWC) and take the Foundations of Wound Care Program through the CAWC. Other health-care professionals seeking to engage a pharmacist as a more active member of the interprofessional team are

encouraged to refer patients to their community pharmacist for specific tasks, such as a referral for a complete medication review, thereby opening communication. Pharmacists have the skills and opportunity to play an integral role in the prevention and management of wounds. Ultimately, our goal must be to collaborate effectively with the interprofessional team to support the patient in his/her self-management. 🤝

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Follow that by attending the CAWC's on-site case-based workshops to take the basic knowledge, give it context and learn methods of applying the knowledge to practice.

There are multiple ways to access the educational programs, either as an individual or as a facility, region or organization. Please visit <http://cawc.net/en/index.php/educational/> for more information and for a list of upcoming events.

If your facility is interested in sponsoring an educational event and you have a minimum number of 50 participants, we are able to deliver the program in your community. For more information on this, please email [mariam@cawc.net](mailto:mariam@cawc.net) or [sue@cawc.net](mailto:sue@cawc.net).

